
Halal and Healthy Life
“Awareness and Sustainability”

THE 6th ORGANIZATION OF ISLAMIC COOPERATION HALAL EXPO & WORLD HALAL SUMMIT 2018

29 November - 02 December 2018

New Exhibition Area of Istanbul / Eurasia Show and Art Center Yenikapi / Istanbul / TURKEY
Proceedings of the World Halal Summit
Scientific Conference (WHS 2018)
Mohammed Ali Al-Sheikh Wace
Editor

Proceedings of the World Halal Summit Scientific Conference
(WHS 2018)
Preface

The World Halal Summit, which is organized under the auspices of the President of the Republic of Turkey, H.E. Mr. Recep Tayyip ERDOĞAN, is the largest halal event that sheds the light on significant issues in halal sector by bringing together prominent experts from all over the world.

As the Standards and Metrology Institute for Islamic Countries (SMIIC), we are proud of being a partner of this annual event which is organized in collaboration with Islamic Centre for Development of Trade (ICDT) and Discover Events.

The World Halal Summit is intended to place emphasis on creating Muslim consumers’ awareness of consuming halal products, engaging in halal production and services in all fields and bringing market leaders and halal product experts together from all over the world and bring the prominent speakers from leading countries on Halal. The summit discusses all halal-related topics in standardization, halal infrastructure, food, cosmetics, finance, tourism, pharmaceuticals, textile, modest fashion and other sectors.

The summit which serves as a reliable platform for all stakeholders in the halal industry, annually hosts high-level bureaucrats, scientists, businessmen/women, and business groups from over 80 countries. SMIIC’s main activity is to develop OIC/SMIIC standards which are accepted among all OIC countries and by bringing experts together, the conference is intended to contribute and support the technical committee works of SMIIC in producing standards of high quality. Readers will notice that SMIIC has a standard project for each session in this summit; for example, halal tourism, animal feed for halal animal, halal laboratories and halal food additives.

The Organization of Islamic Cooperation (OIC) Halal Expo is the platform where all halal producers, exporters, importers from OIC countries and all over the world meet annually to establish new businesses and to discover new potentials and opportunities.

During the dates between 28th November – 1st December 2019, 250 different leading companies from different sub-sectors such as finance, tourism, cosmetics, medicine, chemistry, packing, Islamic textile & modest fashion, and food & beverages are expected to exhibit at 7th OIC Halal Expo 2019 in Istanbul, Turkey.

By organizing the OIC halal expo and developing the OIC/SMIIC halal standards that will be recognized worldwide, it is aimed to improve halal trade by helping countries to develop multilateral relations, and creating an environment in which new technologies, new markets, and trends can be seen and problems and difficulties can be discussed.

The World Halal Summit 2018 was the first summit which opened the door to all scientists and experts to send their articles and presentations to be evaluated and reviewed before the conference date. This book aims to document all scientific articles and experts’ presentations for the use of all actors in different halal sectors and even for all Muslims to get benefits from the valuable information inside it.

SMIIC and our partners will work hard to improve the World Halal Summit to be more professional, scientific and informative for people working in the halal industry and also for all Muslim consumers.

Finally, we sincerely thank all speakers and participants involved for the success of this event.

May Allah help us all in fulfilling our tasks.

İhsan ÖVÜT
Secretary General of SMIIC
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Today it is vitally necessary to meet what Muslims need in halal products and services, to set up reliable platforms and to have single halal certification standards worldwide. I strongly believe that the summit, that is organized with an aim of improving halal trade, promoting new technologies and making emerging markets accessible, and the expo, that would bring together prominent stakeholders of the sector, would enormously lead to important developments in the market.

It is extremely significant for us that the World Halal Summit is going to be organized in Istanbul, commercial and financial hub of our beloved country. I congratulate those who put a lot of effort into organizing the World Halal Summit & OIC Halal Expo and offer all participants my love and respect.

H.E. MR. RECEP TAYYIP ERDOGAN
THE PRESIDENT OF TURKEY
World Halal Summit 2018 - Sessions

The world’s largest halal event, World Halal Summit & 6th OIC Halal Expo 2018 were held under the auspices of the Presidency of the Republic of Turkey in collaboration with Islamic Centre for Development of Trade (ICDT) and the Standards and Metrology Institute for Islamic Countries (SMIIC) at Eurasia Show and Art Center between 29th November and 02nd December 2018.

Deputy Minister of Trade of the Republic of Turkey, H.E. Mrs. Gonca Yılmaz Batur, Deputy Minister of Treasury and Finance of the Republic of Turkey, H.E. Mr. Nureddin Nebati, Minister of National Economy of State of Palestine, H.E. Ms. Abeer Odeh, General Director of Standards and Metrology Institute for Islamic Countries (SMIIC), Mr. El Hassane Hzaine, and Information and Public Relations Director of International Islamic Fiqh Academy, Mr. Mohammed Bashir Abdulmuhsen Haddah, delivered their speeches on the opening ceremony of the event where Mr. Emre Ete, made the speech on behalf of the World Halal Summit Council. Addition to aforementioned meritorious speeches, the world-renowned singer and philanthropist Mr. Yusuf Islam, formerly known by his stage name, Cat Stevens, gave keynote for the first time at the World Halal Summit. Mr. Islam signed the copies of his book called 'Why I Still Carry A Guitar' for his fans at the event where he was presented 'World Peace Award' by the World Halal Summit Council.

This year, 60 speakers coming from 25 different countries made their presentations at the summit. Nearly 5000 delegates from over 38 countries attended the summit to closely learn recent developments in the halal field. Addition to prominent delegates, huge number of students was present at the summit.
Yusuf Islam (Cat Stevens)

“Halal and haram are not the jurisdiction of human beings; it is Allah who lays down the universal laws for the good of all humanity. After long consideration I realised blocking the road to what is allowed is not the way of Islam or the blessed Prophet (peace be upon him), he always made it easy for people.”

Gonca Yılmaz Batur / Deputy Minister of Trade of the Republic of Turkey

“Halal has become an important subject not only in Islamic World but also in other parts of the world. Therefore, a niche market has transformed into a trend that shapes other consumer trends. This brings us more responsibilities and tasks. I believe that World Halal Summit, thanks to your precious participation, will lead to visible and solid results and create window of opportunities for each of us in the halal trade.”

Nureddin Nebati / Deputy Minister of Treasury and Finance of the Republic of Turkey

“In the world, there are nearly 2 billion Muslims and a halal market that is worth $4bn. So traders, entrepreneurs, and workers here you are. Do business in this extensive field. Earn money in this field in a halal way. Contribute in this field in a halal way. World Halal Summit is a momentous event that Muslims can benefit from and expand their minds and horizon.”

Emre Ete / Board Member of World Halal Summit Committee

“I would like to thank you all, who have enormously contributed to the birth and growth of the summit and the expo organized under the auspices of the Presidency of Turkey, in a way as if you meticulously raise a child. I also would like to express gratitude to my fellows who support us and respect Muslim sensitivity. We are going to continue to tirelessly say that halal clothing needs halal gaze, halal food means halal flavor, in other words, halal means health, dignity, and excellence, and halal is present where there is labor and elbow grease.”
Dr. Saad Bin Othman Al - Kasabi / Chairman of the Board of Directors of SMIIC

“I believe that halal standards are very crucial. The Standards and Metrology Institute for Islamic Countries (SMIIC), as a sound mechanism for harmonization of standards among the Organisation of Islamic Cooperation (OIC) countries and for preparation of new ones, aims at realizing harmonized standards in the Member States and eliminating technical barriers to trade and thus developing the trade among themselves. I congratulate everyone who has taken part in organizing World Halal Summit and 6th OIC Halal Expo.”

Abeer Odeh / Minister of National Economy of Palestine

“We are grateful to have attended the World Halal Summit and 6th Organization of Islamic Cooperation Halal Expo. We thank the Republic of Turkey for inviting Palestine to the event alongside with its companies covering different sectors such as food, agriculture, cosmetics, and information technologies. We, despite the many different obstacles, have been persistently endeavoring to further our trade in accordance with our policies. It is such a great opportunity for us to participate in this summit.”

Dr. El Hassane Hzaïne / General Director of ICDT

“While the Islamic world is trying to face challenges, organizing such an event is very crucial. This important event, organized by Discover Events in collaboration with SMIIC, ICDT, and COMCEC is an unprecedented platform for common Islamic studies. Every year it grows even more. In particular, the 6th Organization of Islamic Cooperation Halal Expo provides great potential for Muslim countries to develop and promote intra-trade.”

Mohamed Basher M. Abdulmuhsen Haddad

Director of Information and PR Department at International Islamic Fiqh Academy

“Today on behalf of Mr. Abdul Salam Al-Abbadi, the Secretary General of International Islamic Fiqh Academy, I am honored to greet you here. The academy, which continues to primarily work on the jurisprudential provisions, pays attention all the Islamic references of the Organisation of Islamic Cooperation as well. Halal production is a vitally important responsibility that requires Islamic countries to have a common standard. We, as International Islamic Fiqh Academy, will continue to work with our legal experts for the right standards.”
Dr. Saad B. Alkasab, President of SMIIC, stated that halal standards are very important for the Organization of Islamic Cooperation (OIC). The adoption of standards among the OIC countries is crucial for trade and development of trade among themselves. He congratulated everyone who participated in the World Halal and 6th OIC Halal Expo.

Abeer Odeh, a representative of Turkey, appreciated attending the event. She thanked the species of Turkey for hosting the event. She covered different sectors such as food, agriculture, commerce, and technology. She mentioned the many different obstacles they have overcome to further their trade in accordance with the OIC standards. She considered such an event to be very important. The event was organized by SMIIC, ICDT, and COMCEC and was an unprecedented platform for common goals. Every year, the event grows even more. In particular, the 6th OIC Halal Expo presented a great opportunity for us to partake.

Dr. El Hassane Hza, President of ICDT, emphasized the need to face challenges or events such as this very positively. He highlighted the importance of such an event, organized by SMIIC, ICDT, and COMCEC, to develop and promote activities. Every year, the event grows even more. In particular, the 6th OIC Halal Expo presented a great opportunity for us to partake.

Mohamed Basher M. Abdulmuhsen Haddad, Secretary General of Int. Academy, expressed his gratitude to Mr. Abdul Salam, the Secretary General of Int. Academy, on behalf of him. The academy, he said, works on the Halal products, which need to have a common standard. He also mentioned that they, as the Int. Academy, work with legal experts for the standards. He mentioned that such an event is very important. The event was organized by SMIIC, ICDT, and COMCEC and was an unprecedented platform for common goals. Every year, the event grows even more. In particular, the 6th OIC Halal Expo presented a great opportunity for us to partake.
SESSION A2: ACCREDITATION AND CERTIFICATION IN THE HALAL INDUSTRY

HALAL QUALITY INFRASTRUCTURE CONFERENCE

Dr. Adel Sabir  
European Halal Development Agency

Zafer Soylu  
Halal Accreditation Agency (HAK)

Mufti Yousuf Abdul Razzaq  
SANHA Pakistan

Abderrahim Taibi  
Moroccan Institute of Standardization

Tuğba Daysaloğlu  
Turkish Standards Institute

Dr. Aidar Gazizov  
International Center for Halal Standardization and Certification

Organized by:
SESSION B1: HALAL FOOD

Dr. Muhammed Ali Alsheikh Wace
The Standards and Metrology Institute for Islamic Countries

Slimane Aboulala
International Islamic University
Malaysia

Assoc. Prof. Dr. Jamal Abdul Nassir
Universiti Sains Islam
Malaysia

Anwar El Mezwaghi
Ambar Connect

Assoc. Prof. Dr. Muhammed Zeki Durak
Yıldız Technical University
SESSION B2: MEAT AND HALAL SLAUGHTERING STUDIES

Prof. Dr. Saffet Köse
İzmir Katip Celebi University

Prof. Dr. Mian N. Riaz
Texas A&M University

Dr. Nurdeng Deuraseh
Universiti Islam Sultan Sharif Ali

Prof. Dr. Syed Ghulam Musharraf
University of Karachi

Organized by:
SESSION B2: MEAT AND HALAL SLAUGHTERING STUDIES

SCIENTIFIC CONFERENCE

SESSION B3: HALAL PHARMACEUTICALS

Dr. Hayrullah Yazar
Sakarya University

Prof. Dr. Zhari Ismal
Universiti Sains Malaysia

Dr. Mohammed Ali Alsheikh Wace
The Standards and Metrology Institute for Islamic Countries

Prof. Dr. Syed Azhar Syed Sulaiman
Universiti Sains Malaysia

Organized by:
SCIENTIFIC CONFERENCE
SESSION B4: LABORATORIES AND HALAL AUTHENTICATION

Dr. Mohammed Shojaee Aliabadi
Faroogh Life Sciences Research Laboratory

Assist. Prof. Dr. Ertam Ermiş
Istanbul Sabahattin Zaim University

Assoc. Prof. Dr. Ayla Arslan
International University of Sarajevo

Fauziah Ridho
Bandung Institute of Technology

Marwa Mohamed Rezk
Egyptian Organization for Standardization & Quality
SESSION B5: LABORATORIES AND HALAL AUTHENTICATION SCIENTIFIC CONFERENCE

Noor Wali Shah  
Jamia tur Rasheed Karachi

Dr. Emi Normalina Omar  
Universiti Teknologi MARA

Abdelbasset Benzertiha  
Polish Institute of Halal

Prof. Dr. Zenaal Bachruddin  
University of Gadjah Mada

Tayeb Abdul Habib  
EU Halal
SESSION C1: HALAL TOURISM

Dr. Barbara Hayat Ruiz Bejanaro
Instituto Halal

Assoc. Prof. Dr. Aishath Muneeza
INCEIF

Mohamed Jinna
United World Halal Development

Dr. Aydoğan Soygüden
Erciyes University

Desliana Nur
The Association of Indonesian Muslim Entrepreneurs

Halil İbrahim Şan
Istanbul Metropolitan Municipality
SESSION C2: HALAL TOURISM

Prof. Dr. Pakorn Priyakorn
Halal Standard Institute of Thailand

Prof. Dr. Faridah Hj. Hassan
University Teknologi MARA

Dr. Erne Kassim
University Teknologi MARA

Dr. Aldin Dugonjic
Center for Halal Quality Certification

Soumaya Hamdi
Halal Travel Guide

Organized by:
SESSION D1: HALAL FINANCE

THE IMPORTANCE OF HALAL FINANCE IN PRODUCTION AND INVESTMENT CONFERENCE

Dr. Nazim Zaman
IELM Consulting Ltd.

Assoc. Prof. Dr. Baharom Abdul Hamid
INCEIF

Mohamed Djibril Bello
Halal Cote d’Ivoire

Dr. Aliakbar Jafari
University of Strathclyde

Saladdin Ma
Taiwan Halal Integrity Association
SESSION D1: HALAL FINANCE

THE IMPORTANCE OF HALAL FINANCE IN PRODUCTION AND INVESTMENT CONFERENCE

Dr. IELM C., Assoc. Prof. Dr. Baharom, and others

SESSION D2: HALAL FINANCE

THE IMPORTANCE OF HALAL FINANCE IN PRODUCTION AND INVESTMENT CONFERENCE

Prof. Dr. Sudi Apak, Esenyurt University; Adnan El Gueddari, Umnia Bank; Muhammed Zubair, Halal Research Council

Organized by: DISCOVER EVENTS
THE HALAL AWARENESS AND THE APPROACH OF NGO’S CONFERENCE
SESSION E1: HALAL AWARENESS

Prof. Dr. Sayed Azhar
Syed Sulaiman
Universiti Sains Malaysia

Hanen Rezgui
World Muslim Consumers Organization

Razi Osman
Freelance

Irshad A. Cader
Globothink

Yvonne M. Maff
My Halal Kitchen

Assoc. Prof. Dr. Fatma Kalpakli
Selcuk University

Prof. Dr. Ayten Erol
Koc University
THE HALAL AWARENESS AND THE APPROACH OF NGO’S CONFERENCE
SESSION E2: HALAL LIFESTYLE

Razi Osman
Freelance

Yvonne M. Maffei
My Halal Kitchen

Assoc. Prof. Dr. Fatma Kalpaklı
Selcuk University

Assist. Prof. Dr. Ayten Erol
Kirikkale University

Organized by:
The world’s largest halal event, World Halal Summit & 6th OIC Halal Expo 2018 was held under the auspices of the Presidency of the Republic of Turkey in collaboration with Islamic Centre for Development of Trade (ICDT) and the Standards and Metrology Institute for Islamic Countries (SMIIC) at Eurasia Show and Art Center between 29th November and 02nd December 2018. Exhibitors with leading profiles in halal production and services, covering many fields such as food, tourism, cosmetics, pharmaceuticals, chemicals, finance, packaging, machinery, Islamic lifestyle and modest fashion created an unprecedented environment in order to accomplish commercial objectives, which they set out, at the event which were tremendously supported and contributed by the Ministry of Trade and other related ministries, institutions and agencies.

316 local and international companies coming from following 35 countries participated in the expo in order to introduce their products to a large number of attendees: Afghanistan, Austria, Azerbaijan, Bangladesh, Belgium, Algeria, Morocco, Palestine, France, Ghana, Croatia, India, United Kingdom, Spain, Cameroon, Jordan, Canada, Kazakhstan, Korea, Kosovo, Libya, Lebanon, Maldives, Malaysia, Egypt, Nigeria, Uzbekistan, Russian Federation, Sri Lanka, Saudi Arabia, Thailand, Tunisia, United States of America and Turkey.

6th OIC HALAL EXPO

14,257 SQM EXHIBITION AREA
316 EXHIBITORS
202 LOCAL EXHIBITORS
114 INTERNATIONAL EXHIBITORS
The largest halal event, World Halal Summit OIC Halal Expo was held under the auspices of the Presidency of the Republic of Turkey in collaboration with Islamic Centre for Development of Trade and the Standards and Metrology Institute for Islamic Countries at Eurasia Show and Art Center between November and December.

Exhibitors with leading profiles in halal production and services, covering many fields such as food, tourism, cosmetics, pharmaceuticals, chemicals, finance, packaging, machinery, Islamic lifestyle and modest fashion created an unprecedented environment in order to accomplish commercial which they set out, at the event which were tremendously supported and contributed by the Ministry of Trade and other related ministries, institutes and agencies.

Local and international companies coming from following countries participated in the expo in order to introduce their products to a large number of countries.

**6th OIC HALAL EXPO - STATISTICS**

- **35 COUNTRIES**
- **38,750 VISITORS**
- **33,765 LOCAL VISITORS**
- **4,985 INTERNATIONAL VISITORS**

Organized by;
B2B MEETINGS

25 COUNTRIES  200 BUYERS  6100 B2B MEETINGS

SECTORS

- TEXTILE
- MEAT AND MEAT PRODUCTS
- PULSE AND DRY FOOD
- DRIED NUTS
- WATER PRODUCTS
- FRUITS, VEGETABLES AND DIFFERENT TYPES OF FOODS
- ORGANIC PRODUCTION
- FROZEN FOOD
- OIL AND OIL TECHNOLOGIES
- FRUIT JUICE AND BEVERAGES
- ELECTRONICS
- DECORATION
- MACHINE
- COSMETICS
- OTHERS...

Organized by:
DISCOVER EVENTS
Discover Events and TASPAKON jointly organized 1st Islamic Countries Chefs Cup where chefs from 12 different countries showed off their skills to become the winner. Also, professional and amateur chefs gathered together in the activities such as 'ISMEK Chefs Are Competing' and 'Unimpeded Flavors'. Apart from that, side-events such as 'Boutique Pastry Workshop', 'Local Flavors of Aegean, Central Anatolian, Black Sea, and Marmara Regions' drew enormous attention from the public. Akhmad Khamdamov and Nodirjin Tokhirjonov (Uzbek Team) were announced as the winner of the cup on 21st December when the Agreement of 'National Culinary Movement' composed of 8 profound resolutions was signed between TASPAKON and Restaurateurs & Pastry Cooks Federation of Turkey.
WORLD HALAL SUMMIT
SIDE-EVENTS AT 1st ISLAMIC COUNTRIES CHEFS CUP

★ 1st ISLAMIC COUNTRIES CHEFS CUP
★ BOUTIQUE PASTRY COMPETITION AND WORKSHOP EXHIBITION
★ LOCAL FLAVORS – AEGEAN REGION
★ LOCAL FLAVORS – CENTRAL ANATOLIA REGION
★ İSMEK CHEFS ARE COMPETING
★ UNIMPEDED FLAVORS
★ LOCAL FLAVORS – BLACK SEA REGION
★ LOCAL FLAVORS – MARMARA REGION
★ 1st ISLAMIC COUNTRIES CHEFS CUP AWARD CEREMONY
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Part I

Halal Quality Infrastructure (Standardization, Conformity Assessment, Metrology and Accreditation)
SMIIC's Technical Committees and the Cooperation with the International Islamic Fiqh Academy “IIFA": Progress and Aspirations

Abdulqahir Qamara,*

a IIFA Representative to SMIIC, Director of Fatwa and Comparative Rulings, IIFA (OIC)

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SMIIC TC Week
SMIIC and IIFA cooperation

ABSTRACT

Dr. Abdulqahir Qamar give a speech about the cooperation between Islamic Fiqh Academy (IIFA) and SMIIC. Dr. Qamar represent IIFA in 4 different of SMIIC technical committee weeks.

Foreword:

It is my great pleasure to participate in this important conference.

I thank Turkey and His Excellency, President Mr. Recep Tayyip Erdogan for his generous patronage annually for these important HALAL Conferences.

I also thank all the organizers of this conference which sheds lights on the Halal industry and its services in the Islamic world and beyond. I extend my greetings to all the gentlemen and ladies who have come to participate in this conference in this beautiful cultural and historical city, the city of a companion and the host of our Prophet peace be upon him Abu Ayyub al-Ansari may Allah be pleased with him.

The main Goals of SMIIC's technical committees' members:

I have come from the port city of the two holy mosques and I am standing here today to assure you and our Islamic UMMAH who are eagerly waiting to hear about what progress has been made on HALAL Standards in the last years. I want to assure you that for all the members of the technical committees from all the Islamic countries, the only goal is the pleasure of Allah Almighty, and completing their work with all honesty, as they will be asked about it by Allah Almighty in the Hereafter. So, they make every effort to reach what they can with all sincerity to reach this standard correctly, accurately and to bring the HALAL to consumers with all the confidence and reliability and without any doubt, inshaa Allah ta'A.

The work in the technical committees is based on a strong religious basis.

The Technical Committees in SMIIC:

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</tr>
<tr>
<td>TC 9</td>
<td>Textiles and Related Products</td>
</tr>
<tr>
<td>TC 10</td>
<td>Halal Supply Chain</td>
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<tr>
<td>TC 11</td>
<td>Halal Management Systems</td>
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<td>TC 12</td>
<td>Dangerous Goods Transportation</td>
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<tr>
<td>TC 13</td>
<td>Jewelry</td>
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<tr>
<td>TC 14</td>
<td>Petroleum and Related Products</td>
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<tr>
<td>TC 15</td>
<td>Terminology Committee</td>
</tr>
<tr>
<td>CCA</td>
<td>Committee on Conformity Assessment</td>
</tr>
</tbody>
</table>

Technical committee’s work starting:

The work of the technical committees started more than five years ago, by two committees only and the beginning was strong and serious, and then more committees were founded as needed.

The number of countries was small, the experts were few, but they were distinguished, keen, responsible and serious, characterized by teamwork, many of them had high superior professional experiences, and were real scientists in their fields of specialties. And now Alhamdulillah they are a big number.
### MEMBER STATES:

<table>
<thead>
<tr>
<th>Country</th>
<th>Standardization Body Acronym</th>
<th>Members in Technical committees:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>ANSA</td>
<td>Participating and Observer Members.</td>
</tr>
<tr>
<td>Algeria</td>
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</tr>
<tr>
<td>Benin</td>
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<tr>
<td>Burkina Faso</td>
<td>ABNORM</td>
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<tr>
<td>Cameroon</td>
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</tr>
<tr>
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<td>CODINORM</td>
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</tr>
<tr>
<td>Djibouti</td>
<td>DJI</td>
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<tr>
<td>Egypt</td>
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<td>Iran</td>
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<tr>
<td>Jordan</td>
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<tr>
<td>Kyrgyz Republic</td>
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<tr>
<td>Lebanon</td>
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<td>Malaysia</td>
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<tr>
<td>Mali</td>
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</tr>
<tr>
<td>Mauritania</td>
<td>DNPQ</td>
<td>Observer Members.</td>
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<tr>
<td>Morocco</td>
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<tr>
<td>Niger</td>
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<tr>
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<td>Palestine</td>
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<td>Saudi Arabia</td>
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<td>Senegal</td>
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<td>Sudan</td>
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<tr>
<td>Tunisia</td>
<td>INNORPI</td>
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<td>Turkey</td>
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<tr>
<td>Uganda</td>
<td>UNBS</td>
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</tr>
<tr>
<td>United Arab Emirates</td>
<td>ESMA</td>
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</tr>
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</table>

### OBSERVERS:

<table>
<thead>
<tr>
<th>Country</th>
<th>Acronym</th>
<th>Members in Technical committees:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia &amp; Herzegovina</td>
<td>BAS</td>
<td>Observer Members.</td>
</tr>
<tr>
<td>Thailand</td>
<td>HSIT</td>
<td>Observer Members.</td>
</tr>
<tr>
<td>Turkish Cypriot State</td>
<td>TCS</td>
<td>Not Yet.</td>
</tr>
</tbody>
</table>

There were two former Secretaries-Generals during these years: Mr. Lutfi Öksüz, who Passed away in last November (برحمة الله عليه), and the 2nd is Mr. Haluk Dağ.

The Disagreement issues between Schools of Jurisprudence:

Regarding the Jurisprudence (Fiqh) issues, the members worked to understand the issues deeply and wanted to know the reason behind the rulings of the Shariah. They were also keen to know the evidences of its rulings based on Al-Quran and Sunnah or Alquiyas, Almaslaha, or any other evidences, even though they will not be mentioned in the standard.

The backgrounds of all the members of the technical committees were different, and they belong to one of the eight Madhhab (HANAFI, MALIKI, SHAFIE, HANBALI, ITHNAASHARY, ZAIDY, IBADY, ZAHIRY), but they all listened to the jurisprudential opinion presented to them. From my side I tried my best to be keen, to collect every rule and issue and to take all the Islamic schools of thought and respect them all. We are one UMMAH. Our message is the message of ISLAM.
The disagreement between Madhhab in foods is huge, so we faced many problems in the beginning, and we had many plans in the development of the standard by several organizations and persons, but many of them were difficult and hard solutions and not suitable for the manufacturing of the standard.

I presented a suitable solution that satisfies every Madhab, in which we set a standard in issues only agreed by all Madhhab. And as for the non-agreed issues, any country can include them in their national standards, and most of the non-agreed issues will not be needed in the industry, this was agreed by all, and Alhamdulillah we worked in this way.

It is important to know that the "SMIIC" Standard will be a specific document that will include the necessary religious terms and terminology, but at the same time will not be a book of teaching jurisprudence, Islamic morals, Da'wa or Arabic language, for each document there is its specialization. and we should understand that this is a standard.

Also, we will be very careful to take all the precautions and requirements to keep this standard successful, practical and acceptable to everyone in all parts of the world, Muslim, and Non-Muslim Countries, and meet the wishes of everyone.

What are the results of the Questions which have been sent to the IIFA from 4 years?

I have been nominated for several years as a representative of IIFA to participate in the T.Cs. and have answered all the religious questions raised, but because, I am afraid to carry the whole responsibility all alone, I have agreed with the technical committees to formulate questions and send them to the Fiqh Academy Council. They were drafted by my participation and then sent to the IIFA. In the IIFA we held workshops with scholars to answer them, and after they wrote the answers, IIFA- Secretariat presented them to the IIFA Council, and after the discussions between the members of the Council they referred them to the IIFA-Secretariat to write a summary of them, and the conference of IIFA council was delayed more than 3 years, in which the technical committees -as I said before- were taking a modern method, and after the answers were presented again at the 23rd Conference held in Medina in last November and in my intervention (comment) in the Council I explained in detail to the Ulama what was reached and the method we worked with in the technical committees and the special formulation and explained a number of matters in this subject, The council has taken a resolution to transfer these questions the Fatwa Department at the IIFA Secretariat. This was a great confidence and trust placed in me and the IIFA-Secretariat. And for more confidence we will, Insha Allah, present the SMIIC’s standards after their final editions to the IIFA council for approvals.

There are many important issues, but these were the most important to highlight on them.

Behind all this appreciated work of these committees there is a huge dynamism and force, which is SMIIC – General Secretariat, and without their facilities cooperation and smiles, the work would not succeed.

Special and warmest Thanks to Mr. İhsan ÖVÜT and his Staff.
Thank you to you all.
Salam Alykum.

Dr. Abdulqahir Mohammad Qamar, is the Director of Endowment (Fatwa) Department, in the International Islamic Fiqh Academy (IIFA), following the OIC. He holds a PhD from the Faculty of Sharia and Islamic Studies, Umm Al-Qura University.
OIC/SMIIC Standards on Halal Issues and Halal Quality Infrastructure
İhsan ÖVÜT a,*, Yasin Zulfikaroğlu a, Çağrı CANKURTARAN a

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A R T I C L E I N F O

Keywords:
SMIIC
Halal standards

ABSTRACT

Organization of Islamic Cooperation (OIC)
Standards and Metrology Institute for Islamic Countries (SMIIC)
Standardization Activities in SMIIC
SMIIC Global Standards on Halal Issues and Islamic Rules in OIC/SMIIC Standards
Halal Quality Infrastructure
Conclusion

1. Organization of Islamic Cooperation (OIC)

As seen in figure 1, like the United Nations, OIC is an inter-governmental organization. Established in 1969 and has 57 Islamic member states, also has 5 observer states. OIC Headquartered in Jeddah, kingdom of Saudi Arabia. And it is the second largest inter-governmental organization after UN and it defines itself as the collective voice of whole Muslim world. The countries indicated in dark green are the member states of OIC. As you see with 57 member states OIC has spread over four continents.

Figure 1: OIC member countries.

2. The Standards and Metrology Institute for Islamic Countries (SMIIC)

Now I will continue with SMIIC, its structure and activities. SMIIC is a treaty based intergovernmental standardization organization headquartered in Istanbul, turkey, and affiliated to OIC. And it was officially established in 2010 after ratification process of its statute by its members was completed. Briefly, it’s the standardization body of the OIC. It’s not a conformity assessment body, not certification body. And has agreements with AIDMO, GSO, ITC and ARSO. The number of member states has gradually increased and reached to 38 member states as of today. You can get more information regarding all members via our website.

According to its statute, SMIIC has 8 objectives. They are summarized here.
1. To prepare OIC/SMIIC standards
2. To achieve uniformity in metrology, laboratory testing and standardization in member states.
3. To provide technical assistance to the Member States which do not possess such bodies.
4. To establish a conformity assessment scheme for the purpose of expediting exchange of materials, manufactured goods and products among Member States, beginning with mutual recognition.

SMIIC strategic plan 2016-2020 includes 5 main strategic approaches and total 33 strategies under these approaches:
• Developing high-quality standards,
• Quality infrastructure,
• Improving connectivity of members
• Networking and
• Utilization of resources.

These approaches are implementing via action plans and annual projects. The general assembly is the supreme decision-making organ of the SMIIC and composed of the member states. The general assembly has all the powers necessary to achieve the purpose of
the institute. The board of directors is the organ entrusted with the supervision of the execution of the programs, plans and activities of the institute. The board of directors comprises of thirteen members elected by the general assembly for a term of three years.

Under the board of directors, we have three councils
1. Standardization management council
2. Metrology council
3. Accreditation council

Figure 2: Organizational chart of SMIIC

3. What Is A Standard?

Before taking a glance on the standardization activities of SMIIC in short. Firstly, I would like to give a short information about standards and standard’s making process in general. A standard is a document that defines the musts of a product or service or a process. Voluntary, agreed on by consensus, approved by a recognized body, for common and repeated use by everybody are the main necessity for a standard. Especially in halal industry, the term “standard” is used wrongly. Each certification body says they have a standard; this is not a standard. This is their own document. If you want to call a document as a good standard, the document should be a product of consensus-based standardization where the contribution of all stakeholders has been taken into account. Stakeholders such as industry, consumers, GOs, NGOs, producers, certifiers, private sector, researchers, laboratories, universities, etc.

4. SMIIC standardization organs and activities.

Standardization Management Council (SMC) is the organ of SMIIC which manages all technical committees. SMC observes the performance of the technical committees and can decide to establish or dissolve a technical committee. Standardization Management Council consists of a vice-chairman of the SMIIC board of directors as chair and 9 member states elected by the board of directors.

- Who prepares the standards?

SMIIC is not developing standards itself. Its technical committees who prepare the standards. Each technical committee works as an international body. Here all activities about preparation of standards are carried by the member states, not by central authority. Member states only have right to vote in all levels of study.

- So, what is a technical committee?

Technical committees with specific title, scope, work program and strategic business plan are the key bodies that drive the standardization process. Each committee governed by a secretary and a chairman and the secretariat activities are conducted by a member state. National standardization bodies are represented as participating or observing members in technical committees. All standardization activities are conducted in compliance with main principle documents, namely, SMIIC directives issued by SMIIC.

All technical committees should observe the rules stated in these documents. Figure 5 shows the development process for an OIC/SMIIC Standard. Every standard to be issued or revised is considered as a project under a technical committee.

All standard projects are developed within technical committees and finalized after having consensus. Every standard project pass through stages from proposal of a new standard to publication as defined in SMIIC directives.

For better management of the committees’ work SMIIC information system has been established. SMIIC information system is the electronic collaborative environment to manage the standardization activities with its built-in tools. Tools on technical committee workspace, online balloting, project management, mass e-mailing improve the management of the SMIIC technical work and communication.

Figure 3: Consensus on standardization is best achieved by the contribution of all stakeholders

Figure 4: SMIIC information system SMIIC (IS).
5. SMIIC Technical Committees

As of today, 15 technical committees and SMIIC committee on conformity assessment are working under SMIIC. Totally we have sixteen committees.
- TC 1: Halal Food Issues
- TC 2: Halal Cosmetic Issues
- TC 3: Service Site Issues
- TC 4: Energy Efficiency and Renewable Energy
- TC 5: Tourism and Related Services
- TC 6: Agricultural Products
- TC 7: Transportation
- TC 8: Leather and Tanning Materials
- TC 9: Textile and Related Products
- TC 10: Halal Supply Chain
- TC 11: Halal Management Systems
- TC12: Dangerous Good Transportation
- TC13: Jewellery
- TC 14: Petroleum and Petroleum Products
- TC 15: Terminology
- SMIIC Conformity Assessment Committee (CCA)

As SMIIC general secretariat we organized five technical committee weeks where all committees held at least two meetings in a year till now. As of today, 36 new projects on subjects such as halal supply chain, halal tourism, saffron…etc. and there are also 7 ongoing projects moved to upper stages. The sixth technical committee week is holding for the dates 15-19 April 2019 in Istanbul.

6. Published SMIIC Standards to Date

These are our published standards:
- OIC/SMIIC 1:2011, General Guidelines on Halal Food
- OIC/SMIIC 2:2011, Guidelines for Bodies Providing Halal Certification
- OIC/SMIIC 3:2011, Guidelines for the Halal Accreditation Body Accrediting Halal Certification Bodies
- OIC/SMIIC 4:2018, Halal Cosmetics - General Requirements
- OIC/SMIIC 5:2017, Occupational Safety and Health Guidelines

Here you see that the first 4 standards are core halal standards developed initially. and recently, as a result of co-study with SESRIC and OIC organs such as IIFA, the standard on occupational safety and health has been published. and online sale of standards started in 2017.

SMIIC conformity assessment committee is a specialized committee to issue standards for certification and accreditation purposes. Like OIC/SMIIC 2 and 3, this committee’s function is similar to ISO/CASCO. For the halal quality infrastructure, this committee has very important roles. During the last meeting of the CCA on last September, the possible new work items were discussed. Such as general requirements for halal testing laboratories, product proficiency testing, bodies for certification of personnel involved in halal and guide for certification scheme for halal products.

7. Islamic rules in OIC/SMIIC standards.

SMIIC is recognized as the technically competent and authorized platform for the halal issues and mandated to work in the area of all kind standards and related issues for the OIC members by the OIC. SMIIC’s technical works are open to all stakeholders in all over the world. Duplicative works will harm all parts. Individual approaches to halal standards under different platforms were not welcomed such as ISO, CODEX and CEN, as SMIIC’s efforts representing Islamic countries were recognized.
As halal issues need religious competency, this kind standardization work also should include all representations which are representing different sectarians/mazhabs in Islamic countries or in the world. First of all, we must always know that the standards on halal issues such as products, management, services, processes, certification, accreditation, testing etc. should be in compliance with Islamic rules. On the other hand, these standards should not be considered as fiqh or fatwa documents; can be globally used in certification, production and trade but should not be against Islamic rules. Even though there are different school of thoughts and interpretations, the difference between them is not much on products subject of international trade and daily consumption such as meat and meat products, cattle, dairy, poultry etc. so, the standards should focus on these common points in order to meet the needs of the consumers from different school of thoughts, mazhabs.

Certified halal products according to recognized halal standards are at the same time of good quality. So halal certified means good quality product. as an OIC institution our main partner is The International Islamic Fiqh Academy (IIFA), based in Jeddah. The academy says about the mechanisms of religious us oversight on halal industry and its services as follows: (Islamic rules in OIC/SMIIC standards-2) important stakeholders in halal infrastructure and conformity assessment have one of the following forms according to the academy’s approach; there should be:
1- A supreme authority at the state level for the religious inspection.
2- Islamic fiqh councils issuing fatwas and decisions.
3- The accreditation bodies: these shall be owned and directed by Muslims at an OIC country.
4- The certification bodies: these shall be owned and directed by Muslims in any country.
5- Internal departments for religious section in the establishment: these shall be directed by Muslims.
6- Officers of the halal religious section: those shall be Muslims.
7- Profession employee, whose mission is to do basic halal work, such as the slaughterer or butcher must be Muslims committed to all the provisions of Islamic law.

8. **SMIIC standards on halal issues**

Remember always: halal is a sovereign issue of the Islamic ummah. The first 3 core standards regarding halal are products of a hard work firstly at OIC level with the contribution of more than 40 OIC member states and certain OIC institutions. After its establishment, the standards were adopted by SMIIC as OIC/SMIIC standards and now SMIIC is the only organization responsible for maintenance of these standards.

- **OIC/SMIIC 4:2018**, Halal Cosmetics - General Requirements *(with the references of ISO 22716, + Islamic Fiqh Rules)*

Each standard has international standards references such as CODEX, ISO and has Islamic fiqh rules which are approved by International Islamic Fiqh Academy (IIFA). As mentioned before, IIFA is the only our stakeholder for religious issues.

OIC/SMIIC 1 is the general guidelines on halal food. The standard defines the rules for halal food and products production for any stage of food chain: like production site, preparation, processing, packaging, serving etc. now it is under revision procedure.

OIC/SMIIC 2 can basically be defined as the rules that should be followed by halal certification bodies (HCBs) in their operations regarding the halal certification. How HCBs should be in order to provide certification for a product, service or system. HCB should be competent, consistent and impartial in its operations. Now this standard also is under revision procedure.

OIC/SMIIC 3 is the guidelines for accreditation bodies established and performing halal accreditation in OIC region. As per the standard, accreditation can be performed for halal certification bodies in OIC and non-OIC region. This also is under revision procedure.

OIC/SMIIC 4 this standard has been published in march 2018, it defines the basic requirements, based on Islamic rules and laws, that shall be fulfilled by the halal cosmetic industry during every stage of cosmetic supply chain including, receiving, preparation, production, storage, packaging, labelling, controlling, handling, transportation, and distribution. This standard is applicable to all the categories of cosmetics and to all types of organizations irrespective of their size and complexity.

9. **Halal Quality Infrastructure**

So, now, last briefly talk about quality infrastructure and halal quality infrastructure. Quality infrastructure is generally understood to be the totality of the institutional framework (public and private) required to establish and implement standardization, metrology, accreditation and conformity assessment services (inspection, testing, product and system certification) necessary to provide acceptable evidence that products and services meet defined requirements, be it demanded by authorities or the market place. In other words, it is a system of institutions which jointly ensure that products and processes meet predefined specifications which are standards.
Quality infrastructure relies on the scientific and technical foundations of Standardization bodies and metrology institutions (scientific, industrial and legal), and to underpin: Accreditation, conformity assessment (supplier’s declaration, certification, testing, verification, and inspection), calibration, and market surveillance. Standardization is at the center and standards for every element of the quality infrastructure are essential. Like standards for products produced by enterprises, testing laboratory standards, certification body standards or accreditation body standards, etc. And at the end the consumers, manufacturers and governments benefit from the results of a well-established quality infrastructure.

Therefore, after this brief information about the “quality infrastructure”, let’s understand the role of SMIIC for halal industry and in building halal quality infrastructure in order to have reliable halal products and services in OIC countries and for all Muslims all over the world.

As you see in Figure 7, main target is to provide a trustable halal food chain from farm to fork, All elements of quality infrastructure, standardization, metrology, conformity assessment, and accreditation have an effect on halal food chain at national level as well as at international level. All quality infrastructure elements need a standard. Without common standards you could not establish any infrastructure.

And SMIIC as the standardization body is at the center of this by issuing standards for products, certification, conformity assessment, accreditation, etc. in order to build this halal quality infrastructure as a whole system.
In figure 8 From this slight you can see a product’s travel from farm or factory to your fork or dinner table. In each level there are need standardized rules and an infrastructure.

Now I want to summarize quality infrastructure based on OIC/SMIIC standards.

- OIC/SMIIC 1, general guidelines on halal food, and others, to be used by the producers and certifiers
- OIC/SMIIC 2, guidelines for bodies providing halal certification, to be used by certifiers and accreditation bodies
- OIC/SMIIC 3, guidelines for the halal accreditation body accrediting halal certification bodies, to be used by accreditation bodies.

So basically, Production in compliance with OIC/SMIIC 1; Certification against OIC/SMIIC 2 by the certifiers. Accreditation against OIC/SMIIC 3.

With this halal quality infrastructure, increase of consumer trust on halal products, A real traceability and mutual recognition, diminishing technical barriers to trade with mutual recognition of certificates through accreditation, finally facilitating halal trade, are expected.

**Conclusions**

Final words, SMIIC is the common platform to gather the all stakeholders to contribute to the common standards for the Muslim world and all interested parties. Let’s come work together and prepare standards needed. Be our partner for standards and related issues.
Mr. İhsan ÖVÜTÜ was born in Malatya/Turkey in 1966 and completed primary, secondary and high school education in Malatya. He entered to Department of International Relations of Faculty of Political Sciences of Ankara University in 1985. He graduated from this department in 1989 and then started to work at the Turkish Standards Institution (TSE) at Directorate of Bilateral and Multilateral Agreements in 26 August 1991. He was appointed as the Director of Agreement on Foreign Relations in 24 January 2000. He has worked as director of several Directorates in the fields of international relation of TSE between the years 2000-2011. Upon his appointment as Head of Training Department of TSE, he has worked in this department between the years 2012-2014. Currently he is working as the Secretary General of the Standards and Metrology Institute for Islamic Countries (SMIIC) as of 15 December 2014.

He had a wide experience at international relations and carried almost all activities in terms of international relations during his term of office in TSE. He organized many regional/international meetings, drafted cooperation agreements, accompanied overseas official visits, made presentations, and participated as expert in the committees of International Organization for Standardization (ISO). Most specifically, he leaded in the preparation process of the SMIIC Statute under the Organization of Islamic Countries (OIC) as well as the development of OIC/SMIIC Standards and also leaded several projects in ECO Region and in Euro-Asia Region.
Challenges in Halal Conformity Assessment

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A R T I C L E I N F O

Keywords:
Conformity assessment, Halal standards,

A B S T R A C T

Directed Conformity assessment, is any activity carried out in order to determine that a process, product, or service meets relevant technical standards and fulfils the relevant requirements. Halal Standards should specify the requirements as stipulated in the Quran and Sunnah with no Doubts. Halal Food Standards specify the religious requirements for a Halal food management system, where each business/manufacturer in the food chain needs to demonstrate its ability to avoid contamination from potential Haram hazards in order to ensure that food is fit to be consumed by Muslims.

It can be a challenging task when Halal conformity assessment focuses on merely the text of Halal standards rather than if the standards themselves meet the principles of Shariah requirements, as stipulated in the Quran and Sunnah (assuming that all the compliance to the Quran and sunnah is covered by the author of the standards). This paper will highlight some of the challenges in conformity assessment when the Shariah requirements of Halal are not met - despite compliance with the text of the Halal standard being used. This paper will examine issues such as Halal animal pre-slaughtering requirements, as required by the Quran and Sunnah, against parameters used in the pre-slaughter stunning of poultry, as they appear in many international Halal Standards. It is a Fundamental ruling on meat form permitted Animals (for Muslims) is to be Forbidden except those slaughtered according to Shariah.

In the case of pre-slaughter stunning of poultry, the flaws in many Halal standards can be related to the absence of scientific references (that would validate and verify the said parameters) in meeting the Halal requirements as stipulated in the Quran and Sunnah. An OIC or National Standards Institutions should not copy or accept parameters sited in internationally available Halal standards without being challenged. Parameters must be independently and scientifically challenged, Validated and Verified for meeting the Islamic Jurisprudence (Fiqh) aspects of Halal.

Some Muslim assessors of Halal standards have rightly become concerned with whether these parameters (that are listed in some Halal standards) even meet the Halal requirements as stipulated in the Quran and Sunnah. The challenge becomes even greater when a Halal Standard is secularised, governed, or assessed by a non-Muslim.by Iranian director Majid Majidi, The Song of Sparrows (2008) tells the story of Karim, who begins to work as a motorcycle taxi driver in the city-centre after losing his job at an ostrich farm outside of Tehran, Iran. But the change in his job begins to change his perception of life and it begins to challenge his moral values and principles and he goes through some temptations as to whether he should preserve his halal-life-style or he should adopt an opportunist-life-style.

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Halal Certification in Non-OIC Countries

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ABSTRACT

Halal conformity assessment in non-OIC countries presents some particularities which are usually overlooked by other actors in OIC countries and their neighbours, more aware of the requirements of Muslim-majority markets. Difficulties arise at three levels: inter-governmental (or federal level), in the case of Halal Certification Bodies and in the Food & Beverage producers. There are as well some identified issues which deter halal trade, including stunning, labelling and islamophobia.

Introduction

Halal standards were developed in order to protect Muslim consumers from haram products inadvertently imported in Muslim-majority countries. In the 1980s and 90s, Indonesia, Malaysia and Singapore created the first “Halal authorities”, which published the first standards.

The movement was followed by SMIIC together with the International Islamic Fiqh Academy (IIFA) (both OIC organisations), which published their draft Halal Standards in 2010s. GSO followed suit in 2015. Currently, other countries are developing their own halal standards or guidelines.

However, the myriad of Halal Standards and regulations creates confusion and poses unnecessary non-tariff barriers to trade, affecting all stakeholders. Hence, the need for harmonization. Efforts towards a common halal standard have been deterred by nationalist stances as well as a lack of global vision of the OIC as a single market and as a common umbrella for Muslim countries.

On the other hand, considering most halal F&B producers are in non-OIC countries, the lack of involvement of the latter in either halal standard development or halal national scheme implementation is to be noted.

We will refer particularly to the case of the EU and we will highlight the need for greater involvement of non-OIC actors (particularly Muslim Communities can play a key role) in providing input about the stakeholder situation in order to make Halal Standards and Regulations more relevant.

1. The EU framework

The European Union is a major trader in halal-certified products towards OIC countries, yet it has no official body to establish a dialogue with OIC-SMIIC or other regulatory bodies dealing with halal (such as JAKIM, MUI, MUIS, EIAC, IMANOR, etc). There is, therefore, a distance and a need for dialogue instruments between the EU and OIC countries. One of the reasons for this is the lack of a historical background in institutional relationships dedicated to boosting trade; another one is cultural: while Europe is a largely law-regulated written-support culture, in many Islamic countries it is not customary to write down every regulation (e.g. World Muslim League); we must also add here the opacity or lack of facilitation of documents or references (e.g. Bahrain, Oman, Seychelles). A third factor adding to this distance is the reluctance of the EU to include anything religious in its regulatory or legal documents.

Not only there is a lack of dialogue between the OIC and the EU. Also, there is a lack of corresponding institutions which makes it difficult to understand or to extrapolate any infrastructure or governance scheme. Assuming there would be a corresponding or parallel structure might not be the correct way for establishing dialogue, although it is often the starting point.

The diversity of the Islamic world is often confusing for Europeans, used to look for parallel structures to their own reality: as Europe is largely a secular continent nowadays, they are not familiar with institutions such as “Ulema council”, “Ministry of Religious Affairs” and the like. They simply do not exist in the EU reality.

Therefore, the OIC and the EU (even with their internal diversity) will have to start understanding the rules for halal certification in order to keep trade at a smooth pace and also to use halal trade as a tool to foster cooperation in other fields.
2. Issues in the EU

In the EU, halal conformity assessment goes largely unregulated, except for the controversial issue of stunning and labelling, issues which have caused disruption in trade, notably in those EU countries where the stunning exception has been banned.

According to European Regulations (Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing) there must be provisions for the compulsory mechanical restraint of bovine animals (this is due to safety reasons, to protect the operators) and the exception of stunning in case of religious slaughter taking place in slaughterhouses (that is, stunning is always compulsory in Europe, except for halal and kosher slaughtering).

However, many national laws can supersede the European Directive, as is the case of Denmark or the north of Belgium, and can enforce stunning in all cases. This ban has not gone uncontested, as religious associations (notably Jewish ones [1]) have challenged the government, accusing lawmakers of attempting against their freedom of religion. However, the bans remain in place.

When we look at the Halal Standards, we can see that some accept stunning and offer guidance as to the methods and values applicable (e.g. Malaysian Standard), while other standards completely ban stunning in the case of poultry (Gulf Standard Organisation). The circumstances so far have caused Denmark halal poultry exports to Saudi Arabia and Emirates (the only two countries implementing GSO standards so far) to be halted.

Then, we have to consider the concern of Muslim consumers. As stunning can in some cases kill the animal before it is slaughtered, particularly in the case of poultry, non-stun methods offer greater guarantee that the animal would be alive at the time of sacrifice.

In other EU countries, the clearest example of "conflict" with stunning is the United Kingdom, and it is not due to the concern of Muslims, but to the pressure of lobbies for animal rights, which report "ritual slaughter" as being a cruel and inhumane procedure. Although the exception for stunning in the case of poultry is applied, animal rights groups exert continuous pressure on abattoirs (such as PETA, with dedicated blogs to the "cruel" muslim ritual killing of animals [2]).

Other organizations demand that halal meat is labelled as such, and the method of slaughtering and stunning included, so that consumers can make a sound choice. There is currently no legislation to enforce such labelling but the day may come to EU supermarkets where we would be able to know these particulars.

Finally, we have other far-right groups opposing halal slaughtering for political or xenophobic reasons [3], accusing muslims of discriminating against nationals ("Vigilance Halal" accuses abattoirs of discrimination, as they employ muslims for the slaughtering, and halal certification bodies of charging “la taxe halal” (the halal tax) which is used for the islamization of Europe and “est utilisés pour financer les activités jihadistes” (is used to finance jihadist operations). In the same line we have other organizations (Boycott Halal, Q Society, etc) [4].

On the other end of the equation, many authors have already pointed at the "halalization" process in some OIC countries and the (sometimes) extreme regulation which leads some producers or institutions to certify even water as halal. This phenomenon is growing, although slowly, and must be also addressed on the side of importing countries.

There is also a trend for greater regulation in destination or importing countries, and increasing demand for more professional halal certification bodies (HCBs), which must be structured according to the reference standards (e.g. OIC-SMIIC 2). Also, in the field of accreditation we have seen new initiatives aiming at building a wider platform to facilitate HCBs access to accreditation processes. However, the existence of several halal standards (OIC-SMIIC, MS, HAAS, GSO, UAE.S), occasionally with conflicting requirements, represents a challenge for European halal certification bodies.

3. The role of OIC and SMIIC in harmonization

SMIIC has proposed the Halal Quality Infrastructure System, to help establish a clear framework for a single halal governance scheme.

3.1. Standards

Firstly, we have the standards. Standards are produced by either (a) National or federal Standards Bodies (such as IMANOR or SMIIC) or (b) religious associations (e.g. MUIS, WML). Standards can be voluntary or compulsory, depending on the country (voluntary in Egypt; compulsory for meat in Kyrgyzstan). Sometimes the national standards body issuing the halal standard is also the national halal authority (ISIRI); sometimes the halal standard is published by the National Standards Body (Malaysian Standards) and implemented / enforced by another body (JAKIM – Agency for the Islamic Development of Malaysia). In some countries, SMIIC is used as a reference standard; in other countries the national standard prevails.

This challenge extends to their customers, the producing companies, which are often puzzled at the multiplicity and divergence of halal standards (in what they still see as the monolithic "Islamic world"). Other cultural issues conflict occasionally with halal production and trade, having also an impact in certification, mainly: unawareness of accreditation processes required by destination countries; unawareness of the need to conform to more than one standard, with the corresponding impact in production processes; the need to market and advertise the product according to a set of cultural and religious expectations; etc. All of these cultural elements are not only foreign to most European citizens, they are also conflicting with the negative image projected in the EU of muslims and anything Islamic.
- EU countries find the multiplicity of standards quite challenging, particularly in the diverging topics (stunning, restraining, orientation to Mecca, the basmallah has to be pronounced per each individual animal versus per batch, automatic reproduction of the basmallah, mechanical slaughtering, slaughter person must be Muslim versus Ahl al-Kitab, and the question of supervision or checking after slaughtering).

- Halal producers do not know a priori which standards will be applicable, as they tend to close the sales during major trade fairs, and they do not know who the buyers / destination markets will be. Therefore, the call for a single standard has been on the table for some time now.

3.2. Accreditation

In the second place, we have the Accreditation Bodies. There is normally one Standards and one Accreditation body in each country. Often they are members of international organizations, such as ISO or ILAC, where Mutual Recognition mechanisms are in place to ensure trans-national validity.

- For a single Halal Certification Body (HCB) it is necessary to have all the required accreditations if they wish to offer their customers access to all OIC markets. Otherwise, how will you explain to your customer that your halal certification, which is perfectly valid for country A, is not recognized in country B.

- The demands of the Accreditation Bodies are quite divergent in terms of (a) logistic requirements for their auditors (business / first class, 5-star hotel, etc); (b) documentary inspection; (c) audits and (d) interviews/meetings. The cost of Accreditation is generally very high (starting around 40.000 €, per accreditation process).

- Mutual recognition among the different accreditation bodies must be reached soon to maintain the whole system working. Otherwise the costs escalate.

In those countries where there is no Accreditation system, an alternative “Recognition” is normally in place. The issues here revolve around the abusive position of some of these bodies, their economic demands in exchange for the recognition, the reliability and technical level of the delegates they send for inspection, etc.

3.3. Certification

Regarding Halal Certification Bodies there is great need for professionalization and harmonization of practice. Also, a great challenge is the question of Mutual Recognition for traceability purposes. The mistrust among HCB causes many of them not to recognize others, with the consequent rupture in the supply chain and traceability logic.

Many HCB have Mutual Recognition Agreements (MRA) to facilitate the outsourcing of ingredients, but they must set their own requirements and guidelines, and trust only HCB they know meet the requirements and act bona fide.

3.4. Metrology

Lastly, metrology. It would be convenient that the standards be more specific on metrological methods (e.g. methods for detecting ethanol or DNA testing), so that the HCBs can validate suitable laboratories, equipped with the correct instruments.

In non-OIC countries there are as well other issues of concern when it comes to halal food & beverage production.

Technical issues must also be addressed by halal-certified producers: the risks of contamination, the difficulties in outsourcing raw materials and ingredients; the varying qualification of some ingredients according to the different madhahib (e.g. E120, carminic acid, insects), standards of customers; the labelling and advertising, and so on. In some cases, they are required to build halal-dedicated production lines, which is not a minor investment, which adds to the negative perceptions often found around halal and the reluctance of some companies to “go halal”.

In other cases, proper training of staff is essential to avoid cross-contamination. Such is the case of a company manufacturing chicken sausages in a plant where no pork was present. When a porcine DNA test resulted positive, there was an investigation to detect the source of the cross-contamination. The situation puzzled the Quality Management and the Production team, as the only ingredient present was chicken (the cases were of vegetable cellulose). They found after some research that the culprit was a worker who had ham sandwiches for lunch (and very poor hygienic habits).

Another example is that of the extremely concerned Quality manager who ordered that the ham sandwiches be removed from the vending machine). She had to face a strike of the workers until the sandwiches were available again.

4. Conclusion

To move forward, several actions are necessary to address the current issues.

Dialogue between the EU and the OIC must be fostered, not only with an emphasis on trade, but also in social and cultural exchanges. Islam remains largely a foreign phenomenon in a non-religious European Union, and Muslims in the EU are not yet perceived as citizens, but as temporary migrants. The fact that there are near 50 million Muslims in Europe is not yet relevant enough to bring trade and economic benefit to the foreground.

At HCB level, it is necessary to strengthen the Halal Quality Infrastructure and the Standard-Accreditation-Certification-Metrology system, to boost professionalism and avoid unregulated, non-professional players.

Lastly, more training and exposure is needed for F&B producers, who must consider a transition from considering halal as a residual or seasonal production batch to investing into what will be a mainstream market.
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Standards on Halal and Role of National Quality Institutions in Pakistan

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ABSTRACT

Almost every country is making some effort or the other towards the development and implementation of Halal standards. As an Islamic country Pakistan has also established standards on Halal through its national standardization body i.e. Pakistan Standards & Quality Control Authority (PSQCA). In this paper an overview has been given about PSQCA, salient features of Pakistan Standards on Halal and role of other national quality institution (NQIs) in Halal.

1. INFORMATION ABOUT PSQCA

The Pakistan Standards and Quality Control Authority, under the Ministry of Science and Technology, is the national standardization body. In performing its duties and functions, PSQCA is governed by the PSQCA Act, 1996. PSQCA has also been established to advise the Government on standardization policies, programs and activities to promote industrial efficiency and development, as well as for consumer protection.

The main function of the Department is to foster and promote standards and conformity assessment as a means of advancing the national economy, promoting industrial efficiency and development, ensuring the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international co-operation in relation to standards and conformity assessment.

PSQCA establishes Pakistan Standards as per mandate given in sub section (xvi) of section 8 of PSQCA Act VI of 1996 i.e. framing and publishing, amending, revising or withdrawal of Pakistan Standards in relation to any article, product, process and in accordance with Pakistan standard rules 2008.

The formulation and/ or adoption of Pakistan Standards is carried out in technical committees and recommended by national standards committee which include experts from PSQCA, other public and private organizations, academia and consumers and from relevant production or service units. Standard development activity is based on consensus to make sure that Pakistan standards safeguard national interest, public tendencies keeping in view the concept of quality, safety, health efficiency as basic parameters for the sustainable development.

2. EXISTING LEGAL/REGULATORY FRAMEWORK IN PAKISTAN

Although the work on Halal started very late in our country as compare to others but Alhamdulillah Pakistan go on accelerated track which shown by the following established legal framework:

1) Pakistan Standards on Halal
2) Import Policy Order 2016 - Requirements for Halal
3) Pakistan Halal Authority Act March 2016
4) PNAC for Accreditation of Halal CBs
5) PCSIR/HEJ labs for Halal Testing
6) National Physical & Standards Laboratories (NPSL)

3. PAKISTAN STANDARDS ON HALAL

Being NSB of Pakistan PSQCA has developed the various Pakistan Standards on Halal which are admired combination of Science and Shariah requirements. The first Three standards are used to strengthen the halal conformity infrastructure in Pakistan.

3.1 Standard for Halal Food Management System Requirements for any organization in the Food chain (PS:3733-2016) defines the basic requirements that shall
be followed at any stage of food chain including, production, receiving, sorting, preparation, processing, packaging, labelling, marking, controlling, handling, transportation, distribution, storage, marketing and service of Halal food and its products based on Islamic Laws.

3.2 Pakistan Standard For conformity assessment requirements for bodies providing Halal Certification (PS: 4992-2016) for accreditation of Halal CBs to determines the competence of Halal CB for certification of Halal Food Safety Management System of any organization in food chain.

3.3 Pakistan Standard General Requirements for the Accreditation Body Accrediting Halal Certification Bodies (PS: 5241-2013) this standard prescribes general guidance and procedures for the Halal Accreditation Body assessing and accrediting Halal Certification Bodies (HCBs). It is also appropriate as a requirement document for the peer evaluation process for mutual recognition arrangements between Halal accreditation bodies.

3.4 Pakistan Standard Edible Halal Gelatine (PS:247-2013) prescribes the requirements and Method of test for Edible Halal Gelatine and the gelatine processing chain from primary production to the final consumer, setting out the Halal and necessary hygienic conditions for producing gelatine that is Halal, safe, suitable and admissible for human consumption, based on Sharia/Islamic Laws.

3.5 Pakistan Standard for General Guidelines for Halal Cosmetics and Personal Care Products (PS: 5319-2014) prescribes practical guidelines for Halal cosmetics and personal care industry. It covers a basic requirement for the cosmetics and personal care industry and trade or business in Pakistan.

4. SALIENT FEATURES OF PAKISTAN STANDARDS ON HALAL

4.1 Joint effort of Science and Shariah
The formulation of above 3 PS is a long effort of scientists, food technologists, industrialists, certifiers, accreditation body, Islamic scholars, testing authorities and consumers to establish the generic standards regardless of variations in different countries/schools of Fiqh, because given Shariah requirements are almost commonly accepted rules and beliefs of Islam and acceptable for all Muslims, These standards are established after long and healthy debates which was concluded after more than 20 TC and subcommittee meetings then reached to consensus-based standards, which is a beautiful reflection of science and Shariah.

4.2 For bridging Science& Shariah, each and every clause was discussed technical and on shariah ground.

4.3 Unanimously Acceptable for Muslim Ummah all over the world.
In case of any variation, it is also stated in the standards that all the Muslims are free to follow their respective schools of Fiqh.

Everything, declared Halal is in PS standard is Unanimously Halal in the light of all school of Fiqh. There is no single debatable example of Halal in PS Standards.

4.4 PS Standards are guide lines not a Fatwa.
Although these standards contain shariah requirements, but it is clearly stated that these standards are not meant to be used as a reference for issuing Fatwa on the “Shariah Status” of things, for it has been prepared as guidelines to meet the requirements of industry, import, export, procurement and facilitate trade on Halal.

4.5 Most ideal standard for Muslims Globally:
4.5.1 All kind of Stunning is prohibited in PS standards:
Further it is important to inform that all forms of stunning and concussion (loss of consciousness) are prohibited for both birds and animals (practically implemented in Pakistan). Meat imported from other countries shall also meet this requirement.

4.5.2 Collective Tasmiyah is prohibited
4.5.3 Mechanical slaughter is prohibited
4.5.4 Apart from locust, all kind of insects are Haram, E120 is non-Halal.
4.5.5 Alcohol derived from grapes/dates is Najis (applicable easily for industry)
4.5.6 Legal and Muslim entity
The Halal CB shall be wholly owned, managed and operated by the Muslims and it shall not use any other non-Muslim organization’s logo/mark/symbol/slogan or any other phrase that reminds of beliefs of such organizations.

5. STANDARDS ON IMPORT & EXPORT FOR TRADE FACILITATION

5.1 Pakistan Standard-Principles for food import and export inspection and certification (PS: 5401-2017) covers the principles for inspection and certification to control imports & exports of food as per Islamic Laws.

5.2 Pakistan Standard-Guidelines for the exchange of information between countries on rejections of imported food. (PS: 5400-2017) covers the guidelines for the exchange of information between countries on rejections of imported food when the rejection of the consignment arises from:

5.2.1 evidence of a serious food safety or public health problem in the exporting country; or
5.2.2 evidence of serious misrepresentation or consumer fraud; or
5.2.3 evidence of a serious failure in the inspection or control system in the exporting country,
5.2.4 evidence of noncompliance with requirements for Halal.

5.3 Pakistan Standard-Guidelines for Settling Disputes Over Analytical (Test) Results (PS:5420-2018)
It only addresses disputes related to methods of analysis or laboratory performance and do not address questions of sampling and microbiological test results. The procedure examines only the validity of the importing country’s results on which non-compliance is alleged. It is recognised that disputes may arise from other cause(s), which should also be investigated including the Halal Testing.

5.3.1 Import Policy Order 2016 - Requirements for Halal
Halal check on all edible products has been incorporated in Import Policy Order 2016 Notification No. S.R.O. 345(l)/2016 dated 18th April 2016 Article 5(B) (i) Appendix (B) S.No. 13 addresses import of all edible products subject to following conditions:
It must be fit for human consumption
They shall be free from any ‘haram’ element or ingredient.

That in case of ‘meat’ it was obtained from ‘Halal’ animals and slaughtered in accordance with the Islamic Injunctions.

Article 5(A) (i) Appendix (A) S. No.4 of the aforementioned S.R.O also prohibits the import of any goods containing ingredients or parts which may be repugnant to the injunctions of Islam as laid down in Holy’ Quran and Sunnah of the Holy’ Prophet ﷺ, including pigs, hogs, boars and swine, and their products and by products.

Likewise, Article 5(A) (i) Appendix (A) S. No.14 of the S.R.O prohibits the import of alcoholic beverages and spirits (excluding ethyl alcohol of industrial grade), including brewing and distilling dregs and waste, wine lees and argol.

5.4 Pakistan Halal Authority Act March 2016
PHA has been enacted and soon will be functional to facilitate Halal trade.

5.5 PNAC for Accreditation of Halal CBs
Operations of PNAC are in progress continuously as per Pakistan standards.

5.6 PCSIR and HEJ Research labs working very well in Halal testing but still there is room for other public research institutions.

5.7 National Physical & Standards Laboratories (NPSL) is the national custodian of all physical standards of measurements and materials. Its main objective to maintain primary standards of measurement and materials on internationally recognized level.

6. SUGGESTIONS
Incorporation of Halal as a subject with relevance to specific field of education and research can play a very effective role to develop Halal quality culture in Muslim countries.

Promotion of R&D activities to produce Halal compliant ingredients would replace the suspected ingredients imported from non-Muslim countries and ultimately cut the cost and save the time wasted on conformity assessment for traceability.

Governments can contribute positively by establishing Halal friendly policies to incentivize the academia and manufacturers for producing research-based Halal ingredients and additives with the aim that consuming Halal is the religious obligation as well as the right of every Muslim.

7. CONCLUSION
In conclusion I must say that we are blessed people who has the responsibility to safeguard the rights of millions of Muslim consumers if we try to fulfill our duties with the intention that we are answerable of our deeds on the Day of Judgement before ALMIGHTY ALLAH.

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Esteemed participants,

As-salamu ‘alaykum

Alhamdulillah once again, we had a chance to gather members of Ummah all around the world in Istanbul on World Halal Summit Istanbul and 6th the Organization of Islamic Cooperation (OIC) Halal Expo Exhibit under the auspices of the Presidency of the Republic of Turkey. I would like to express my sincere gratitude to H.E. President Recep Tayyip ERDOĞAN who makes this organization happen, and who is the owner of compassionate efforts to contribute more and more to the Islamic world.

Last year, when I participated in the 5th OIC Expo Exhibit, I stated that Halal Accreditation Agency, in short HAK, of Turkey will be in operation by 2018 and now it is my honor to announce that Halal Accreditation Agency, which is a related body of Ministry of Trade, has now become operational as the Chairman of Halal Accreditation Agency. In this vein, I would like to thank H.E. Minister Ruhsar PEKCAN, and on her personality to all members of the Ministry of Trade who put so much on to the realization of HAK. Last but not least, I appreciate the works of those who have contributed to the arrangement of the World Halal Summit and Halal Expo Exhibit.

It is noteworthy that HAK is the only authorized entity on the accreditation of certification of halal products and services. HAK was envisioned as an institution that will engage in halal accreditation activities in the national and international arena and by doing so creating an added value in the World of Islam. Moreover, HAK will represent Turkey on both SMIIC and other international platforms while also leading the activities to increase public awareness of the halal concept.

HAK was founded to reflect our country’s entire experience and expertise on quality infrastructure and accreditation onto the field of halal product and service certification. In this respect, our primary purpose is to be an exemplary institution and also to establish constructive co-operation through sharing knowledge and experience internationally, especially in the Islamic World, and to contribute to halal certification and accreditation activities.

The scope of Global Halal Concept

The halal concept, besides being a religious notion, has now also become a global phenomenon. The increasing awareness and demand for the halal aspect are very significant within the current conjuncture.

In fact, when once only relevant to food, the halal matter is now referred to within the areas of cosmetics, textile, tourism, finance, and supply chain. In the great scheme, with the addition of the finance sector to halal products and services, the halal economy reaches a global volume of more than 4 trillion dollars. The importance of halal products is increasing globally and becoming one of the dynamics shaping the development of international trade. In this respect, halal is a leading factor in the economy considering its ever wider sectoral coverage.

In the present day, we can clearly observe the gradual increase of awareness for halal standards and certification. In this respect, a global halal certification market is established along with trillions of dollars of halal products and services trade. The annual size of the halal certification market is estimated to be 6 billion dollars.

In this framework, the halal concept with all its aspects, has a great potential in today and the future. Unlike many other countries and institutions, we approach this potential not with mere commercial concerns, but we also perceive it as a global lifestyle that adopts an understanding of a sustainable halal supply chain management, by taking into account the sensitivities of Muslims, and even Non-Muslims who prefer halal products and services, conformity with Islamic principles being in the first place, in areas such as “health, hygiene, and quality” at each stage from producers to end-consumers.

Halal Standards and Certification-SMIIC

Unfortunately, we see that a common language for halal in the Islamic world still couldn’t be established. This fragmented structure in the halal domain is a
major obstacle for the trade of halal-certified products and services. Currently, producers are obliged to obtain more than one halal certificate when exporting goods to different countries, and this leads to additional cost and time loss. It also exerts a barrier to trade and limits the trade of halal products.

On the other hand, another negative point is that different standards, certification methods, and logos cause hesitation and confusion in consumers and users. These concerns stand in the way of a global system based on trust.

For this reason, it is important to produce and certify halal products and services in accordance with common standards and to establish a system that will enable mutual recognition of these certification activities.

The way for Muslim countries to reach these goals is clear: It is the Standards and Metrology Institute for Islamic Countries (SMIIC). We see the SMIIC, an affiliated institution to the OIC, as the most fundamental umbrella organization in terms of halal standards, certification and accreditation and we care about and support its work.

Since 2010, SMIIC has been working on the standards that will form the basis for a common certification system. However, another yet very important part is still needed for the system to function. And it is the creation of a halal accreditation scheme in the Muslim countries and SMIIC, which will enable the acceptance of halal certificates all over the world.

In this context, intensive work has been carried out for the establishment of a scheme that will enable mutual recognition of Halal certificates under the umbrella of SMIIC. To refresh the memory of the readers let me recall the recent developments on this endeavor. After the SMIIC Accreditation Council member countries were assigned for the 2018-2020 period; in the first meeting of the SMIIC Accreditation Council in February 2018, the work on SMIIC Regulation started and it was decided that the Accreditation Council shall operate in accordance with the Terms of Reference to be prepared and to include the methods and principles regarding the management of the Accreditation Council. In this context, the Terms of Reference document has started to be prepared. Preparation of the mentioned Terms of Reference was carried out by a Task Force Group composed of countries within the Council. Finally, a joint text was agreed in the 2nd meeting of the SMIIC Accreditation Council on 28-29 June 2018 in Istanbul.

Ultimately, in the SMIIC 17th Board of Directors meeting held in Saudi Arabia on 4 November 2018, the approval process was postponed to the meeting held in April in order to eliminate the slight differences and disagreements on the Term of Reference (ToR). I hope that the operation of a global halal accreditation system under the roof of the SMIIC AC will thus begin with the efforts of the Chairman and Deputy Chairman of the General Secretary of the SMIIC.

It is obvious that we still have a long way to go more than the distance we have covered. However, as you know, the most important part of the most challenging journeys is the first step. Today, we must be clear about whether to take this first step, and we must declare the determination to be together with all Muslim countries in the issue of halal.

Establishment of a common accreditation system under the leadership of SMIIC AC will increase the confidence of the consumers in halal documents by ensuring the traceability of these documents. A Muslim will then be able to consume the product or service with contentment when s/he sees the halal certificate issued by a conformity assessment body accredited by the accreditation bodies of the SMIIC member countries no matter where they are in the world. In addition, it will open the way for mutual recognition of documents through accreditation. This will bring a fresh breath and momentum to the trade among the Muslim countries.

I would like to state one point in particular; a common accreditation system under the umbrella of SMIIC will be beneficial to not only a single country but also all Muslim stakeholders. In other words, an accreditation system that invigorates with the active participation of all member states will provide the establishment of a system in which Muslims play the leading role in the halal field as both regulator and supervisor.

As I have stated above, it is the duty of us who are in authority today to ensure that Muslims emerge as the sole decision maker community in the halal area.

I would like to draw the reader’s attention to the point I consider important. The fragmented structure which stems from different standards and certification methods in the halal area creates a technical barrier to trade and causes a crisis of confidence. Moreover, it pushes aside Muslims, who are the essential factor in the supply and demand in the halal area, to play a secondary role in the very same area. In the world, only 20% of the halal market is already in the hands of Muslims. Unfortunately, non-Muslim certification bodies decide whether products and services are halal or not in such a matter of religious foundations as halal certification and this is never acceptable.

Unfortunately, Muslim countries are not effective enough in this area, so the void created by Muslims is filled by the other organizations. In this respect, other countries are becoming key players in the halal domain.

Obviously, as Islamic countries, I believe that we have the technical competence, human resources, quality infrastructure and motivation needed for the formation of a common accreditation system that will guarantee our products to be safe, healthy, hygienic, and halal and tayyib.

Turkey open to all kinds of cooperation with all stakeholders. In this regard, as much as we are eager to
collaborate on technical experience coming from implementation, we also are willing to get your opinions and listen to your experiences.

To underline one more time, as Turkey, we believe and support that the halal certification area belongs to Muslims.

**Turkey – SMIIC Relationship**

Since its establishment, Turkey has actively supported SMIIC in all its activities. No one should doubt whether Turkey will be glad to contribute to the efforts of the SMIIC Accreditation Council with all its facilities and capabilities of accreditation.

In accordance with the agreement that we reached in the SMIIC as per halal accreditation being fulfilled by the accreditation bodies of the member countries, HAK is the only institution responsible for the halal accreditation in Turkey.

I believe that HAK will be instrumental in the pulldown of the existing walls in halal trade and will serve as a pioneer to reveal the real potential of halal trade. I would like to reiterate that Turkey will provide all kinds of support to put the global halal accreditation system under the SMIIC scheme into force immediately. As before, we will support SMIIC from now on, too.

We expect the same stance from all the member countries of the OIC. Currently, 36 of 57 OIC members have membership in SMIIC and I would like to express my satisfaction that Kazakhstan and Uzbekistan will officially join the SMIIC family as of January 1, 2019. If we want to eliminate the existing fragmented structure in the halal domain of the Islamic World and to be the rule-maker, other OIC member countries should join SMIIC, as well. In this way, I believe that we will be empowered by the common mind-based decisions on halal lifestyle throughout the umbrella of SMIIC.

**There is no doubt that 6th Halal Expo held under the auspices of the President of the Republic of Turkey, will make a significant contribution to all relevant stakeholders in this sector by developing halal trade, introducing new technologies and making new markets accessible.**

Mr. Soylu finished his Bachelor’s Degree from Ankara University in International Relations then he completed his master degree in International Economy from University of Illinois (U.S.A.).

Mr. Soylu holds the Director General position in the DG Product Safety and Inspection under the Ministry of Economy. The Ministry is responsible for preparation and implementation of Turkey’s policies for product safety and inspection. Additionally, the Ministry is responsible for the coordination of Turkey’s policies and implementation on technical regulations, standardization and quality at bilateral, regional and international level.

The Ministry has actively engaged in the enhancement of Turkey’s quality infrastructure, including accreditation. In particular, the Ministry performed preparations for the establishment of Turkish Accreditation Agency (TÜRKAK) in 1999. The Ministry also supports Turkey’s technical cooperation with other countries on quality infrastructure through different platforms.

Ministry of Economy in Turkey coordinates the policies and implementation of Turkey in halal standards, certification and accreditation as well. In that aspect, Mr Soylu has especially taken an active role in the foundation of the Halal Accreditation Council (HAK), the sole authorized body for the accreditation of the halal conformity assessment bodies in Turkey. Within this context, Mr. Soylu holds an advanced knowledge and experience in the fields of product safety and inspection, technical barriers to trade, quality infrastructure including accreditation, halal trade, certification and accreditation.
Almost every country in the world is making some effort or the other towards the establishment and development of Halal standards. As an Islamic Scholar, Head of a Halal Certification body, member of a country’s standards technical committee, and one who has been witnessing the development, enforcement and effects thereof, I wish to share my research and experience so that standards committees worldwide may benefit therefrom and accordingly be able to attain the real objectives from the development of standards.

I wish to highlight the following six fundamental and essential points in this research paper which must be considered when developing standards:

1. Why is there a need for the standard?
2. Who is the target market of the standard?
3. What are the objectives of the standard?
4. What is the scope of the standard?
5. What are the principles upon which the standard will be based?
6. Who will prepare and develop the standard?

I have elaborated on each point above and expounded on the definition of Halal, its mention in various verses of the Glorious Quran covering different aspects of human life. Similarly, incidents from the noble life of our beloved Prophet sallallahu ‘alayhi wasallam, linked to the activity of standard development have also been gathered so that we may reap great benefit from the principles of this activity.

This paper also attempts to amplify the difference between the development of Halal standards and other standards such as ISO etc. Furthermore, it makes reference to the errors and shortcomings which have already occurred so that the experts in the field may bear these factors in mind and avoid repetition of those errors going forward.

In conclusion, the juristic position of the prevalent Halal systems has been explored, e.g. the Shariah position of accreditation, certification and the legal Shariah status of an auditor etc. has been evaluated. The presentation ends with a few recommendations and suggestions and a sincere Du’a that Allah Ta’ala grant acceptance to the efforts made by both young and old in the preservation and promotion of Halal.

1. Fundamental Principles for Determining Standards

It is imperative to bear the following basic principles in mind when preparing standards for anything, whatever it may be. These principles include:

Why is there a need for a Halal Standard?
Who is the target market of this standard?
What are the objectives of this standard?
What is the scope of this standard?
What are the principles upon which this standard will be based?
Who will prepare this standard?

If one studies any standard on the planet, all these points are taken into consideration during the preparation phase to ensure that it is of benefit to society and a means of its upliftment and progress. However, the responsibility is far greater when it comes to preparing a Halal Standard, because the scope of any other standard is restricted to the worldly affairs of mankind whereas Halal Standards affect both their worldly affairs as well as the outcome of their life in the hereafter. Hence, before going any further, we need to understand the answers to the above-mentioned 6 questions.
1.2 Why is there a need for a Halal Standard?

In order to answer this question, we first need to understand the meaning of “Halal” because it is the foundation upon which all the Halal Standards of the entire world are based.

1.2.1 What is “Halal”?

The word “Halal” is an Arabic word which literally means “untying a knot”[1] and, its technical meaning in the Shari’ah is “to allow or permit”[2]. This word has been used with the meaning of permission in various places in the Quran Kareem. For example:

1. "And eat from that which Allah provided for you – which is Halal and pure.”

Islam is a complete system and way of life which is why it addresses each and every aspect of man’s needs together with setting a standard for how man should conduct himself in each sphere of his life. Therefore, determining the Halal Standards and principles for food is the sole right of the Islamic Shari’ah and can only be prepared in light of the principles of the Shari’ah. If the Islamic principles and regulations are not taken into consideration while preparing these standards, the Shari’ah will not recognise it as a Halal Standard and it will never be acceptable to any Muslim society.

1.2.2 The Shari’ah Status of Halal Food

According to the Shari’ah, Halal food is related to the concept of Diyaanaat or Purely Worship. This means that it is something which is solely the prerogative of Allah and His right alone. Other examples of Diyaanaat include prayer, fasting, pilgrimage etc. Therefore, it is only the Shari’ah that has the right to determine the conditions and clauses of this branch of Islam.

Thus, only the Muslims have the right to determine the standards as well as supervise the Halal Certification process – non-Muslims are neither eligible nor entitled to fulfill this duty. The reason for this is simple: they do not even believe that Islam is the true religion, nor do they implement any of its laws in their lives. No matter how skilled a non-Muslim may be at planning and organizing, the responsibility of making the arrangements for Hajj (Pilgrimage) may not be given to him. In fact, he may not even enter the boundaries of the Haram (Holy Sanctuary). No matter how sharp the eyesight of a non-Muslim may be, his testimony to having sighted the new moon for Ramadhaan or Eid will never be accepted. This is why Muslims around the world make their own arrangements and moon-sighting committees to see the moon. They do not ask NASA to announce it.

Certification of Halal food, witnessing it and testifying to it is such a delicate matter that the statement or verification of a sinful Muslim will not be accepted regarding it. How, then, can the testimony of a non-Muslim be accepted regarding these matters?

1.3 Who is the target market of this standard?

Since Islam has ordained upon the Muslims that they should only consume Halal food and it is their religious duty to comply with this injunction, therefore, this Standard is actually being drawn up for the benefit of the Muslims. If their Shari’ah needs are not being addressed by the Standard, it would (from a Muslim’s point of view) be detrimental to them both in this life and in the afterlife. Nevertheless, there is nothing preventing the entire mankind from benefitting from Halal food.

1.4 What are the objectives of this standard?

The purpose of having Halal Standards is to ensure that all the food which is consumed by Muslims around the world are prepared and certified according to that particular Standard so that the Muslims can eat it without the slightest reservations and fulfil their Shari’ah duty of eating only that which is Halal.

1.5 What is the scope of this standard?

The scope of the Halal Standard is the preparation of Halal food stuffs, supervision of the preparation process etc. upon which the success of every Muslim’s worldly life and afterlife depends.

1.6 The principles upon which this standard will be based are:

The fundamental principle upon which the Standard has to be based is the Shari’ah. This may be divided into two parts:

1.6.1. Strictly religious and related to worship
    (Diyaanaat)

1.6.2 Related to transactions and dealings
    (Mu’amalaat)

The First Part:

From this part, the basis of the Halal Standard is to be found in the Quran, the Sunnah and their explanation – i.e. Islamic Jurisprudence. Only those standards which are prepared in light of the above-
mentioned three aspects of the Shari’ah will be considered Halal standards.

The Second Part:
This pertains to the running and administrative dimension of the Standard and may be divided into 2 parts, as well:

1.6.1.1 If the Shari’ah itself has determined any specific method of administration, that will be given first preference.
1.6.1.2 If the Shari’ah has not stipulated any specific method, practical experience may determine it on condition it is not contrary to any command of the Shari’ah.

1.7 Who will prepare this standard?

One has to solicit the services of numerous professionals when drawing up this standard. However, whoever draws up the standard will have to be Muslim. This is why, in 2016, the Muslim countries rejected the ISO’s proposal to form a Halal Standards Committee (to draw up a single, internationally applicable Halal Standard) by voting against it.

These professionals include professionals in the field of Shari’ah law, food scientists, industrial specialists, specialists in drawing up standards, specialists in the language in which the standards are being drawn up etc.

If the above-mentioned conditions are met when drawing up the standards, it will have the soul which a Halal Standard needs to have and the Muslims around the world will be able to derive benefit from it. However, in the current prevalent set-up, these conditions are not given their due importance which is what drove me to write this treatise.

2. A Humble Appeal from One Brother to Another

As I have already mentioned, I have had the opportunity to read the Halal Standards of various countries due to my association with the field of Halal. For some time now, various Muslim countries have prepared standards for Halal certification and accreditation. Having read these standards, I would like to make a humble appeal to my brothers in the fraternity.

There are several discrepancies in these Standards:

2.1 The Halal Standards generally comprise only a few pages with the rest of the Standard merely providing references to the ISO Standard.
2.2 A few pages of Halal Standards have been written with the rest of the Standard literally copied from the ISO Standard, verbatim.
2.3 The ISO Standard was adopted in its entirety with only a few minor clauses added in to accommodate Halal matters.

In principle, I feel that the three above-mentioned methods do not do justice to Halal Standards, which is against the Shari’ah, unwise and undiplomatic. The negative impact which this has had includes the following:

2.4 I have seen the Standard of a certain Halal Accreditation Organisation in which it was not even considered necessary for the Halal Certification Body to belong to Muslims for the simple reason that the ISO has not mentioned any such clause in their Standard, whereas the entire Muslim ummah unanimously agrees that it is a basic condition for any Halal Certification Body to be owned by Muslims.
2.5 In the conditions of accreditation in a certain Standard, I read that the body was encouraged to take out insurance whereas insurance is impermissible in Islam and an alternative system – Takaful – is available.
2.6 In the financial agreement of a certain Halal Accredited Certification Body, it was clearly written that the body would charge its clients 5% interest if they do not pay their fees within 30 days – whereas interest is completely forbidden in Islam.

It is not the ISO’s fault because the ambit of its operation in not religion, whereas Halal Standards are purely religious in nature. Therefore, it was the duty of those who drew up the standard to scrutinise each and every clause and discuss it from a Shari’ah perspective so that dangerous mistakes of this nature are avoided.

The Shari’ah binds us to draw up any and every standard strictly according to and within the rules and regulations of the Shari’ah, especially when it comes to purely religious matters. This is precisely why Islam has its own complete and perfect system of marriage, divorce, inheritance, business, social and domestic interaction etc. For this reason, every single word of the Halal Standard should be our own. There is nothing wrong if we have to “borrow” a clause regarding any secular aspect from any other standard. However, it should be done according to our needs, according to our environment, in our own words and in our own style. In fact, this is the very method that is adopted when any standard is drawn up, the world over. As evidence for my claim, I will now present some anecdotes from Islamic history:

When Rasoolullah s.a.w. migrated to Madinah Munawwarah, the Sahaabah r.a. would gather for prayer without being called and without any announcement. The Sahaabah r.a. were consulted regarding an appropriate method of announcing the time for prayer and were asked for their ideas. Some of the Sahaabah r.a. suggested the method of the other religious groups such as blowing a trumpet or bugle, blowing a horn, lighting a fire etc. However, Rasoolullah s.a.w did not like to adopt the method of others. Instead, he instructed them to walk around and announce the commencement of the prayer. During this time, some of the Sahaabah r.a. saw a dream in which the Azaan (call to prayer), as we know it today, was being taught to them and Rasoolullah s.a.w. approve this as the method of calling everyone to prayer. [6]
In the story above, the actual objective was gathering people to pray and this is an administrative issue. However, Islam showed its awe and dignity, kept its exclusive identity by implementing its very own distinct method of gathering its adherents for prayer in the form of the Azan and showed its express dislike for adopting the methods and style of others.

Another story can be found in the books of Hadith: One day, Rasoolullah s.a.w. saw a few pages of the Torah in the hands of Hazrat ‘Umar r.a. Seeing this, he said: “Why do you feel the need to read this when the Quran has been revealed to you? By the oath of Allah! If Moosa a.h. was alive today he would also have no other option but to follow me.” [7]

In Mir-aatul Mafaateeh the commentary of Mishkaatul-Massbeeh, it is mentioned that the content of those few pages from the Torah only comprised stories and advice. [8]

Are we, the Muslims, so incompetent that we cannot draw up our own standards? Are we incapable of determining and expressing the administrative clauses in our own words and with our own phraseology? The cherry on the cake is that we even go as far as saying that it is indispensable and of the utmost importance to implement the international standards which we have referred to. As far as I am concerned, the word “indispensable” is incorrect from both a Shari’ah and technical dimension.

Allow me to present an alternative:

As I have mentioned, a proposal was sent to the ISO last year that they should draw up a Halal Standard for the Muslims. The ISO sent this Proposal to all its members and the majority of the Muslim countries like Pakistan, Iran, Malaysia etc. rejected the idea solely because the issue of Halal and Haraam is a purely religious matter and solely the prerogative and domain of the Muslims. Halal Standards are a representation of Muslims and Sunnah and it is only the Muslims who have the right to interpret the Quran and Sunnah. Since the ISO is a private, non-Muslim owned and non-Muslim run organisation, it does not have the right to venture in this direction.

Bear in mind that the ISO clearly stated that the Halal Standards will be drawn up by a committee consisting only of Muslim members. However, since this project would have been run under the supervision of the ISO and it would be attributed to and owned by a non-Muslim organisation – the ISO – which the Shari’ah does not allow, the entire idea was repudiated.

3. My Question:

A question arises at this juncture: If it is not permissible in the Shari’ah for a non-Muslim to determine and supervise any Halal Standard and the Muslim countries have also voiced their agreement with its impermissibility, how can any Muslim country, claiming to represent the Muslims, adopt the standards of non-Muslims as part of their Shari’ah Halal Standards and then force everyone to accept it? The reason why this can never be allowed is that, in both cases, the non-Muslims become shareholders, owners, and participants in determining and explaining the Shari’ah Halal Standards, whereas the adherents and followers of every religion reserve the sole right to interpret and determine their own individual religious matters and teachings.

4. Shari’ah Terminologies in the Halal Accreditation System

If one has to look at the Halal Accreditation System which is currently in place, it addresses a vast array of administrative elements in order to ensure that the Halal Certification Body can work within a strong and consolidated structure while ensuring that it can be properly evaluated, thereby increasing the confidence which the consumers have in the Halal Body.

Until now, people seem to have the impression that, since a popular international system has already been put in place, it seems appropriate to integrate it into the Halal System so that we do not cut ourselves off from the world. In principle, this notion seems correct and Islam would never instruct us to cut ourselves off from all civilisation. On the contrary, Islam encourages us to lead communal and social lives. However, one should understand that there is some law or the other of the Shari’ah linked to each clause in the Accreditation System. A few examples include the following:

4.1 Accreditation

According to the Shari’ah, Halal accreditation falls within the ambit of the Halal Certification Body’s sole discretion (wilaayat-e-khaassah) due to which certain aspects of the Shari’ah apply to it. This includes Huqooqullaah (sole rights of Allah), Qadhaa (administration of justice), Iftaa (passing Shari’ah rulings), Wakaalah (power of attorney or acting as a legal proxy), Shahadah (giving Shari’ah testimony), Khabar (conveying information which is valid in the Shari’ah) to name the main aspects.

4.2 Certification

The Shari’ah considers this equal to Shari’ah testimony which has its own set of Shari’ah rules. For this reason, the word “certification” has a far broader meaning in the Halal Standards than what it has in any other standard.

4.3 Auditor

The Shari’ah considers the one who fulfils this duty to have 3 dimensions: inspector, proxy and witness. Each dimension has its own set of rules which are connected to this person’s worldly and religious dealings. Hence, the Halal Auditor has a far greater responsibility than any other auditor. Furthermore, monitoring things in this manner is established from the noble practice of Rasoolullah s.a.w.

Hazrat Abu Hurayrah r.a. has narrated that the Noble Messenger s.a.w. once entered the market place as saw someone selling wheat. He asked the price of
the wheat and took a handful of the wheat in order to weigh it. Upon entering his blessed hand into the mound of wheat, he felt that the wheat on the inside of the mound was moist while the outer layer of wheat was dry. Rasoolullah S.A.W. asked him: “What is this?” The shopkeeper responded that: “It rained last night and some of the wheat got a little wet.” Rasoolullah S.A.W. said: “If that was the case, why didn’t you place the wet wheat on top so that the people can see it is wet? Remember – Whoever deceives us is not one of us!”[9]

The above-mentioned terminologies already have their own independent meanings and status in the Shari’ah and each one comes with its own set of rules and conditions. This does not only have an impact on this worldly life, but also introduces and conscientises one about the hereafter and that is something far superior to any international standard. However, we either need to study our Shari’ah or we need to put together a team that knows both Shari’ah terminologies as well as the terminologies of the current international standards and is able to combine the two so that the Muslims are able to practise upon the Shari’ah completely while simultaneously meeting the administrative marks.

We are currently adjusting and cross-referencing the Pakistani Halal Standard according to the Shari’ah, and in sha’Allah – it will be available for scrutiny and public review very soon.

5. Finally, My Proposal:

In my opinion, we will be able to derive multiple benefits if we accord the status of Informative References to the international standards instead of a Normative status together with changing the clauses according to the needs and demands of the Shari’ah so as to preserve both the essence and the objectives of Islam. A glaring example of this is the constitution of each country. No country would ever refer to the clauses in another country’s constitution. Instead, they maintain their exclusivity so as to preserve their sovereignty and authority.

Does the Shari’ah not demand its own independence and sovereignty?

Furthermore, if we do not do this, we will be forced to amend our standards whenever there is an amendment to the International Standards. For example, adherence to the Quality Manual was compulsory according to ISO 9001-2006 but this no longer applies. Previously, it was compulsory to have an M.R. which has now become redundant.[10]

I have also heard some notable people stating that they only use the ISO or any other International Standard as the Halal Standard in order to obtain international acceptance. In response to this, allow me to ask a few questions:

Is it the Muslims of the non-Muslims who need a Halal Standard? Hence, do we need the acceptance and acknowledgement of the non-Muslims or of those people for whom we are drawing up and determining the Halal Standards? Secondly, assuming we conform to and harmonise with the International Standards, will we not still need the ISO 9001; 17021 and 17025? In other words, would you be able to export products which are certified Halal according to Halal Standards to those countries without an ISO 9001 certification? Would those countries accept these products according to their laws purely because they were prepared according to the Halal Standards? Would a Halal Accredited Body receive an ISO 17021 or 17025 certificate purely because it is Halal accredited?

Looking at the current scheme of things, the answer to all these questions is a plain and simple NO! So, if this Halal Standard cannot replace any other International Standard, how is it an intelligent move to make it conform to any International Standard?

In conclusion, I would like to make a simple request – as a national organisation, we are entrusted with the responsibility of fulfilling the rights of millions of Muslims. Whatever we do, do it with this in mind that we will have to explain ourselves before Allah on the Day of Judgement. In doing so, we will secure our worldly life as well as our salvation in the hereafter.

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- CEO, SANHA Halal Associates Pakistan
- Head of Shariah research department, SANHA Pakistan
- Senior Member (as Sharia Expert/Mufti) Pakistan Halal Standardization Technical Committees PSQCA
- Vice Charmian NSC for Halal PSQCA
- Participated in Pakistan Halal authority bill decision
- Presented of more ten 10 Halaal research papers nationally and internationally
Halal Certification Experience in non-Muslim countries: Influence and Role of Governmental Institutions

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\textbf{ABSTRACT}

“Halal Certification Experience in non-Muslim countries: Influence and Role of Governmental Institutions”

Directed Halal certification in Russia started from 2002 year, when the Chairman of Russia mufties Council sheikh mufti Ravil Gainutdin applied to the President Administration of the Russian Federation and had met with the President of the Russian Federation Vladimir Putin. As a result, in 2003 year “Ulama of the Russia mufties Council developed the first Halal standard on the territories of former Soviet Union “Requirements for production, manufacture, processing, storage and sale of Halal products HALAL-PPT-SMR”.

Russia mufties Council also had developed and registered in the Federal Agency on Technical Regulating and Metrology (ROSSTANDART) the first system of voluntary Halal certification (02 March 2009). The objectives of this system are ensuring a confidence of Muslim consumers that the products are Halal and produced in accordance with canonical norms of Islam.

The Centre carries out activity by standard of organization in accordance with the requirements of:
- the Holy Quran
- the Sunnah of prophet Muhammad (صلى الله عليه وسلم)
- Islamic theological conclusions, Muslim Scholars’ fatwas
- Halal Standards
- Russian Legislation
- Technical Regulations of Eurasian Economic Commission
- Food safety management system

Last year Gulftic-ICSC Halal certification body was also established by us for GCC countries. Gulftic-ICSC Halal approved by ESMA and accredited by GAC. Currently Halal has good image in Russia. Halal products are very well-known and popular not only among Muslims but also among non-Muslims. In each Hypermarket you can find Halal products, there are Halal markets in each region and district.


Project Technical Committee No. 704 on standardization “Halal products and services” was established last year. TC No. 704 includes three Subcommittees:
1. “Halal Food products”
2. “Halal non-food products”
3. “Halal Services”

Nowadays Rosstandart drafted the program of developing of Halal Standards.

Ministry of Agriculture of the Russian Federation, its agency Rosselkhoznadzor and other Russian government authorities fully support Halal industry.

Halal issues are under protection of Russian legislation. Recently Russian courts made judgments about punishment of seller and one big sausage company, which doesn’t comply to Halal requirements and during many years uncontrolledly produces Haram products certified as Halal by one private HCB represented by two-three employees only. We tried to inform world Halal community because we want to stop feeding Muslims by Haram. It is not competitive game as some people says, it is a duty of
In this case there is one issue, which is very important in Halal Certification: Constant Control of Halal manufacture by HCBs’ Supervisor. It is a key Assurance of Halalness of the products.

Our experience shows that independent HCBs’ Supervisor must control full Halal processing in the manufacture in non-Muslim countries. It definitely should be declared in all Halal Standards, including national and international Halal Standards of OIC countries. Only the presence of Halal Supervisor can guaranty that production complies to Halal requirements. However, some scheming producers don’t want spend extra money and they choose more easiest way – to apply to dexterous businessmen (slick operators), which impose easiest requirements to the producers, which open doors for numerous no observances in Halal industry. These no observances lead to a breach of Muslims consumers rights.

The Rules of Kosher Certification are stricter and Halal Certification should also be more severe, particularly in non-Muslim countries. And Government Institutions of Muslim countries must support HCBs in non-Muslim countries by their legislation and technical regulations. It can be reached by unifying of Halal standards.

Also, clearly that full ban for the producing Halal products in manufacturers, using pork and its derivatives, must be implemented in all Halal Standards.

These days when Halal industry capacity amounts several billion Euro, all world business wants to be part of this market. Unfortunately, some of business communities want only make a profit without any compliance to Halal requirements. In this case a Role and Responsibility of National Government Institutions of Islamic countries more than ever arise and becomes on the first place.

Halal is the basis of well-being and prosperity of the Ummah.

A special mission of SMIIC and related Authorities to achieve that all OIC members’ government services implemented Regulations for tracking and entering of Halal products certified by accredited HCB’s to the country.

Only Muslim Accreditation Authorities over the world must accredit Halal Certification Bodies under OIC and SMIIC patronage. It should be declared in national legislations.

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Part II

Halal Food
Halal & Tayyeb Concepts in The Halal Standard: A Fundamental, Critical, and Analytical Review

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ABSTRACT

Halal studies and technical standards have consistently distinguished the notion of Halal and the Tayyeb (good-wholesome, hygiene), so far, the word Halal is given the legitimate implications of this concept (Religious aspect), while Tayyeb concept on other aspects related to hygiene and safety systems and quality of products. This creates confusion in concepts that requires highlighting the validity and truth of this distinction. The approach of this study was to explain these concepts within their Religious basis and then to explain their contents according to the halal studies to create a methodology that ensures the validity of using these terms with their authentic original contents and to install them on an integrated approach of science, the integration of reviled and mental sciences and follow his instructions to contain its labour and birth as an independent science in itself, what may be known as "Halal-Tayyeb Science".

1. Introduction

Introduction:

There is no doubt that the prohibition and analysis is the right of God alone, and does not share it with anyone, so God has stressed on those who lie to God lying in the words:

[58] Say: In the grace of Allah and in His mercy-- in that they should rejoice; it is better than that which they gather.[59] Say: Tell me what Allah has sent down for you of sustenance, then you make (a part) of it unlawful and (a part) lawful. Say: Has Allah commanded you, or do you forge a lie against Allah?

Yunus(10): 59 – 60.

In the same surah, the warning is renewed:

[10.69] Say: Those who forge a lie against Allah shall not be successful.

[10.70] (It is only) a provision in this world, then to Us shall be their return; then We shall make them taste severe punishment because they disbelieved.

In Surat Al-Nahl, and in the context of the analysis of good eating, the warning is renewed by the painful torture and the failure of the farmer in this world and the hereafter only those who repented and corrected. As God says

[16.114] Therefore eat of what Allah has given you, lawful and good (things), and give thanks for Allah's favor if Him do you serve. [16.115] He has only forbidden you what dies of itself and blood and flesh of swine and that over which any other name than that of Allah has been invoked, but whoever is driven to necessity, not desiring nor exceeding the limit, then surely Allah is Forgiving, Merciful. [16.116] And, for what your tongues describe, do not utter the lie, (saying) This is lawful and this is unlawful, in order to forge a lie against Allah; surely those who forge the lie against Allah shall not prosper. [16.117] A little enjoyment and they shall have a painful punishment. [16.118] And for those who were Jews We prohibited what We have related to you already, and We did them no injustice, but they were unjust to themselves. [16.119] Yet surely your Lord, with respect to those who do an evil in ignorance, then turn after that and make amends, most surely your Lord after that is Forgiving, Merciful.

Bees (16): 114 – 119.
Therefore, the believers find the question of their prophet Mohammed about halal as God tells us about them in his saying:

 completo seven heavens, and He knows all things.


The author of the interpretation of al-Manar said in the meaning of this verse on the basis that the origin in the created things permissibility to eat and drink and wear, and ride and beauty², which went to Al-Suyuti¹ and Ibn Taymiyyah³, and then followed the verses and sentences that indicate the prohibition of restriction on permissibility³.

Perhaps the first restriction came from the absolute Halal is what is stated in Surat Al-An'am⁴ in saying the truth, Allah said:

[5.4] They ask you as to what is allowed to them. Say: The good things are allowed to you, and what you have taught the beasts and birds of prey, training them to hunt-- you teach them of what Allah has taught you-- so eat of that which they catch for you and mention the name of Allah over it; and be careful of (your duty to) Allah; surely Allah is swift in reckoning. [5.5] This day (all) the good things are allowed to you; and the food of those who have been given the Book is lawful for you and your food is lawful for them; and the chaste from among the believing women and the chaste from among those who have been given the Book before you (are lawful for you); when you have given them their dowries, taking (them) in marriage, not formnicating nor taking them for paramours in secret; and whoever denies faith, his work indeed is of no account, and in the hereafter he shall be one of the losers.

Al –maida (5):4-5.

As it turns out that the pleasantness - in these words - includes material things such as food and procedural methods of fishing in the wild and such marriages. Or what is called in our time: products and services. This research explores the religious legal and reformist concept of both Halal and Tayyeb through the sources of Islamic legislation, original-referral Arabic linguistic book, and compares with the meanings correspond to its concepts of some Halal Standards of Malaysia, New " Halal-Tayyeb Science" with a wide knowledge of transportation sciences such as Shari'a sciences and mental sciences such as biology, chemistry, nutrition, law, administration, economics, tourism, health care, finance and other sciences.

THE FIRST REQUIREMENT: The linguistic concept of Halal, legitimate, and regulatory controls

A - The linguistic concept of the halal:

The root of the root is Hal-I-I and has many meanings, which suit the context of the meaning of opening the thing and is said to have solved node Ahl Hala. And the halala against haram as if it was analyzed, if it is revealed and extended to a command¹.

B - The legitimate concept of Halal:

The majority of fiqhah (Muslim scholars) refer to the concept of halal in Islamic law to the absolute, since they see as opposed to Hanafis that the origin in this origin is permissible except what is restricted by Shareeqah, while Abu Hanifa sees that the origin is the restriction except what is permitted by Shareeqah. It is inferred for that by what Allah said:

[2.29] He it is Who created for you all that is in the earth, and He directed Himself to the heaven, so He made them

¹ Asfahani, Muradifat alalougha, page 114.

[5.90] O you who believe! intoxicants and games of chance and (sacrificing to) stones set up and (dividing by) arrows are only an uncleanness, the Shaitan's work; shun therefore that you may be successful.

Al-Maida (3): 90.

As for what is true about the Holy Prophet in his blessed year, he forbade the city to eat "the can of the canoe from the springs and the claw of the bird".[7]

The third part: The regulations governing the status of Halal

The Halal studies give this concept two basic pillars[8], among them the so-called prohibitions of impurity (Najis) and intoxicant (Iskar).

As for the impurity, it means filth[9], and it is originally from the act unclean, but terminology is everything that is forbidden to take it at all. It is the opposite of cleanliness and that there are many definitions[10]. The scholars differentiate between two kinds of impurity; one is moral and one is sensual. It means by moral filth that is related to unbelievers[11] in which Allah said:

[9.28] O you who believe! the idolaters are nothing but unclean, so they shall not approach the Sacred Mosque after this year; and if you fear poverty then Allah will enrich you out of His grace if He please; surely Allah is Knowing Wise.

Tawba (9): 28.

As for the impurity of the sensual, it is in the Maalikis, Shaf'a'i's and Hanbalis[12] of two kinds: the Najaasah is in the sense of the eye and the other is the sensory sense.[13]

Al-Shaafa'î also adds another division of impurity, which divides it into uncleanliness. This includes the "Najaasah" of the dog and the pig, and the soft Najaasah, which includes the Najaasah of the male male urine and the other Najaasah[14], which is the definition which was mentioned in the Halal standard in Malaysia, Halal food preparation: (MS 1500: 2009) in Section 2.4.2, especially since the Shafi'i School is dominant in Malaysia.[15]

And the taboos that mentioned the specific and are dead, blood and pork. "Any land animal which has blood (accept insects) [his soul] has not been imbued with legitimacy[16] he said, as it was explained in Surat al-Maa'ida, which is both the suffocating, the abhorrent and the slanderous, and what the seven ate and what the people of God did not. And the blood was covered, as the Arabs in the Jaahiliyyah (befor Islam) were "sheding blood from the animal alive and eating it, as well as the blood of the carcass.[17]" As for pork, its slag is self, and it is harama, and if it does not eat, it is pure, and he went to consider other parts as harama. "It is an abomination," he said, referring to the pig, ie, the whole pig is his flesh, not his flesh, even his hair, and the meat is singled out because it is the greatest of what he meant, and others followed it. Or he considered that if he is deprived of his flesh, he needs it, then others thingd are in dead forbidden[18].

As for the intoxicant (ISKAAR), which can be defined as all the sugars of materials and made by wine and other wines, and whether you eat fruits such as grapes, dates, figs and others, or grains such as barley and so on, whether in his name wine or other names such as names traded commercially, What absent the mind without senses such as cannabis and other[19], which is Haram ah to what is mentioned in the Surat al-Maida referred to, as wine is Haram and very few to the Prophet's speech, "What May a lot is intoxicant, few is Haram"[20] which constitutes a basis can be verified by checking the components of the product in terms of abandonment Whether or not to achieve a description of the halal in this the product.

The second requirement: The linguistic concept of "Tayyeb" goodness and its rules of regulation

It is possible to say that the concept of Tayyeb is carried on its illegitimate meaning, which necessitates a statement of its linguistic and legal concept at the beginning, and then the statement of the regulations that it codifies.

A - The linguistic concept of good:

Tayyeb, indicates otherwise malicious. And the Istitibaah is Istinjaa means lifting impurity with pure water. And the Atyaban eating and marriage, said this food isto be good or Tayyeb for the soul. And the good Halal. Also, AT-TAB is the perfume (Atteeb)[21].

B - The legitimate concept of good

The word "good" came in many places from the Holy Quran, in conjunction with Halal, and this is the view of Allaha, Blessed said:

[5.88] And eat of the lawful and good (things) that Allah has given you, and be careful of (your duty to) Allah, in Whom you believe.


[2.169] He only enjoins you evil and indecency, and that you may speak against Allah what you do not know.

AL-Baqara(2):169.

Malik said that what is meant by good here is halal and sinful is Haraam and they are two qualities of halal and Haraam and nothing else, where he is Haraam as a sinner for his sin and his supplication, and praises and honors the halal as a good thing. This is what Al-Qutubi and Al-Tabari said in their interpretation of the advanced verse.
The concept of the violation by saying that the good is what is not Haraam\(^22\), which is the view of Ibn Taymiyah in the total of fatwas by saying that the good is a description of the eye itself\(^23\).

As for the Shaafis and the Hanafis, he said to them and the Hanbalis, they see another meaning for the good that is not halal. It is meant by what is beneficial to the proper printing and is given by the soul and the common sense. It is against the malignant\(^24\), and they have made the criterion in that is what the Arabs are fond of, and the malignant is what they use.

[7.157]… enjoins them good and forbids them evil…

AL- Araf (7): 157.

[5.4] They ask you as to what is allowed to them. Say: The good things are allowed to you…


Al-Nawawi says that it is not intended to be a good thing here, even if it is a literal word without a statement. Rather, what is meant by what the Arabs enjoy is that they are the first nations and they are the first to speak about it. Abu Bakr al-Jassas said that the speech of God came to all people and did not belong to the Arabs without non-Arab, citing that the Arabs were not the use of mice or animals or claws and teeth, which is supported by the saying of Ibn Taymiyah that the Prophet \(ﷺ\) did not deprive his companions what the Arabs is Tayyeb for them and did not bark what is considered Tayyeb for them.\(^25\)

The research takes the second view and considers the first opinion partly as to its purpose in terms of the difference between the provisions of the good among Muslims on the difference in their customs\(^26\), and evidence of this, the behavior of the Holy Prophet Muhammad \(ﷺ\) when he gave him meat Aldb ( He said, "No, but he is not in the land of a nation, and he finds my salfe dislike it."\(^27\) However, it is not haram\(^28\), which requires, without harm or harm, the adoption of the components that are considered in the Halal products provided that they are clearly indicated on the product to be clarified By the consumer.

"But contemplating the texts of the Koran and the year and the meanings of the meanings of the good and the malicious see that the meaning is more general than seduction and appreciation,"\(^29\) but it affects the meaning of material and material, for example:

The status of good and malicious on the money and the Almighty says:

\begin{equation}
\text{النور (2): 267.}
\end{equation}

In the money of orphans as well, in the verse

\begin{equation}
\text{البقرة (2): 267.}
\end{equation}

[2.267] O you who believe! spend (benevolently) of the good things that you earn and or what We have brought forth for you out of the earth, and do not aim at what is bad that you may spend (in alms) of it, while you would not take it yourselves unless you have its price lowered, and know that Allah is Self-sufficient, Praiseworthy.


- The character of good and malicious in the words of speech, the Almighty said:

\begin{equation}
\text{الإسراء (2): 2.}
\end{equation}

[4.2] And give to the orphans their property, and do not substitute worthless (things) for (their) good (ones), and do not devour their property (as an addition) to your own property; this is surely a great crime.


- The character of the good and the malicious in the categories of people, where he mentioned in the context of those who aim at the impenetrable slander and the malicious speech of the Almighty:

\begin{equation}
\text{الإسراء (2): 21.}
\end{equation}

- Evil words are for evil men, and evil men are subjected to evil words. And good words are for good men, and good men are an object of good words. Those [good people] are declared innocent of what the slanderers say. For them is forgiveness and noble provision.

- And not only speech, even belief is malignant and good, and this was the hypocrites of the second category, a believer to the Almighty:

\begin{equation}
\text{الإسراء (2): 21.}
\end{equation}

[3.179] On no account will Allah leave the believers in the condition which you are in until He separates the evil from the good…

AL-IMRAN(3): 179.

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\(^{22}\) - tafsir online, kinq Saoud University. www.quran.ksu.edu.sa

\(^{23}\) Ibn Taymiyah, MAJMOU ALFATAWI, v 17, P178.

\(^{24}\) - Abdelhakim abdullatif assadi, ATAFSIR ASHI LI AHKAM SHARIA LI DABH, P 10.

\(^{25}\) - ibn taymiyah, ibid, p 179.

\(^{26}\) - mohammed abj gabis, FIQH ATIMA WA ASHRIBA, P33

\(^{27}\) - Hadith khalid ibn wald, sahih bukari number 5085, 5/2062, sahih muslim number 1945, 3/1543.

\(^{28}\) - ibn taymiyah, majmou alfatawa, 19/24.

\(^{29}\) - refifs bahmed, ibid, 1/240.
And since the good men for the good women, he mentioned the marriage with food as a good, and this in the verse:

And purification is not only water (The pure), and if it can be obtained, replaced by Taymum, and not only the water, the Almighty said:

And if you are sick or on a journey, or one of you come from the privy, or you have touched the women, and you cannot find water, betake yourselves to pure earth ….

And from what is stated in the Sunnah, on the one who is entitled to make peace, he said in Musk: "The best of the perfume is the Musk"30 and also the reason for the answer to the du’aa’i in saying to the Sahaba: "Kake your food Tayyeb31", Because Allaah is "GOOD and does not accept anything but good"32.

In summary, it is clear that out the good and the description of the truth of the thing, and Halal rule [legitimate] it. The Halal more than the good, Halal is legitimate/ religious ruling intended by what God allowed33. And concludes the saying that "thanks to God to us, and denied us the sins, and make what is forbidden to us from the sins of the good of the good"34.

<table>
<thead>
<tr>
<th>NON Halal</th>
<th>Halal</th>
<th>Tayyeb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Non Halal-Tayyeb</td>
<td>spiritually and logically, product cannot be non-Halal and Tayyeb in the same time.</td>
<td>Halal-Tayyeb All tastes are halal, but moderation requires consumption and consumption.</td>
</tr>
</tbody>
</table>

| 3 Non Halal-Non Tayyeb like wine and swine. | 4 Halal-Non Tayyeb like sheep meat which is slaughtered perfectly according to the sharia laws but it not preserved perfectly, it will causes harms if it is consumed. | Non Tayyeb |

Table 1 halal * tayyeb matrix

From the Table 1, we can conclude that the good wishes of living are divided into things and methods. As for things, they are also divided into "what is in the earth" from the plants of "planting" and "cattle" animals. And the suitability and permisibility of "products" of livestock is not sufficient alone, unless the mechanisms are entitled to "services". For example, sheep, cows, goats and camels are a Halal for believers, but they must be slaughtered on the rules of the Sharia so that their meat becomes good. Because all of the slander and deterioration, and strangled halal originally, but forbidden in the way of death, did not die cleverly because to remind them is a reason for its authenticity, and this is true to the saying "only what you clever."35 "The smart is the slaughter of the throat or the sacrifice of the heart of a Muslim. Or a book of an animal that is permissible to eat, that lives on land, by cutting off the throat, the esophagus, the paw, or the bottom if it is not possible.36 As well as "the cornerstone of the material is the act of what the soul suffers from the free of the horoscope and the collapse of blood, and a moral corner

31 - narrated b muslim.
32 Narrated by muslim.
33 Muajam forouk allogha, p 120.
34 Assalimi, noureddin, MAARIJ AL- AMAL, 2/ 254, 2010.
35 Al-Qurtobi, ALJAMIA AHIKAM QUN. 6/56, shawkani, FATH ALQADR, 2810.
36 Attariqi, AHKAM ZABAIH, LUHUM MUSTAWRADA, 60-70.
worshipping the purpose of collecting the intention to bring what God required to resolve the meat and the direction of intent intended to approach God Almighty.\(^{37}\)

**A - Organizational concept of good in Halal standards:**

The legal definition of the Halal product specifically was first introduced in the Malaysian Trade Descriptions Act of 1974, which was developed under the Malaysian Business Description Act of 2011\(^{38}\), which defined it as a Shari'a-compliant product free of any ingredients belonging to prohibited animals, or anything unclean or immoral in accordance with the provisions of Islamic law; anything extracted from or attributable to a person that is not permitted by Islamic law; or any harmful, dangerous or toxic substances, and that the product is not contaminated, processed or manufactured by contaminated instruments With impurities, and that It shall not be mixed when it is prepared, prepared or stored with any products that do not meet the advanced conditions or anything that is unclean in accordance with the provisions of the Islamic Shariah. It must also be prepared, manufactured, processed, stored, transported, displayed and processed taking into account health requirements and quality, safety, health and safety standards in the product\(^{39}\). (MS 1500: 2009)\(^{40}\) and has been inspired by all attempts to legalize Halal products.\(^{41}\)

The advanced definition reveals two basic aspects to be achieved in this product: compliance with the legal rules of halal and haram on the one hand, which has been termed in this product: compliance with the legal rules of halal in the product and compliance with the rules of health quality and safety.

The advanced definition of the Halal product is free of harmful, toxic and dirty substances\(^{42}\).

**The third topic: the primary preventive and procedural means to ensure the products “Halal – good”**

1. **Primary protective systems:**

   - System I: HACCP or HACCP\(^{43}\):
     - The system primarily concerned with the dangers of lunch safety. In Arabic, it can be called a Critical Impact Control System, a preventive system that targets all types of hazards and harms in the production of foods that are primarily intended to control them or reduce their incidence to a level of safety to ensure consumer safety and health risk, The system has a precautionary basis, and a documentation basis for document tracking.
     - This system is characterized by its pre-monitoring of the production process and the detection of danger before the damage. This is done by identifying critical control points during production from raw materials to final product consumption, which makes it one of the most efficient systems to ensure the safety of lunch by establishing a set of observations and measurements Rotating on those points and placing them under surveillance.\(^{44}\)
   - System II: HAS:\(^{45}\)
     - Halal assurance system, Is a system in which to ensure compliance with Halal requirements. Halal certification system in Malaysia certified as one of the requirements of Halal certification in Malaysia, a system that ensures the implementation and implementation of the previous HACCP system in accordance with Halal requirements. The system is based on the basic principles of identifying and following up critical points periodically, The implementation of effective measures and the development of treatments, with documented cases and validation of the process, which contains effective details that enhance Halal in the product.\(^{46}\)
     - One of the most important concerns of this system is to trace the sources of the raw materials that make up the ingredients of the product as Seoul to a halal product and to make sure that it is free of harmful or unclean substances according to the requirements of Islamic law. This system also emphasizes the supervision of Halal certificates of raw materials to prove their origin, validity, and the recognition of the importing country or not to the affluent party to testify. Documenting any excess that may be detected by local Halal inspectors as responsible for ensuring the "good and good" quality of the product. And the suspicion or suspicion of inspectors in one of the manufacturing components, comes the role of accredited laboratories to determine the case negatively or positively.
     - The role of the laboratories in determining the trace of the source of the raw materials raised to them in the case of doubt and suspicion, as they are dominated by materials that are of animal origin manufactured in Western countries similar to protein materials such as gelatin and fatty substances such as monoglycerine.

4. **System IV: The system of deterrence and repression of legal disputes**

   - To protect halal products, the law will impose criminal penalties for violating these provisions with a fine of RM100,000, three years' imprisonment or both, and doubling the penalty in the event of a lapse. The fine will also amount to RM250,000 and will be doubled to 500,000 riyals In case of aud, as well as the penalties for the use of a halal description on non-halal food or drink of up to five thousand Malaysian ringgit or imprisonment for a term not

\(^{37}\) Refiss Bahmed, atima musanna haditha, 1/123.

\(^{38}\) Jakim : JABATAN KEMAJUAN ISLAM MALAYSIA).

\(^{39}\) - Zalina Zakaria and Siti Zubaidah Ismail, The Trade Description Act of 2011 38, which defined it as a Shari'a-compliant product free of any ingredients belonging to prohibited animals, or anything unclean or immoral in accordance with the provisions of Islamic law; anything extracted from or attributable to a person that is not permitted by Islamic law; or any harmful, dangerous or toxic substances, and that the product is not contaminated, processed or manufactured by contaminated instruments With impurities, and that It shall not be mixed when it is prepared, prepared or stored with any products that do not meet the advanced conditions or anything that is unclean in accordance with the provisions of the Islamic Shariah. It must also be prepared, manufactured, processed, stored, transported, displayed and processed taking into account health requirements and quality, safety, health and safety standards in the product\(^{39}\). (MS 1500: 2009)\(^{40}\) and has been inspired by all attempts to legalize Halal products.\(^{41}\)


\(^{42}\) - Yumi Zuhani HAS-Hashim, Halal ,All that you need to know ,Vol 1 INHART IIUM Kuala lumpur 2013 .p51

\(^{43}\) - Hazard Analysis Critical Control Point.

\(^{44}\) - - Halal Assurance system.

\(^{45}\) - - Halal Assurance system.

\(^{46}\) - - Halal Assurance system.
Towards further research, investigation and reconsideration

If we study the OIC (Islamic Standards) Halal standards, in which we find a very large agreement and consensus among them, but there are issues intersecting in these specifications. They can also be classified under the heading of products and means.

The products (additives, food, cosmetic or pharmaceutical), which are called critical, although their number is not much, but the impact and the capacity to include in many products, making them widespread and worthy of consideration. As the common denominator in these materials is the subject of suspicion, and "suspects do not teach them a lot of people" as the origin of uncleanness or abomination.

1 / Material of animal origin: These materials are divided into two main types of substances of protein origin and other of greasy origin. Table 1 shows examples.

<table>
<thead>
<tr>
<th>Animal origin Ingredient</th>
<th>Fat base</th>
<th>Protein base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono and di glyceride</td>
<td>Gelatin: originally from skin and boon of animals</td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>Enzymes, blood plasma</td>
<td></td>
</tr>
</tbody>
</table>

1- Table 2 represent doutheful (Mashbooh) animal ingredients it may be used in Halal products. And may come to the reader's thinking the following question:

If these materials are of animal origin, is it not sufficient that the origin of the animals from the cattle, taking into account the legitimate method of slaughter, is sufficient for its suitability? The answer is: Yes. But there are two questions that need to be ascertained to determine the suitability of these materials. First,

- What is the correct definition of the concept of memorization / slaughter? And secondly,

- if it is not the materials of the cattle and it was the chick (and the reality of modern industries), how to match the bases of impossibility and consumption to cleanse impurity?

The decision of the International Council of Islamic Jurisprudence at its 2015 session on food developments did not separate the matter from a final fatwa and called for further research and investigation in its statement No. 210/26 concerning the impossibility and consumption of additional substances in Food and Drugstore

This reads:

- The Council of the Academy of Islamic Jurisprudence International, established by the Organization of Islamic Cooperation, held at its twenty-second session in the State of Kuwait, during the period: 2-5 Jumada II 1436 H, corresponding to 22-25 March 2015.

- 7 Gelatine: The Council considers that the Secretariat of the Synod is entrusted with further research and study of the subject.

Second: Regarding blood plasma: the text of which is mentioned in the above mentioned resolution, the Synod sees reconsideration of the subject for the existence of new data, and the secretariat of the Synod establishes a committee of specialists in that.

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2. مجموع الغاي ج1 ص 247
3. الإ Ngài و الطفلم ص 60
4. مجموع الغاي 21 ص 535
5. الشهري، محمد توضيح الحلال والحرام (القاهرة: مطبعة الشيخ الشهري، 1991) ص 7
6. عبد الله بن محمد الطريفي، أحكام الأطعمة في التشريع الإسلامي: دراسة مقارنة.
thinga are related to the property of others, which is not the scope of this study.

9-thinga are related to the property of others, which is not the scope of this study.

10-thinga are related to the property of others, which is not the scope of this study.

11 Dhahiri school of thought argue that the unbelievers are true unclean not moral filth. See Ibn Hazm, IV, 218.

12 - the hanafi school are out from the rest of the public in this division so that they differentiate between real najisah and realism, which is the uncleanness of malice, and the impurity of a sense of judgment. This is the najisah of the event. See Zayed Nawaf Awad Al-Duwai, op. Cit.


14- Zayed Nouaf Ouad Al-Duwairi, ibid, p 220.

15- Nour Al-Houda, Mohammed Firdouse, ibid, p 140.

16 - Atfayash, Amhamed Ben Youssef, Sharh An-Nil, 8/18.

17- Atfayash, Amhamed ben Youssef, Taysir At-Tafsir, 4/490.


20- narrated by Ahmed and Termizi.

21- Azamakhshari, Moajam Maqays Al-Loogha, soft version.

22- Tafsir online, King Saud University. www.quran.ksu.edu.sa.

23- Ibn Taymiyah, Majmou Alfatawa, v 17, P178.

24- Abdelhakim abdullatif assadi, Atafsir Ashi, Li Ahkam Sharia Li Dabab, P 10.

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26- mohammed ajib qabisi, Fiqh Atima Wa Ashriba, P33

27- Hadith Khalid ibn Walid, Sahih Bukhari number 5085, 5/2062, Sahih Muslim number 495, 3/1543.

28- ibn taymiyah, majmou alfatawa, 19/24.

29- reffiss bahmed, ibid, 1/240.

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From Halal Assurance to Halal Operational Efficiency: Exploring the Applicability of Japanese 5S Practices in Malaysia’s Halal Restaurant Operations

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A B S T R A C T

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Total Quality Management
5S

Halal certification is not a new issue in today's halal food ecosystem. Nevertheless, the idea of having ‘halal assurance’ from a halal certificate might not be that important in a Muslim majority society as compared to a society where Muslims are minority. Halal certification in fact could offer another important dimension particularly for multiracial country such as Malaysia. Moving from ‘halal assurance’ which is vital for Muslims, ‘operational efficiency’ would guarantee not only halal integrity but also physical quality of the halal foods and the diners, which is important be it for Muslims or non-Muslim. As such, the primary purpose of this research study is to explore the applicability of 5S practices as Japanese quality tool to influence consumer intention to dine at Halal Restaurants in Malaysia. Translating into English, these five Japanese words bring the meaning of sort (Seiri); set in order (Seiton); shine (Seiso); standardize (Seiketsu); and sustain (Shitsuke). Practically 5S could be and should be a very strong tool to instil the spirit of Japanese organizational management which is globally known for its discipline, high quality and hygiene to restaurants, particularly, halal restaurants. Seiri or Sort brings the idea of discarding and keeping only the necessary things which could be applied towards Halal restaurants at the very basic teachings of separating what is halal from haram. Seiton or Set in Order, focus on keeping the restaurants in neatness to attract customers. Seiso or Shine offer the benefits of teaching the importance to have healthier lifestyle and safety by ensuring the cleanliness of foods and diners. The fourth ‘S’ that is Seiketsu or Standardize translate literally the need for halal certification, but more importantly the philosophy of continually and repeatedly maintaining restaurants sorted, set in order, shined without the need for formal rules nor procedure to sustain the achievement. In other words, Halal should not rely on audition process alone. This confidence comes from the final ‘S’ that is Shitsuke or Sustain. Methodological wise, the adopted independent variable 5S practices are Sort, Systemize, Shine, Standardize and Sustain, while dine intention in selected Halal Restaurant is proposed as dependent variable. The statistical analyses in exploring the findings are among others: descriptive analyses such as frequency, mean, and standard deviation; reliability analysis; multiple correlations and coefficient; and also, multiple regression analysis. The result though still at preliminary testing shows that two out of the five variables, which are ‘Sort’ and ‘Shine’ found to be of no significant in influencing intention to dine at a Halal Restaurant. The other three variables however, which are ‘Systemize’, ‘Standardize’ and ‘Sustain’ are found to be positively significant to influence dine intention. This research is intended to path the way to recognize Halal as another ‘quality standard’ in organization business operation management, equals to the common wisdom of having criterions such as product quality, speed, and cost to determine business success.

1. Introduction

The estimated value for annual global market value for the entire Halal trade is USD 2.1 trillion (Malaysia Third Industrial Master Plan, 2006-2020). Growing Muslim population, estimated to be at 1.8billion with 1 billion centring in Asia have turn Halal products and services into big lucrative business markets. Halal Development Corporation (HDC) of Malaysia highlights the same issue as on South East Asia becoming an important and competitive regional market for halal products due its vast consumer market, fast developing halal food production and progress on halal certification (http://www.hdcglobal.com). It is in
fact now the time where demand for the halal food industry has gone past meeting the needs of a Muslim but is also beneficial as well for the non-Muslims. The benefits offered by Halal concept goes beyond the original idea that Halal is ‘permissible’ concerning Muslim alone; but has also attracts non-Muslim. In other words, Halal products should move beyond ‘halal assurance’ of inspecting and auditing for ‘halalness’ towards a more strategic and competitive high-quality halal products.

‘Halalan-Toyyiban’ could be viewed from two dimensions. The former could be more of the ‘Halalness’, the reasons for it being permissible, deems fit for used or to be consumed by Muslim; while the latter touching upon the universal value for all, the believers and the non-believers. They cite on the growing concern for natural and healthy product that has also contributed to halal brand becoming popular and highly sought after by society across races and religions that are looking for safe, hygienic and wholesome food. These have also resulted into the halal certification system no longer only portraying the ‘Halal Integrity’ of the product but also have enhanced its marketing value. Consequently, the concept of ‘Halalan Toyyiban’ has become more than a religious matter that it has become the “buzz” word in today’s business market. Hence, any agencies or bodies carrying the certification of halal is actually carrying the marketing image of Islam. Though the idea of guaranteeing ‘halal assurance’ might not be that critical in a Muslim majority society as compared to a society where Muslims are minority, Halal certification offer other important dimension; particularly for multiracial country such as Malaysia. It supposed to bode well with the correct marketing image, for the da’wah – conveying the message of Islam. Hence, moving from ‘halal assurance’ towards ‘operational efficiency’ would guarantee not only halal integrity but also ‘Islamic visibility’.

Learning from the successful experience of Japan that has made Total Quality Management (TQM) globally well-known and benchmarked by many countries including Malaysia, the authors feel that Halal movement could walk in similar path. Malaysia was among those nations, vowed to emulate Japan’s success with the Look East Policy (LEP) launched back in late 1981. Yet after more than three decades, recent political changed in Malaysia has the LEP revived again. Shaari [1-6] credited the unique Japan Management Style (JMS) synergized with successful TQM implementation for the birth of Japan Inc., and called for Malaysian to have their own Malaysian TQM implementation for the birth of Japan Inc., and Management Style (JMS) synergized with successful TQM to convey the message of Islam. Hence, moving from ‘halal assurance’ towards ‘operational efficiency’ would guarantee not only halal integrity but also ‘Islamic visibility’.

2. Literature Review

This section looks into Halal challenges in Malaysia before discusses on Total Quality Management, The AFC’S Model, and the 5S definition; benefits; and application at Halal restaurant.

2.1. Halal Challenges in Malaysia

Malaysia domestically has faced some issues when it comes to food premises such as halal restaurants. Shaari et al [7] reports on issues such as cleanliness, permissible, and ethics that have continued to be of concerned with some on the misconduct and unethical deeds concerning manipulation of halal certificate due to some irresponsible behaviours which include lack of awareness and greed for business profit. Shaari et al [7] through their field work and observations in cities throughout Malaysia have warned on the misuse of Arabic sounds or Islamic signal, and rampant display of Quran verse to imitate and signal that the premise is halal as if it is operated by Muslim. Halal certification should bring the connotation of high quality that is suitable to everyone; trusted and respected. In a multiracial country such as Malaysia, restaurant is one of the common grounds where people gather. Diners goes beyond races or religion where society flocks together to savour good meals; which makes the correct image portrays matters - when a halal certificate is displayed at the diner, it should signify not only permissible to Muslim, but also a high quality standard that Muslims offer to suit the image of Islam that is clean and pure. Unfortunately, perhaps not many Muslim diners could claim to have the above-mentioned image. [7-8]

The common practice for food premises in Malaysia is to display halal certification next to another certificate that indicates the rating for cleanliness for the premise as inspected by local health departments. While ideally a Halal certified restaurant should also get an ‘A’ grade for cleanliness, the reality is not necessarily so. This could mean a halal certified restaurant if it is not rated ‘A’ for hygiene, is displaying a ‘B’ or worse, a ‘C’ grade rating next to the displayed Halal certificate. Obviously, the condition of the restaurant speaks volume of the received grade, but having a ‘report card’ posted makes it worse. This brings the question of, what is the image that is being marketed, to the consumer especially the non-Muslim. That a Halal restaurant is also a ‘dirty’ restaurant? (Since the ‘B’ or ‘C’ is next to the Halal cert.) Though the certificate could be of fake or expired, the main issue and concern of this paper, is safeguarding the Islamic image being portrayed.

2.2. Total Quality Management TQM

TQM has survived many decades; has evolved and being revolutionized by many gurus. Table 1 below depicts the quality movement era from inspection to SQC; to quality assurance; before strategically
become more than operational efficiency adapted by various government of the world. A glance to the Table I; few lessons to be learnt are:

<table>
<thead>
<tr>
<th>QUALITY ERA</th>
<th>RESPONSIBILITY</th>
<th>GURUS</th>
<th>FOCUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection Era</td>
<td>Inspectors</td>
<td>Informal skilled tradesmen</td>
<td>Product at production process</td>
</tr>
<tr>
<td>Statistical Quality</td>
<td>Manufacturing and Engineering</td>
<td>Walter A. Shewhart, Harold Dodge,</td>
<td></td>
</tr>
<tr>
<td>Control Era (SQC)</td>
<td>Department</td>
<td>Harry Romig</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance Era</td>
<td>Quality Assurance Coordinator</td>
<td>W. Edwards Deming, Joseph, M. Juran,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Each department</td>
<td>Philip B. Crosby</td>
<td></td>
</tr>
<tr>
<td>Strategic Quality Era</td>
<td>Government</td>
<td></td>
<td>Previous teaching into an integrated model</td>
</tr>
</tbody>
</table>

Sources: Shaari (2008)

Table 1. Elements within Quality Era.

i. A quality journey should evolve, not to remain at basic inspection stage but to be of factor for strategy and competitiveness.

ii. Responsibility of the movement should not rest on any party alone, but should be every one of the stakeholders; where in the case of Japan; it became the Japanese quality culture.

iii. As the learners should involve many; so, does the ‘teacher’. Research and innovation should be encouraged.

iv. Every stage of the journey should be focusing on the needs. Displaying Halal certificate at a dirty premise actually violate the logic, which does not set a good example for both Muslim and non-Muslim.

<table>
<thead>
<tr>
<th>ACCESS</th>
<th>Lessons on quality initiatives from foreign countries.</th>
<th>Sources for lessons and learning.</th>
<th>Global; Japan: Quality Era; Halal Agencies; Productivity and Quality agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILTER</td>
<td>JMS</td>
<td>Stakeholders–system and style</td>
<td>Malaysian Context: JAKIM; Ministry of Health; Local Government Departments; Halal Researches</td>
</tr>
<tr>
<td>CHOICES</td>
<td>TQM</td>
<td>Process and People</td>
<td>TQM tool: 5S</td>
</tr>
<tr>
<td>SYNERGY</td>
<td>Japan Inc. / Japanese Organization</td>
<td>Philosophy on organizational performances</td>
<td>Halal Certification and Hygiene Grading using 5S</td>
</tr>
</tbody>
</table>

Source: Adapted from Shaari (2010)

Table 2: AFC’S Model

2.3. The AFC’S Model

For those who are looking to embark on TQM journey, they might be asking what path should they follow, what model should they choose? For those who are at present undertaking certain quality initiatives, they might be asking whether they are on the right track, are the TQM methods right for them? And for those who might feel that they are currently reaping the benefit of quality programs, they might wonder if the phenomenon would last, what is next to do? (Shaari, 2010)

The AFC’S model serves to guide company undertaking programs in quality journey. It meant to be as reminder to stick to the basic lesson of getting the works done on one’s own way—like Japanese did. It is also meant to be used as a mechanism to check on the real purpose of adopting a technique, while helping to analyse ways to adapt the practice. Researchers apply the AFC’s Model as proposed by Shaari [3] to identify suitable Access, for correct ‘Filter’ that
brings 5S as the chosen method to synergize the given issues of Halalan Thoyyiban – Halal and pure. Table 2 summarize the application of AFC’S Model for this research.

2.4. 5S – The Definition The 5S practice is TQM technique introduced by Takashi Osada from Japan on 1980s years ago. [9] The 5S practices are actually loosely translated from Japanese language into English while trying to maintain the alphabet ‘S’ at the front of each concepts - Seiri, Seiton, Seiso, Seiketsu and Shitsuke. Table 3 summarizes some of the common definition as compared to Van Patten [10] to differentiate them from Japanese original meanings.

2.5. 5S – The Benefits Researchers have claimed many benefits of 5S implementation to include upgrading quality within the organization, effectiveness of management, training the employee to be more self-discipline, increasing performance, and helping to arrange workplace to achieve efficiency and decrease wastage. [11, 12, 9, 13] Ghodrati and Zulkifli [13] claim that common problems faced in workplace such as high absenteeism, high turnover, demotivated employees, disordered or cluttered environment, and mistakes or errors can be solved through 5S practice. 5S practices is also defined as housekeeping technique to obtain productivity and safety. [13]

2.6. 5S - Application at Halal Restaurant Practically 5S could be and should be a very strong tool to instil the spirit of Japanese organizational management which is globally known for its discipline, high quality and hygiene to restaurants, particularly, halal restaurants. Seiri or Separate brings the idea of discarding and keeping only the necessary things which could be applied towards Halal restaurants at the very basic teachings of separating what is halal from haram. Seiton or Straighten, focus on keeping the restaurants in neatness to attract customers. Seiso or Scrub/shine offer the benefits of teaching the importance to have healthier lifestyle and safety by ensuring the cleanliness of foods and diners. The fourth ‘S’ that is Seiketsu or Standardize translate literally the need for halal certification, but more importantly the philosophy of continually and repeatedly maintaining restaurants sorted, set in order, shined without the need for formal rules nor procedure to sustain the achievement. In other words, Halal should not rely on auditing process alone. This confidence comes from the final ‘S’ that is Shitsuke or Systemize/Sustain. Table 3 summarizes the definitions, concepts, and English translation from the original Japanese words of 5S.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Seiri</td>
<td>Separate = Organized</td>
<td>Get rid of everything not needed.</td>
<td>Straighten up</td>
<td>Sort</td>
<td>Sort</td>
<td>Sort</td>
<td>Proper arrangement</td>
<td>Sort</td>
<td>Sort</td>
</tr>
<tr>
<td></td>
<td>Organized: distinguished between the less essential and the necessary.</td>
<td>Put things away.</td>
<td>Put things in order</td>
<td>Straighten</td>
<td>Set</td>
<td>Set</td>
<td>Orderliness</td>
<td>Set in order</td>
<td>Set in order</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clean and paint.</td>
<td>Clean up</td>
<td>Scrub</td>
<td>Shiny</td>
<td>Sanitize or Scrub</td>
<td>Clean up</td>
<td>Shine</td>
<td>Shine</td>
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<tr>
<td></td>
<td></td>
<td>Develop rules to keep everything clean and organized.</td>
<td>Personal cleanliness</td>
<td>Systemize</td>
<td>Standardize</td>
<td>Standardize</td>
<td>Personal cleanliness</td>
<td>Standardize</td>
<td>standardize</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Audit the workplace to ensure the rules are being followed.</td>
<td>Discipline</td>
<td>Standardize</td>
<td>Sustain</td>
<td>Sustain or Self-Discipline</td>
<td>Discipline</td>
<td>Sustain</td>
<td>Sustain</td>
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<tr>
<td>Seiton</td>
<td>Straighten = Neat</td>
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<td>Neat: Put things where they best meet their functional purposes.</td>
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<tr>
<td>Seiso</td>
<td>Scrub = Clean</td>
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<td></td>
<td>Clean: Inspect for an eliminate waste, dirt and damage.</td>
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<tr>
<td>Seiketsu</td>
<td>Standardize = Standardized</td>
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<td></td>
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<tr>
<td></td>
<td>Standardized: Maintain known, agreed upon conditions.</td>
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<td></td>
<td></td>
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<tr>
<td>Shitsuke</td>
<td>Systemize = Disciplined</td>
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<tr>
<td></td>
<td>Disciplined: Practice the habit of doing what is required even if it is difficult.</td>
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</tbody>
</table>

Sources: Adapted from Matthew Barsalou, Cleaning up Misconceptions of the 5S Methodology, Quality Digest https://www.qualitydigest.com/inside/quality-insider-column/cleaning-misconceptions-5s-methodology.html

Table 3: 5S Definitions, Concepts and English Translations

3. Methodology

In proposing the application of 5S into synergizing Halal Certification and Hygiene issues, researchers attempted to incorporate items from previous researchers on halal studies particularly on restaurants to suits the applicability of 5S concept. These includes 6 stages of process:
i. Fieldwork and observation of Halal Restaurant throughout Malaysia.

ii. Exhaustive literature reviews particularly on TQM, 5S, and Halal studies.

iii. Incorporation of Halal restaurant issues into 5S concepts.


v. Development of questionnaires.

vi. Data collection and analysis.

Statistical wise, the adopted 5S practices: Seiri; Seiton; Seiso; Seiketsu; and Shitsuke are constructed into the independent variables while dining intention as dependent variable.

3.1 Incorporation of Halal Restaurant Issues Into 5S Concepts

Halal restaurant related issues are incorporated into the five elements of 5S, as follows:

3.1.1. S1: Incorporating SEIRI into Halal Restaurant.

- According to Shaari et al. [6] consumers are not likely to purchase if halal product is arranged next to non-Halal product. They further explained that for place and distribution of the product, it would not be suitable to have Halal product placed together with non-Halal product as they might affect the product’s cleanliness.
  - Separation of Halal restaurant from non-Halal Restaurant

- It is only logical that toilets and wash rooms to be cleaned from time to time as they could be source of dirt and harmful germs; hence to be separated from dining area.
  - Separation of toilet from dining area

- Basic Islamic teachings, that food originated from animals such as pig and dog or their descendants are not halal; and Shaari et al. [6] found that customer would not choose a Halal Restaurant that has dog(s) roaming around.
  - Dogs are kept separated, not roaming around.

- Mohamed et al. [15] stresses on “the foods consumed by Muslims must be Halal and Muslim consumers are found to be very particular and sensitive about the Halalness of the foods they consume”
  - Non-Halal food are not served.

3.1.2. S2: Incorporating SEITON into Halal Restaurant.

- Zorpas, Tzia, Voukali and Panayiotou [16] cited from Codex Alimentarius that “Food hygiene is defined by as “all conditions and measures necessary to ensure the safety and suitability of food in all steps of food chain” (p. 30).
  - Preference to have systematic arrangement of raw material.

- Ahmad et al., [17 p1079] stated that “Halal awareness among Muslim customers were measured based on their habit such as environment surrounding like ambiance and convenience place as key attraction” (p. 1079).
  - Halal Restaurant to have pleasant internal arrangement.

- Marzuki [18] suggests that Halal certificate signify that the food handling and preparation of particular restaurant are healthy and safe; hence Department of Islamic Development of Malaysia (JAKIM) strongly recommended for industry players to obtain Halal Certification.
  - Halal Restaurant should display its Halal certificate where it is visible to customers.

3.1.3. S3: Incorporating SEISO into Halal Restaurant.

- Hygiene can be defined as being free from filth, dirt, materials prohibited by Islam and not clean according to Islamic Laws; in addition, Muslim customer who are satisfy with food quality will repurchase [18]
  - Halal Restaurant must emphasize aspect of cleanliness.

- “Hygiene, sanitation and safety are important factors in manufacturing and preparing food” [20]
  - Halal Restaurant need to have clean environment.
  - Halal Restaurant has to be clean all the time.

- Food quality defined cleanliness and freshness during preparation of the foods, and it tends to produce food safety. [21] Mohamed et al. [15 p 38] explained that “total quality control measures involve in the monitoring of the slaughtering, handling, and storage processes as well as all the ingredients used in processing the food products”.
  - Aspect of cleanliness will assure food quality at Halal Restaurant.

- Moginon [22 p10] proposed that “food safety has been defined as the conditions and measures that are necessary during the production, processing, storage, distribution and preparation of food to ensure that it is safe, sound, wholesome and fit for human consumption” (p. 10); and frequent checking
of the restaurant is the basis in sustaining food safety and avoiding food borne illness. [18]
  o Aspect of cleanliness will assure food safety at Halal Restaurant.

3.1.4. S4: Incorporating SEIKETSU into Halal Restaurant.

  • Halal logo issued from JAKIM has been recognized by the Malaysian government to that all state governments in Malaysia are to use the standard. [15]
    o Genuine Halal logo from JAKIM is important to ensure the Halal standardization.
  
  • Ahmad et al., [17 p1082] stresses that “Halal food is food that good for everyone and following the Islamic standard”.
    o Standardization of Halal logo is important to avoid fake logo.
  
  • Siew-Yong, Voon-Hsien and Keng-Boon [23] highlight on the service quality to meet and achieve customer’s expectations.
    o Halal Restaurant should try to standardize its staffs’ service quality.

3.1.5. S5: Incorporating SHITSUKE into Halal Restaurant.

  • There are conditions in processing Halal food such as hygiene, sanitation and safety. [24]
    o Halal Restaurant should sustain its restaurant cleanliness.
  
  • Service quality is an important judgment factor in measuring customer acceptance to a product
    o Halal Restaurant should sustain its drives for quality services
    o Halal Restaurant should sustain its good quality in food taste.
  
  • workers in food factories must be healthy and they must wear clean protective clothing to prevent food from dirt and possible contaminants
    o Halal Restaurant should sustain the workers good performance.
    o Halal Restaurant should maintain its Halal certificate continuously

3.1.6. Intention to dine at Halal Restaurant.

  • Halal Restaurant should ensure its food safety, food hygiene; have high service quality that customers will feel the value and feel welcomed.

The summary for development of 5S – Halal Variables measurement, along with the posited hypotheses are as presented in Table 4:

<table>
<thead>
<tr>
<th>H1: SEIRI Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition:</strong> Sort, separate, and straightened up</td>
</tr>
<tr>
<td><strong>Objective:</strong> Remove unnecessary clutter</td>
</tr>
<tr>
<td>Decide what you need</td>
</tr>
<tr>
<td>Distinguished between the less essential and the necessary.</td>
</tr>
<tr>
<td><strong>Advantages:</strong> Ensuring integrity</td>
</tr>
<tr>
<td>Easier to work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H2: SEITON Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition:</strong> Orderliness, set in order, neatness</td>
</tr>
<tr>
<td><strong>Objective:</strong> Ensuring everything is available as it needed and the “point of use”</td>
</tr>
<tr>
<td>Ensure people can remember and know what should do</td>
</tr>
<tr>
<td>Put things where they best meet their functional purposes.</td>
</tr>
<tr>
<td><strong>Advantages:</strong> Easy to find the items</td>
</tr>
</tbody>
</table>
Shaaari, et al. [8] investigate on how Muslim in Malaysia carry the halal image by investigating on the behaviour of selecting restaurant when it comes to Halal issues. Their study identifies the difference in respondent behaviour, explained by the demographical factors of Muslim being minority within State of Sarawak as compared to Muslim in Peninsular Malaysia. [7] “Living in this mosaic society somehow has transformed Muslim in Kuching to be more ‘flexible’ with some part of their lifestyle which differs from Muslim in Peninsular Malaysia.” [8] Husin et al [25] further reiterate that though it is clearly stated in the Quran and the hadith on the halal-haram rules, there are still lack of awareness and understanding on the concept of ‘Halalan Thoiyyiban’ which also carries the meaning of ‘wholesome’ in addition to the well-known ‘permissible’ meaning.

Kota Samarahan was chosen for location of the study as the city is located next to Kuching, the capital city of Sarawak; and it offers diversity of races with three higher education institutes within the areas. Researchers have engaged in extensive field work study, observing the scenario of halal restaurants around Malaysia prior to proposing this study of incorporating 5S practices at Halal restaurants. In addition to the observations, exhaustive reviews on literatures related to Halal were made in order to construct items and measurements for the quantitative parts of the study. Structured questionnaire survey was selected for the measurement purpose, with three sections constructed; section A on the respondent demographic; section B exploring applicability of 5S practices in Halal Restaurant operation; while section C on dining intention as dependent variable.

295 questionnaires were distributed with the target of collecting 250 good usable collections of data. 253 were collected, an 85.76% response rate which is acceptable. According to Sekaran [26] for most studies, a sample size between 30 and 500 would be sufficient. The researchers opted for non-probability basic sampling where the respondents do not know they will be selected as a sample subject. [27] The questions were prepared using five-point Likert scale questionnaires. The five anchors that were used in the questionnaires were (1) strongly disagree, (2) disagree, (3) neutral (4) agree, (5) strongly agree. The statistical analyses in exploring the findings are among others: descriptive analyses such as frequency, mean, and

| H3: SEISO Positively Influence Muslim Confidence Level in Choosing Halal Restaurant | Definition: Cleaning, shining, sweep, dust, polish, paint, sanitise, scrub | Objective: Identify and eliminate causes of dirt and grime • Focus on removing the need to clean • Inspect for and eliminate waste, dirt and damage. | Advantages: Maximize effectiveness by contributing to healthier life and safety. • To identify and eliminate sources of dirt, ensuring that all means are always in perfect operating order | I prefer a Halal Restaurant that emphasizes aspect of cleanliness. • I will not dine at Halal Restaurant that disregards its cleanliness issues. • I prefer a Halal Restaurant that has clean environment. • For me Halal Restaurant has to be clean all the time. • For me, aspect of cleanliness will assure food quality at Halal Restaurant. • For me, aspect of cleanliness will assure food safety at Halal Restaurant. | Marzuki (2012), Abdul Aziz & Chok (2012), Bistari (2004), Mansono (2005), Mohamed et al. (2008), Mathew, Abdullah & Ismail, 2012, Rezaei et al., (2009), Moginon (2010) |
| H4: SEIKETSU Positively Influence Muslim Confidence Level in Choosing Halal Restaurant | Definition: Standardize, Systemize | Objective: Develop procedures, schedules and practices • Continue to assess the use and disposal of items • Maintain known, agreed upon conditions. | Advantages: Real challenge is to keep it clean • Flexibility response to fulfil customer’s needs and want. • Contributing a healthier life, safety and well-being as well as enhancing transparency. | I believe that genuine Halal logo from JAKIM is important to ensure the Halal standardization. • Standardization of Halal logo is important to avoid fake logo. • I feel that Halal Restaurant should standardize the portion of its meal. • I feel that Halal Restaurant should standardize the good taste of its meal. • I feel that Halal Restaurant should try to standardize its staffs’ service quality. | Mohammed, Rezaei, Shamsudin & Eddie (2008), Ahmad et al., (2013), Siew-Yong, Voon-Hsien & Keng-Boon (2012) |
| H5: SHITSUKE Positively Influence Muslim Confidence Level in Choosing Halal Restaurant | Definition: Self-discipline, custom, practice, inoculate, courtesy and sustain | Objective: Increase the morale • Increase quality work • Continue to improve • Practice the habit of doing what is required even if it is difficult | Advantages: Develop and keep good habit • Help people in follow the rules in their life | I feel that Halal Restaurant should sustain its restaurant cleanliness. • I feel that Halal Restaurant should sustain its drives for quality services. • I feel that Halal Restaurant should sustain its good quality in food taste. • I feel that Halal Restaurant should sustain the workers good performance. • Halal Restaurant should maintain its Halal certificate continuously. | Janis (2004), Parasuraman, Zeithmal, & Berry (1988), Woodruffe (1995), Marzuki (2012), Shaari et al. (2010). |

Table 4: 5S - Halal Variables Measurement.
standard deviation; reliability analysis; multiple correlations and coefficient; and also, multiple regression analysis.

4. Findings

Table 5 summarizes analyses on the respondents’ demographic profiles. The distribution of genders shows female at two-third of male respondents with 159 (62.8%) to 94 male (37.2%). For age category, respondents with age between 18-25 years old were the highest at 46% or 167 of them. This is followed by respondents from the age group of 26-33 years old at 27.3% representing 69 respondents. Malaysia Constitution take that Malays are Muslim; Table 5 indicates that a total of 143 respondents are of Malay race, a 91.6% while the other groups belong to Chinese, about 11% with the total of 27 respondents; Iban constitutes 14.6% and the rest belong to other races at 18.2% or 46 others. In terms of level of education, 96 respondents (37.9%) stated having SPM and below, 103 with STPM or Diploma, and 50 respondents are Degree or Master Holders. 4 respondents admitted to others. Respondents who works in private sector, 113 (44.7%) are about the same with students participants 103 (40.7%); 5.9% or 15 are civil servants, while 4 are unemployed. 18 (7.1%) participants chose other as their occupation. Majority of the respondents earn below RM1500, 215 respondents belong to this group, while the second largest group of 29 (11.5%) respondents earn in between RM1501 to RM3000.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>Malay</td>
<td>Chinese</td>
</tr>
<tr>
<td>Age</td>
<td>18-25</td>
<td>26-33</td>
</tr>
<tr>
<td>Education</td>
<td>SPM / below</td>
<td>STPM / Diploma</td>
</tr>
<tr>
<td>Occupation</td>
<td>Students</td>
<td>Govt. Sector</td>
</tr>
<tr>
<td>Monthly Income</td>
<td>&lt; RM1500</td>
<td>RM1501-3000</td>
</tr>
</tbody>
</table>

| Table 5: Frequency and Percentage of Respondent’s Demographic Profile |

4.1. Mean Distribution of Items for SEIRI/SORT From Table 6, the statement “I feel that a Halal Restaurant should have toilet separated from its dining area” has the highest mean of 4.38 while the lowest mean for the items in SEIRI dimension is “Separating Halal Restaurant from non-Halal Restaurant is important to me” with 4.08. Keep in mind that being a state with non-Muslim as majority, it is quite a common scenario in Sarawak to have Halal restaurant and non-Halal restaurant next to each other. On a more universal understandings, having toilet around dining area is indeed a more concerning issues, requiring organizing or sorting out of what is more necessary from the view of the community.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separating Halal Restaurant from non-Halal Restaurant is important to me</td>
<td>4.08</td>
<td>1.011</td>
</tr>
<tr>
<td>I prefer a Halal Restaurant that is separated from non-Halal Restaurant</td>
<td>4.18</td>
<td>.963</td>
</tr>
<tr>
<td>I feel that a Halal Restaurant should have toilet separated from its dining area</td>
<td>4.38</td>
<td>.711</td>
</tr>
<tr>
<td>I would not choose a Halal Restaurant that has dog(s) roaming around</td>
<td>4.13</td>
<td>.914</td>
</tr>
<tr>
<td>I would not choose a restaurant that serves non-Halal food</td>
<td>4.09</td>
<td>1.076</td>
</tr>
<tr>
<td>SEIRI</td>
<td>4.17</td>
<td>0.94</td>
</tr>
</tbody>
</table>

| Table 6: Mean Distribution of Items for SEIRI/SORT |

4.2. Mean Distribution of Items for SEITON For variable SEITON, Table 7 has “I feel that Halal Restaurant should display its Halal certificate where it is visible to customers” with the highest mean value of 4.42; highlighting the importance of having things where they best meet their function [9]; that is halal certification to be easily seen by those seeking for halal assurance. On the other hand, the item with lowest mean value is “I will not choose a Halal Restaurant if its internal arrangement is not pleasant” at 3.98

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>For me, neatness is very important in selecting a restaurant.</td>
<td>4.21</td>
<td>.722</td>
</tr>
<tr>
<td>I prefer to dine at Halal restaurant where its chairs and table are systematically arranged</td>
<td>4.01</td>
<td>.812</td>
</tr>
<tr>
<td>I prefer to dine at Halal Restaurant that have systematic arrangement of its raw material</td>
<td>4.16</td>
<td>.683</td>
</tr>
<tr>
<td>I will not choose a Halal Restaurant if its internal arrangement is not pleasant</td>
<td>3.98</td>
<td>.789</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should display its Halal certificate where it is visible to customers.</td>
<td>4.42</td>
<td>.654</td>
</tr>
<tr>
<td>SEITON</td>
<td>4.16</td>
<td>0.73</td>
</tr>
</tbody>
</table>

| Table 7: Mean Distribution of Items for SEITON. |
4.3. Mean Distribution of Items for SEISO/SHINE

Table 8 shows the means for SEISO items. “I prefer a Halal Restaurant that has clean environment” shows the highest mean value of 4.49, while the lowest mean value for this variable is “I will not dine at Halal Restaurant that disregards its cleanliness issues”. An interesting observation here is that the lowest mean scores of 4.39 is in fact the highest among all the lowest mean items for the SS’s variables indicating the importance of cleanliness for a restaurant; which will be ironic if a Halal restaurant to be found in a dirty condition.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer a Halal Restaurant that emphasizes aspect of cleanliness</td>
<td>4.48</td>
<td>.646</td>
</tr>
<tr>
<td>I will not dine at Halal Restaurant that disregards its cleanliness issues</td>
<td>4.39</td>
<td>.757</td>
</tr>
<tr>
<td>I prefer a Halal Restaurant that has clean environment</td>
<td>4.49</td>
<td>.658</td>
</tr>
<tr>
<td>For me Halal Restaurant has to be clean all the time.</td>
<td>4.44</td>
<td>.730</td>
</tr>
<tr>
<td>For me, aspect of cleanliness will assure food quality at Halal Restaurant</td>
<td>4.47</td>
<td>.614</td>
</tr>
<tr>
<td>For me, aspect of cleanliness will assure food safety at Halal Restaurant</td>
<td>4.46</td>
<td>.645</td>
</tr>
<tr>
<td><strong>SEISO</strong></td>
<td>4.46</td>
<td>0.68</td>
</tr>
</tbody>
</table>

Table 8: Mean Distribution of Items for SEISO/SHINE.

4.4. Mean Distribution of Items for SEIKETSU

Table 9 depicts mean scores for the dependent variable - SEIKETSU. The highest mean value under this variable is “I believe that genuine Halal logo from JAKIM is important to ensure the Halal standardization” with the mean value of 4.44. In the context of Halal certification or Halal restaurant, it is vital for customer to have the assurance that what is halal today is still halal tomorrow or day after. Standardization in this context demands trust on the displayed Halal certification or logo; that it is not fake nor expired. On operational side, one to patronize a restaurant could find the taste or the portion of the meal to vary from visits before; yet simple standardized measurement for ingredients or portions would solve the issues. Hence, what is needed to standardize this matter is a discipline culture brought by TQM tool namely 5S-Seiketsu. “I feel that Halal Restaurant should standardize the portion of its meal” and “I feel that Halal Restaurant should standardize the good taste of its meal” are both with the lowest mean value of 4.23 for SEIKETSU.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe that genuine Halal logo from JAKIM is important to ensure the Halal standardization</td>
<td>4.44</td>
<td>.662</td>
</tr>
<tr>
<td>Standardization of Halal logo is important to avoid fake logo.</td>
<td>4.40</td>
<td>.693</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should standardize the portion of its meal.</td>
<td>4.23</td>
<td>.685</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should standardize the good taste of its meal.</td>
<td>4.23</td>
<td>.685</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should try to standardize its staffs’ service quality.</td>
<td>4.34</td>
<td>.645</td>
</tr>
<tr>
<td><strong>SEIKETSU</strong></td>
<td>4.33</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Table 9: Mean Distribution of Items for SEIKETSU.

4.5. Mean Distribution of Items for SHITSUKE

Table 10 discusses the mean for concept of SHITSUKE, that is maintaining discipline which also includes the discipline of all four earlier concepts of SEIRI; SEITON SEISO, SEIKETSU. The highest mean value for this variable is “Halal Restaurant should maintain its Halal certificate continuously” with 4.49; while the lowest mean value with score of 4.33 is “I feel that Halal Restaurant should sustain its drives for quality services.” The results in fact clearly indicates the priority of the respondents where Halal certification comes first followed by cleanliness, taste, etc.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that Halal Restaurant should sustain its restaurant cleanliness.</td>
<td>4.45</td>
<td>.593</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should sustain its drives for quality services</td>
<td>4.35</td>
<td>.628</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should sustain its good quality in food taste.</td>
<td>4.41</td>
<td>.614</td>
</tr>
<tr>
<td>I feel that Halal Restaurant should sustain the workers good performance.</td>
<td>4.38</td>
<td>.615</td>
</tr>
<tr>
<td><strong>Halal Restaurant should maintain its Halal certificate continuously.</strong></td>
<td>4.49</td>
<td>.608</td>
</tr>
<tr>
<td><strong>SHITSUKE</strong></td>
<td>4.42</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Table 10: Mean Distribution of Items for SHITSUKE.

4.6. Mean Results For Halal Dining Intention

Table 11 depicts mean scores for dependent variable – Dining Intention. The highest mean value under this variable is “Halal Restaurant should ensure its food safety” with 4.54, while the lowest value of mean is “Halal Restaurant should have high service quality” which is 4.42.
<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Devation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halal Restaurant should ensure its food safety.</td>
<td>4.54</td>
<td>.552</td>
</tr>
<tr>
<td>Halal Restaurant should ensure food hygiene.</td>
<td>4.55</td>
<td>.558</td>
</tr>
<tr>
<td>Halal Restaurant should have high service quality.</td>
<td>4.42</td>
<td>.642</td>
</tr>
<tr>
<td>Halal Restaurant should emphasize customer high value</td>
<td>4.43</td>
<td>.667</td>
</tr>
<tr>
<td>Halal Restaurant should ensure customer feel welcome</td>
<td>4.50</td>
<td>.608</td>
</tr>
<tr>
<td>Total</td>
<td>4.49</td>
<td>0.605</td>
</tr>
</tbody>
</table>

Table 11: Mean Distribution of Items for Dining Intention.

4.7. Multiple Correlations Analysis

Table 12 shows that all variables are positively and strongly correlated with each other with r more than 0.60. To investigate on the relationship of these variables, multiple regression analysis was employed and the results are presented in Table 13.

4.8. Multiple Regression Analysis

Results as being displayed in Table 13 shows that the model is well explained with R² more than 60%. In other words, the 5S independent variables account for 68.9% of the variation towards the dependent variable – Dine Intention. Though this is still at preliminary stage, it is interesting to see that Seiri(Sort/separate) and Seiso(Shine/clean) found to be of not significant. The main concern of this study is the image that is being portrayed by certain particular Halal restaurants; and recalling the fieldwork visits, it is indeed not a surprising results. The researchers themselves could still recollect some of the restaurant having very poor condition. Despite some might not possess the halal certificate, lower hygiene rating with Muslim customers patronizing the premises could be enough to send the mix result that Halal is for Muslim but it does not necessarily means that the food or premises is hygiene.

4.9. Hypotheses Result

The summary of the hypotheses are as presented in Table 14. Hypothesis 1 and Hypothesis 3 are rejected, while the other three Hypotheses involving SEITON; SEIKETSU; and SHITSUKE are accepted.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: SEIRI Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2: SEITON Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3: SEISO Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</td>
<td>Rejected</td>
</tr>
<tr>
<td>H4: SEIKETSU Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5: SHITSUKE Positively Influence Muslim Confidence Level in Choosing Halal Restaurant</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Table 14: Summary of Hypotheses Results
5. Discussion and Conclusion

This paper aims to deliver an idea that will take Halal Certification to a new level. Beyond assurance, into excellence. The researchers intend to path the way to recognize Halal as another ‘quality standard’ in organization business operation management, equals to the common wisdom of having criterions such as product quality, speed, cost, and etc. to determine business success.

Therefore, in applying Japanese techniques while instilling their discipline to further strengthened Halal industry in Malaysia beyond the application of Halal certification, the authors believe that not only this attempt will heightened the importance of operational efficiency and halal certification in halal food eco system, but it will also open up an approach to close the gap between Muslim majority country such as Malaysia and non-Muslim majority country such as Japan. Findings indicate the refusal of respondents to agree that Halal restaurants possess two important 5S quality elements of SEIRI (Organized/ Separate) and SEISO – Clean.

Finally, though some might claim 5S is nothing new that it is a common quality initiative even in Malaysia, researchers would again like to highlight the actual practice of 5S and the real concept; whether it is really being embraced or is it just again merely posters hanging on the walls. This research is to explore the applicability of 5S practices as ‘Japanese quality tool’ in influencing consumer intention to dine at Halal Restaurants in Malaysia. It will be ironic to have a 5S plaque hanging next to halal certificate with excellent hygiene grade, if one can still find cockroaches around.

References


[22] Debbie Ferdinand Mognon Food Authenticity, Food Safety And Religious Observances As Likely Determinants Of Food Tourism, Faculty Of Hotel And Tourism Management (Universiti Teknologi Mara) 2010


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Halal status of glazing agents in food products based on Islamic religion

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ABSTRACT

Regarding the fact that food additives are part of the food, Islamic laws and regulations rule them. Application of food additives is considered as a sensitive, controversial and critical issue in the production of Halal products. Generally, Halal issue about food additives is applicable to the followings: A) Food products in which raw materials and food additives of animal or intoxicant origin are used during their production method and processing. B) Raw materials, additives and food products which may be in contact with najs or non-halal substances at any stage of the food chain. There are 1041 additives listed in the Joint FAO/WHO Expert Committee on Food Additives (JECEFA), classified into 27 groups, one of which are glazing agents containing 32 additives. In this review, the issue of glazing agents in food industries is addressed regarding their origin and production process based on common religions. Accordingly, glazing agents are categorized into three groups: halal, haram and mashkook. Shellac is haram because its origin is the insect Laccifer (Tachardia) laca Kerr. Sucrose esters of fatty acids are mashkook because of their origins: if it is of plant origin, or the halal animal slaughtered according to Islamic laws and regulations, it is Halal. Moreover, sucrose oligoesters are manufactured from sucrose and methyl esters of edible fatty acids, or naturally occurring edible vegetable oils. Several groups, such as vegans, Muslims and Jews thus avoid these products, unless the producer can give detailed information on the origin of the fatty acids. There are some glazing agents which are mashkook because ethanol may be used during their production method and processing, including: carrageenin, pectins, polyvinyl alcohol, potassium alginate, processed eucheuma seaweed (PES), sodium alginate/alginate. There are some other glazing agents which are mashkook due to the application of microorganisms during their production process including: isomalt, pullulan, and polydextroses. In the case of isomalt, Serratia plymuthica is used for enzymatical conversion of sucrose into isomalt. Pullulan is produced by fermentation using Aureobasidium pullulans. Polydextroses is obtained by polycondensation of glucose in the presence of small amounts of sorbitol and citric acid in the ratio of 89:10:1, in that citric acid itself is produced by fermentation using Aspergillus niger. All of these glazing agents are halal if the used microorganisms are produced using halal culture medium. The following additives are halal from both the origin and processing points of view: agar (origin: different seaweeds of the family Rhodophyceae (Gelidium amansii, G. cartilagineum)), algic acid (origin: different seaweeds of the family Phaeophyceae (Macrocystis pyrifera, Laminaria digitata, L. cloustoni, Ascophyllum nodosum)), ammonium alginate (origin: Ammonium salt of alginic acid), beeswax (origin: honeycombs of bees (Fam. Apidae, e.g. Apis mellifera L)), calcium alginate (origin: Calcium salt of algic acid), candellilla wax (origin: Euphorbia antisyphilitica, a wild plant), carnabua wax (origin: leaves of Copernicia prauniera, a palm tree), castor oil (origin: seeds of Ricinus communis (castor bean)), ethyl cellulose (origin: cellulose from wood and all plant structures), gum arabic (origin: Acacia trees), hydroxypropyl cellulose (origin: cellulose from wood and all plant structures), hydroxy propyl methyl cellulose (origin: cellulose from wood and all plant structures), methyl cellulose (origin: wood pulp or cotton), microcrystalline cellulose (origin: cellulose), high and low viscosity mineral oils (origin: highly refined paraffinic and naphthenic liquid hydrocarbons), powdered cellulose (origin: wood and all plant structures), propylene glycol (origin: hydrolysis of propylene oxide), sodium carboxymethyl cellulose (cellulose gum) (origin: cellulose), and t alc (origin: mineral).

1. Introduction

As more processed food are coming into supermarkets, issues regarding halal state of food products are raising among Muslim consumers worldwide. In this favor, the need for assurances about the accuracy of the information stated on food labels seems essential [1]. The lack of information about the origin of the ingredients on the label and the probability of the occurrence of impurities and ingredients from unknown sources are some of major challenges for Muslim consumers [2]. This leads to the need for development of analytical methods for analysis of food ingredients. To this end, various laboratory tests are carried out and different company's information regarding the ingredients and final product are kept in database [3]. This would dramatically contribute to rapid collection of data in the view of halal and can speed up the process of verification [4]. There are a number of methods for detection of lard in food products such as cake [5], chocolate [6], and biscuit formulations [5]. Halal industry is being expanded worldwide, especially throughout Muslim countries [7]. Halal industry does not only focus on products such as the food but also services including banking and economy, etc. in order for food manufacturers and companies to meet the requirements of the nation from different races and religions, halal certification seems necessary [3].
According to Islamic laws and regulations, Muslims highly care about the source of food ingredients, because they believe that food intake dramatically influences development of human behavior and wellness. It is strongly stated in Qur’an, Sunnah and the consensus of Muslim jurist (Ijma’) that haram food is principally forbidden. As an instance, consumption of pork meat and its derivatives are considered as sin according to Islamic law, while these rulings are a comprehensive guideline for the lifestyle of all mankind [8]. Halal and haram food have opposite criteria including: clean vs. najs, Tayyib vs. evil, useful vs. harmful, clean vs. dirty, and healthy vs. ill. Besides, there is another category called mashkook, whose state of halalness is uncertain due to the following reasons: lack of knowledge about the origin, doubt in judgment due to the lack of fatwa, doubt in judgment due to controversy and dispute in fatwa, doubt on the subject due to the lack of knowledge about being tayyib or evil, doubt on the subject due to the lack of knowledge about being harmful. In sunnah, the prophet Mohammad (s.a.w.) states that: “doubtful or mashkook is the thing which most of people have little or no knowledge about them. Therefore, everyone who saves himself from mashkook, he saves his religion and honor” [9]. Totally in the Qur'an Al-Karim, 48 times the term “food” and its derivatives, 107 times the word “intake” and its derivatives and 39 times the word “wine” have been mentioned in the verses related to food, and it also has been referred to the general principle of the legality and halalness of the food 6 times.

“Therefore, eat from what Allah has given to you, halal and tayyib, and bless him if you only worship Allah alone.” (Nahl-verse 114) In general, while halal issue is a major concern in all aspects of life, its focus is mostly on food industry. One of the most important and prevalently used food additives is the category of glazing agents. In food industry, on various bakery products (such as breads, rolls, pies, etc) a coating of a glossy decorative shine surface or glaze is applied [10]. A glazing agent is a natural or synthetic material which protects the surface of the food product from water loss by providing a waxy and homogeneous coating [11]. Regulation (EC) 1333/2008 (Dec 2008) defines glazing agents as "materials applied to the external surface of a food product, giving a shiny look and protective coating". Many glazing agents are derived from naturally produced waxes from animal or plant resources, whereas synthetic edible surface coatings are derived from petroleum. Generally thanks to be colored, this glaze exhibits an appetizing surface on the product, but has the minimum amount of food value [10]. Based on EP 205,195, glazing agents are a homogenized emulsion mixture of a protein, an edible oil, a thin-boiling starch in water. The role of the latter ingredient is to regulate the viscosity of the emulsion [12]. An appropriate glazing agent is the one possessing the following criteria: ready to use, adequate spreadability (i.e. viscosity), and good keepability [12]. As an example, in the case of a loaf of bread, one of major challenges is that upon baking, the exterior part of dough has a dry and unappealing appearance. To address this problem, a high sheen produced by a glaze is applied to the exterior of the product prior to baking. This glaze should not be absorbed into the dough; otherwise, there would be no sheen on the final baked product [13].

In this review, the issue of the Halalness of the glazing agents used in food industries has been discussed based on their origin and production process.

2. Discussion

Generally, regarding Halalness of glazing agents, two major challenges are debating based on common religions: origin and production process. Glazing agents of animal or intoxicating origin as well as those alcohol or microorganisms are used through their production process are questionable and shall be further investigated. Accordingly, glazing agents are categorized into three groups: halal, haram and mashkook.

The following additives are halal from both the origin and processing points of views: agar, alginic acid, ammonium alginate, beeswax, calcium alginate, candelilla wax, carnauba wax, castor oil, ethyl cellulose, gum arabic, hydroxypropyl cellulose, hydroxy propyl methyl cellulose, methyl cellulose, microcrystalline cellulose, high and low viscosity mineral oils, powdered cellulose, propylene glycol, sodium carboxymethyl cellulose (cellulose gum), and tale (Table 1).

<table>
<thead>
<tr>
<th>No.</th>
<th>Glazing agent</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agar</td>
<td>Different seaweeds of the family Rhodophyceae (Gelidium amansii, G. cartilagineum)</td>
</tr>
<tr>
<td>2</td>
<td>Alginic acid</td>
<td>Different seaweeds of the family Phaeophyceae (Macrocystis pyrifera, Laminaria digitata, L. claustroni, Ascophyllum nodosum)</td>
</tr>
<tr>
<td>3</td>
<td>Ammonium alginate</td>
<td>Ammonium salt of alginic acid</td>
</tr>
<tr>
<td>4</td>
<td>Beeswax</td>
<td>Honeycombs of bees (Fam. Apidae, e.g. Apis mellifera L)</td>
</tr>
<tr>
<td>5</td>
<td>Calcium alginate</td>
<td>Calcium salt of alginic acid</td>
</tr>
<tr>
<td>6</td>
<td>Candelilla wax</td>
<td>Euphorbia antisiphilitica, a wild plant</td>
</tr>
<tr>
<td>7</td>
<td>Carnauba wax</td>
<td>Leaves of Copernicia prunifera, a palm tree</td>
</tr>
<tr>
<td>8</td>
<td>Castor oil</td>
<td>Seeds of Ricinus communis (castor bean)</td>
</tr>
<tr>
<td>9</td>
<td>Ethyl cellulose</td>
<td>Cellulose from wood and all plant structures</td>
</tr>
<tr>
<td>10</td>
<td>Gum arabic</td>
<td>Acacia trees</td>
</tr>
<tr>
<td>11</td>
<td>Hydroxypropyl cellulose</td>
<td>Cellulose from wood and all plant structures</td>
</tr>
<tr>
<td>12</td>
<td>Hydroxy propyl methyl cellulose</td>
<td>Cellulose from wood and all plant structures</td>
</tr>
<tr>
<td>13</td>
<td>Methyl cellulose</td>
<td>Wood pulp or cotton</td>
</tr>
<tr>
<td>14</td>
<td>Microcrystalline cellulose</td>
<td>Cellulose</td>
</tr>
<tr>
<td>15</td>
<td>High and low viscosity mineral oils</td>
<td>Highly refined paraffinic and naphthenic liquid hydrocarbons</td>
</tr>
<tr>
<td>16</td>
<td>Powdered cellulose</td>
<td>Wood and all plant structures</td>
</tr>
<tr>
<td>17</td>
<td>Propylene glycol</td>
<td>Hydrolysis of propylene oxide</td>
</tr>
<tr>
<td>18</td>
<td>Sodium carboxymethyl cellulose (cellulose gum)</td>
<td>Cellulose</td>
</tr>
<tr>
<td>19</td>
<td>Tale</td>
<td>Mineral</td>
</tr>
</tbody>
</table>
2.1. Origin
As mentioned above, the origin of the glazing agents listed on Table 1 are halal. Nevertheless, shellac is haram due to its origin which is the insect Laccifer (Tachardia) lacca Kerr. Also, sucrose esters of fatty acids are mashkook due to doubtful origin: if their origin is plant, or the halal animal slaughtered according to Islamic laws and regulations, they would be Halal. Also, sucrose oligoesters are prepared from methyl esters of edible fatty acids, or naturally occurring edible vegetable oils with sucrose. Several groups avoid these products including vegans, Muslims and Jews, unless detailed information on the origin of the fatty acids are given (Table 2).

2.2. Production process
Producing production process of glazing agents, two main concerns are controversial. First, if any microorganisms are employed at any stage of the production process, the type of the used culture medium shall be discussed. Second, ethanol must not be applied in processing, instead isopropyl shall be utilized.

2.2.1. Microorganism
Microorganisms such as bacteria, fungi and yeast are halal except for pathogenic and toxicogenic microorganisms to human health which are poisonous or hazardous. Microorganisms used in glazing agent production process shall be produced using halal culture medium. Brewer's yeast shall not be used. Some of glazing agents are mashkook because of the use of microorganisms during their processing including: pullulan, isomalt, and polydextroses (Table 2). Serratia plymuthica is employed for enzymatically conversion of sucrose into isomalt. Pullulan is formed via fermentation using Aureobasidium pullulans. Polydextroses is produced by polycondensation of glucose in the presence of sorbitol and citric acid which results in the production of polydextroses, in that citric acid itself is obtained via fermentation using Aspergillus niger. In these cases, the mentioned glazing agents are halal if the used microorganisms are produced using halal culture medium.

2.2.2. Ethanol
The ethanol used during production process of glazing agents shall not be innately liquid and intoxicant. Some of glazing agents are mashkook because ethanol is used during their production process including: carrageenin, pectins, polyvinyl alcohol, potassium alginate, processed eucheuma seaweed (PES), and sodium alginate/align (Table 2). In these cases the origin of the utilized ethanol shall be clearly defined and labeled in order for the glazing agent to be acceptable for consumption regarding its halalness.

<table>
<thead>
<tr>
<th>No.</th>
<th>Glazing agent</th>
<th>Origin</th>
<th>Production process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sucrose esters of fatty acids</td>
<td>Esters of sugar and synthetic fats, produced from glycerol and natural fatty acids. The fatty acids are mainly from plant origin, but also fats of animal origin may be used. The product generally is a mixture of different components, with a composition similar to partially digested natural fat esterified with sugar.</td>
<td>1. The first step in manufacturing is the preparation of fatty acid methyl esters which are formed via reacting fatty acids with methanol in the presence of a catalyst. Next, the formed methyl esters are separated, followed by fractional distillation, mixing with water and a quality check is carried out in order to make sure that it meets food grade product standards. Methyl esters of fatty acids are subjected to inter-esterification with sucrose so as to manufacture sucrose fatty acid esters. The used solvent during the preparation of sucrose fatty acid esters is dimethyl sulfoxide which is regulated for such use. The ratio of fatty acid methyl ester to sucrose determines the degree of esterification. Eventually, the obtained product is purified by water [14]. 2. The first step in manufacturing is the preparation of fatty acid methyl esters which are formed via reacting fatty acids with methanol in the presence of a catalyst. The formed methyl esters are then separated, followed by the use of the solvents including ethyl acetate, ethyl methyl ketone or isopropyl alcohol. Methyl esters of fatty acids are subjected to inter-esterification with sucrose in order to manufacture sucrose fatty acid esters. The used solvent during preparation of sucrose fatty acid esters is dimethyl sulfoxide which is regulated for such use. The ratio of fatty acid methyl ester to sucrose determines the degree of esterification. Finally, the obtained product is purified using solvents such as ethyl acetate, ethyl methyl ketone or isopropyl alcohol [14].</td>
</tr>
<tr>
<td>2</td>
<td>Sucrose oligoesters, type I and type II</td>
<td>Sucrose oligoesters type I and type II are manufactured from sucrose and methyl esters of edible fatty acids, or naturally occurring edible vegetable oils, in the presence of solvents such as dimethyl sulfoxide, isobutanol (2-methyl-1-propanol), or methyl ethyl ketone. Sucrose is originated from sugar cane or sugar beet. The origin of fatty acid</td>
<td>The manufacturing process of sucrose oligoesters type I and type II generally includes the following steps: first, an alkaline catalyst is used in order to promote the interesterification reaction. Methanol is released as a by-product during this reaction. Next, reaction and methanol and extraction solvents are removed via purification and concentration processes. Dimethyl sulfoxide is commonly utilized as the reaction solvent. Water and/or isobutanol are commonly utilized as the extraction solvent. Small amount of mixed-tocopherols (0.01 %) is added as the antioxidant to some products, especially comprising unsaturated fatty acid esters [15].</td>
</tr>
</tbody>
</table>
methyl esters is mainly palm oil, palm kernel oil, coconut oil and rape-seed oil. The major fatty acids of these oils are stearic acid, palmitic acid, oleic acid, lauric acid, myristic acid, erucic acid and behenic acid.

3 Carrageenin red seaweed genera Kappaphycus, Gigartina, Eucheuma, Chondrus, and Hypnea, in Europe, Asia and America [16]. Carrageenan is produced via extraction from seaweed into water or aqueous dilute alkali. Carrageenan may be recovered by alcohol precipitation, drum drying, or precipitation in aqueous potassium chloride, followed by subsequent freezing. The used alcohols during recovery and purification processes are restricted to methanol, ethanol, and isopropanol. Articles of commerce may include sugars for standardization purposes, salts so as to obtain specific gelling or thickening characteristics, or emulsifiers carried over from drum drying procedures [17].

4 Pectins Pectin is a natural acid polysaccharide present in nearly all fruits, especially apples, quinces and oranges. It is commercially produced from apple pulp and orange peels. Sodium, potassium, and ammonium pectates are the respective salts of pectin [18, 19]. Most pectin are obtained by extraction with hot aqueous acid followed by subsequent precipitation in an organic solvent. Extraction time and temperature varies depending on the properties of the raw material and desired end product. After pretreatment of the raw material, the peel or pomace is treated with hot aqueous acid in which the cell wall-bound pectin is released by chemical action resulted from low pH and high temperature. In some procedures, soaking peel in acidic solution takes place prior to the actual acid extraction, promoting pectin release from the cell wall matrix. Pectin may also be extracted using alkali. Nevertheless, extraction in alkali is not commonly used for production of commercial pectin because pectin structure is very susceptible to β-elimination.

The process of extraction is followed by filtration in order to separate the acidic aqueous pectin extract from the remaining insoluble plant tissue. Filtration may be aided by application of filter aids including wood cellulose or perlite. The clarified pectin may be evaporated to a higher final concentration before precipitation, so that the amount of the required solvent for precipitation is reduced. Usually, pectin precipitation is performed using an organic solvent in which pectin is insoluble but in which many of the remaining impurities in extract are soluble. International food standards permit the application of methanol, ethanol or isopropanol as organic solvents. Precipitation in organic solvent is followed by washing in a dilute acid solution which eliminates all the remaining alcohol-soluble contaminants including acids, sugars and polyphenols. In order to adjust the pH, alkali may be added. Once the pectin is separated from as much organic solvent as possible, it is dried and ground to a fine powder [18,19].

5 Polyvinyl alcohol polymerization The primary raw material used in the manufacture of polyvinyl alcohol is vinyl acetate monomer, ethanol and benzoyl peroxide. It is produced via polymerization of vinyl acetate followed by partial hydrolysis. The process of hydrolysis is on the basis of the partial replacement of ester group in vinyl acetate with hydroxyl group, and is completed in the presence of aqueous sodium hydroxide, followed by the gradual addition of aqueous saponification agent. Next, polyvinyl alcohol is precipitated, washed and dried. The degree of hydrolysis is determined by the time point at which the saponification reaction is stopped [20, 21].

6 Potassium alginate different seaweeds of the family Phaeophyceae (Macrocystis pyrifera, Laminaria digitata, L. cloustoni, Ascophyllum nodosum) in the USA and the UK. First, the seaweed is broken into pieces and stirred with a hot solution of an alkali, commonly sodium carbonate. After two hours, alginate dissolves as sodium alginate to give very thick slurry. This slurry also includes parts of the seaweed which do not dissolve, chiefly cellulose that must be diluted with large quantities of water. After dilution, the solution is forced through a filter cloth in a filter press. Next, alginic acid is obtained from the above extract via adding either acid or a soluble calcium salt.
The formed alginic acid is placed in a double planetary mixer. Adequate alcohol is added in order to reach an ethanol-water proportion of 50:50 in the fibers. Potassium carbonate is added until a pH of 8 is reached. The alginate fiber is sampled from the mixer, dissolved in distilled water, and the pH is measured using pH indicator paper. If the pH is lower than 8, more carbonate is added, until a pH of 8 is adjusted. Potassium alginites are pressed so as to remove ethanol-water solution. The resulting mat is loosened and broken up, eventually dried at 60 °C [22].

Processed eucheuma seaweed (PES) is seaweed obtained from either Eucheuma cottonii or *E. spinosum* (from the *Rhodophyceae* class of red seaweeds).

Eucheuma cottonii is heated in an alkaline solution of potassium hydroxide for approximately two hours. The hydroxide part of the reagent penetrates seaweed and decreases the amount of sulphate in carrageenan, and raises the 3,6-AG in a way that the gel strength of carrageenan in seaweed is improved. The potassium part of the reagent combines with carrageenan in seaweed in order to produce a gel and this inhibits the carrageenan from dissolving in hot solution. Nevertheless, any soluble protein, carbohydrate and salts do dissolve and are eliminated when the solution is drained away from seaweed. The residue, which still looks like seaweed, is washed several times so as to omit the alkali and anything else which will dissolve in water. After washing to eliminate any bleach, the product is dried in a closed dryer. In this kind of dryer, indirectly-heated hot air passes up through a bed of unground pieces or chips which are being carried through the dryer on a chain-type belt. This closed system dryer is prevalently adequate in order to keep the bacterial count low enough to make a human-food grade product. If bacteria reduction is necessary, dried chips can be milled and subsequently washed with alcohol (ethanol) followed by vacuum evaporation so as to recover the alcohol. A simpler process is to treat the milled powder with superheated steam [23].

In order to extract the sodium alginate, seaweed is broken into pieces and stirred with a hot solution of an alkali, commonly sodium carbonate. Over a period of approximately two hours, alginate dissolves as sodium alginate to give a very thick slurry. This slurry also comprises parts of seaweed which do not dissolve, chiefly cellulose. This insoluble residue must be eliminated from solution. The solution is too thick (viscous) to be filtered and hence must be diluted with large quantities of water. After dilution, the solution is forced through a filter cloth in a filter press. Nevertheless, pieces of undissolved residue are very fine and can promptly clog the filter cloth. As a result, prior to filtration step, a filter aid such as diatomaceous earth must be added; this holds most of the fine particles away from the surface of the filter cloth and improves the process of filtration. Filter aid is however expensive and can make a meaningful contribution to the overall costs. In order to decrease the quantity of the required filter aid, some processors force air into the extract as it is being diluted with water (the extract and diluting water are mixed in an in-line mixer into which air is forced). Fine air bubbles attach themselves to the particles of residue. The diluted extract is left standing for a few hours while the air rises to the top, taking the residue particles with it. This frothy mix of air and residue is omitted from the top and the solution is withdrawn from the bottom and pumped to the filter. The solution is very dilute and evaporation of the water is not economic. There are two different ways of recovering the sodium alginate [23]:

1. **Alginate acid method**

   After addition of the acid to the filtered extract, alginic acid forms in soft, gelatinous pieces which must be separated from water. Again, flotation is normally used; filtration is not possible due to soft jelly-like nature of the solid. If an excess of sodium carbonate is applied in the original extraction, this will still be present in filtered extract in a way that when the acid is added, carbon dioxide will form. Fine bubbles of this gas attach themselves to the pieces of alginic acid and lift them to the surface where they can be continuously scrapped away. The processor now has a jelly-like mass of alginic acid which absolutely includes only 1–2 percent of alginic acid, with 98–99 percent of water. In some ways, this water content must be decreased. It is too soft to permit the application of a screw press. Some
processors place the gel in basket-type centrifuges lined with filter cloth. Centrifuging can increase the solids to 7–8 percent and this is adequate if alcohol is to be used in the next step of converting it to sodium alginate. It is also now enough firm to be squeezed in a screw press. 7–8 percent of alginic acid is placed in a mixer and, the water is allowed to be contained in the alginic acid, and enough alcohol (commonly ethanol or isopropanol) is added to give a final 50:50 mixture of alcohol and water. Eventually, solid sodium carbonate is added gradually until the resulting paste reaches the desired pH. The paste of sodium alginate can be extruded as pellets, oven dried and milled.

2. Calcium alginate method

After addition of a soluble calcium salt such as calcium chloride to the filtered extract, solid calcium alginate is produced. If the calcium solution and filtered extract are mixed carefully, the calcium alginate can be formed as fibres – while bad mixing gives a gelatinous solid. This fibrous material can be readily separated on a metal screen (sieve) and washed with water in order to eliminate the excess calcium. It is then stirred in dilute acid and converted to alginic acid, which retains the fibrous characteristics of the calcium alginate. This form of alginic acid can be easily squeezed in a screw press. A screw press with a graduated-pitch screw is commonly utilized; the squeezing action must be applied very gradually, otherwise the material will just move backwards and out of the press. The product from the screw press looks relatively solid but still includes only 20–25 percent of alginic acid. Nevertheless, it is adequately dry to form a paste when sodium carbonate is mixed with it so as to convert it to sodium alginate. Sodium carbonate is added to the alginic acid in a appropriate kind of mixer until the required pH is adjusted, and subsequently the paste is extruded as pellets, dried and milled [23].

9 Isomalt Sucrose

Isomalt is produced in a two-stage procedure from sucrose [24].

1. In the first step, sucrose is enzymatically converted into isomaltulose using a microorganism (Serratia plymuthica).

2. In the second step, isomaltulose is hydrogenated, using a Raney nickel catalyst. Based on the process, a solution of isomaltulose having a concentration in the range of 20 to 50 % by weight is hydrogenated at a certain temperature in the range of 80 to 130 °C, using a catalyst selected from Ruthenium, Nickel and mixtures thereof on an inert support at a pressure below 50 atmospheres, the pH being kept constant in the range of 3 to 8. The resulted product is substantially free from other polymers. Among the merits of this procedure it should be mentioned the fact that it enables to accomplish the desired ratio between the two isomers α-Glucopyranosyl-1,1-Mannitol (GPM) and α-Glucopyranosyl-1,6-D-Sorbitol (GPS).

10 Pullulan hydrolysed starch

Pullulan is manufactured commercially via mesophilic (22-30°C) fermentation of hydrolysed starch with a selected non-toxigenic strain of Aureobasidium pullulans and further purification of the product. Pullulan is produced extracellularly when the cells are in the late log phase and stationery phase of growth and its formation depends on a different parameters such as temperature, pH, substrate and strain. The yield and molecular weight of pullulan can be adjusted by manipulation of the substrate and fermentation conditions [25].

The manufacturing process is carried out under conditions of good manufacturing practices and uses raw materials and processing aids which conform to food grade specifications. Pullulan is formed via mesophilic fermentation of starch syrup by selected non-toxigenic strain of Aureobasidium pullulans. The strain has been selected by traditional techniques, i.e. the strain is not the product of genetic modification using recombinant technologies. The production strain has a high yield of pullulan, low production of melanin and does not produce aureobasidin A. When the process of fermentation is completed, the fungal cells are eliminated by microfiltration. The cell-free filtrate is heat-sterilized and treated with activated carbon to omit the pigments and other impurities by adsorption.
The decolourized filtrate is cooled and deionized using cation and anion exchange resins. The deionized solution is concentrated to a solids content of about 12%, treated a second time with activated carbon, and filtered using diatomaceous earth as a filter aid. The filtrate is concentrated via evaporation to a solids content of about 30% and dried in a drum dryer. The dried pullulan is pulverized to a specified particle size and packed in sterilized polyethylene bags [25].

11 Polydextroses Glucose

Polydextrose is produced via vacuum melt procedure involving polycondensation of glucose in the presence of small amounts of sorbitol and citric acid in the ratio 89:10:1, respectively. Sorbitol acts as a plasticizer and citric acid as a catalyst in the polymerization. It is essential to control the molecular size of the polymer during the manufacturing process (Mw about 5000) so as to limit the formation of large molecular weight molecules. This control restricts the formation of insoluble materials and results in the highly water soluble nature of polydextrose [26].

References
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[18] JECFA database for evaluation of additive (s) with INS No. 440
[21] Opinion of the scientific panel on food additives, flavorings, processing aids and materials in contact with food on a request from the commission related to the use of polyvinyl alcohol as a coating agent for food supplements 2005 Question number EFSA-Q-2005-017. EFSA J. 294 1
[27] OIC–SMIIIC1 2011 Halal Food – General Requirement

3. Conclusion
Given that glazing agents are belonging to the category of food, jurisprudential laws are also ruling on them. Generally, halal state of the glazing agents relates to the following factors: origin and the production process. To sum up, editable glazing agents must be obtained from halal ingredients and shall be free from haram components, insects and all their derivatives as well as intoxicating agents as solvent residues, according to OIC–SMIIIC1 standard, 2011 [27]. The type of the solvent in used production process of glazing agents must not be against Islamic laws and regulations. Moreover, it is required to label the type of the used solvent (alcohol consumption) and the type of culture medium at each stage of the production process of glazing agents.
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- National patent for oral and artificial color identification kits in food products
- Implementation of Saffron Authentication Project of

In halal field she has work in committees to develop 7 Standards in the field of Halal including:
- Halal food - critical control points in livestock slaughtering
- Halal food - critical control points in poultry slaughtering
- Halal packaging - General guideline
- Islamic consumer goods - Use of leather and bone of halal animals
- Halal food additives - General guideline

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Istihala and the Extent of its Achievement in the Food Industry: Practical Models

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ABSTRACT
The ancient jurists studied the question of Istihala through the models which existed in the past, such as wine which becomes vinegar, impure (Nadjis) oil which becomes soap, a carcass of an animal when it is burned and becomes ashes, and a pig when it falls into a salt deposit and becomes salt.

Nowadays, however, things have become more complicated and many additives are used in food processing. Some of them are produced from haram substances and dead animals after they undergo some chemical reactions during manufacturing.

When can these substances be considered pure (Halal) based on Istihala? and to what extent can we rely on scientific development, which provides us with accurate analysing methods, such as chromatography, and DNA testing, to trace the source of the substance and know the extent of change of its characteristics and if it has acquired new ones?

This paper attempts to deal with this problem by tracking the changes in three materials widely used in food manufacturing:

- Gelatin released from collagen and ossein.
- Monoglycerides which are used as emulsifiers and stabilizers.
- The rennet that coagulates milk in the cheese industry.

In this research, a descriptive approach is used to follow the steps of manufacturing these materials, and an analytical approach to examine and evaluate the interactions and the extent of change of these materials.

It was found that many of the jurisprudential studies that dealt with this topic mentioned only the old models without referring to what is happening at present, and this requires reconsideration and review in the light of the latest developments of modern sciences and accurate research in addition to the implication of the texts of Shari’a.

The research concludes with recommendations, the most important of which is the need to involve experts and those with a strong scientific specialization in this field.

1. Introduction

With the development of the production of food and medicine, some substances have been added to them from haram sources such as swine, non-slaughtered animals and blood. However, some scholars see that some of those substances are halal based on Istihala, which is known as: "The transformation of the entity, the changing of its name and characteristics" [1].

So, is it permissible to consume these substances even though they are from a prohibited source? Have they actually been transformed by Istihala?

Part One: Gelatin and the extent of its Istihala.
Gelatin is a protein that is derived from the hydrolysis of collagen from animals skin, ligaments and bones [2].

Protein is made up of amino acids linked by peptide bonds. Proteins differ in terms of their chemical properties and composition. This difference is due to side chains that occur when the amino acids are bonded together. Therefore, the classification of these acids is based on chemical properties of the side chains which may be polar and soluble in water, or non-polar and insoluble [3].

Collagen is converted into gelatin when boiled in water and diluted acid or base [4]. Gelatin is an incomplete protein, lacking some amino acids such as tryptophan [5]. It contains non-gelatinous animal substances, such as polysaccharides, albumin and DNA, which originate from the animal source of gelatin [6].

1.1 The types of gelatin: There are two types of gelatin; type (A) is prepared with acid and is typically derived from swine skins whereas type (B) with base and is mostly extracted from bones [7]. Some types of gelatin are

extracted from certain plants and marine algae[8]. But their use remains very limited. Swines are the main source of gelatin since its extraction is easier, and its rate of collagen production is very high[9]. In addition to the economic aspect:
- Pigs are easy to feed and multiply quickly without high costs.
- The acid extraction method of gelatin is easier and cheaper than the basic method which is used for bones and cow skins[10].

The Production of gelatin is based on the consumption of pork, and its consumption has increased significantly after the appearance of mad cow disease, consequently the production rate of pig’s gelatin has increased as well[11].

1.2 Applications of gelatin:
Gelatin has multiple functions. It makes the cohesive texture of the food. It stabilizes light substances such as yoghurt, various cheeses, soups, jams, bakery products and pasta. It is also used to make calorie-free food for dieters[12].

1.3 Ruling on gelatin extracted from haram sources
In order to make judgment about gelatin extracted from haram sources we need to discuss the following points:
- The scholars’ divergent views about gelatin.
- The chemical reactions it undergoes during manufacturing.

1.4 The scholars’ divergence about gelatin.
In its decision No. 11, the Islamic Jurisprudence Academy in Jeddah in its third session in Amman in 1986 stated: “It is not permissible for a Muslim to use enzymes and gelatin taken from swine in food. Enzymes and gelatin taken from plants and slaughtered animals are sufficient[13].”

The Council of the Islamic Fiqh Academy at its fifteenth session which was held in Makah in 1998, confirmed:
“IT is permissible to use gelatin extracted from halal substances and slaughtered animals but it is not permissible to extract it from what is illicit as swine skin and bones, other haram animals and matters”[14].

On the contrary, a recommendation of a seminar held in Kuwait about the forbidden and impure substances in food and medicine stated:
“Gelatin extracted from animal bones, skins and tendons which was changed by "Istihsala is pure and halal to be consumed”[15].

A fatwa on food additives and gelatin issued by the European Council for Fatwa and Research held in 2003 stated:
«These materials referred to by the letter (E) plus a number do not affect the purity of food or beverages ... If any food or beverage contains some of these additives, it remains originally halal. Our religion is simple. Allah has not enjoined upon us to change and completely transform it by "Istihsala into a new material pure»[17].

The Fiqh Council of North America also affirms the purity of gelatin extracted from pork by "Istihsala[18]. The vice-president of the Council declared: “Animal gelatin is regarded pure by "Istihsala... Therefore, gelatin that is now on the market is not considered haram.”[19].

So, is it permissible to extract gelatin from haram origins such as swine and non-slaughtered animals?
Some scientists focus on the fact that gelatin source cannot be traced to the animal species it is derived from. They also focus on the changes that occur on the collagen which causes the transformation of its characteristics, attributes and name[20].

1.5 What is the final statement then?
Nowadays, there are several ways to trace the animal source of gelatin, including chromatography and DNA analysis. Some scientists confirm that the source of gelatin can be identified by spectroscopy as well.

Wafik al-Sharqawi says: «The skins of pigs and their bones are not completely changed by "Istihsala, its transformation is just partial and the origin of gelatin can be identified by spectroscopy after various chemical processes»[21].

One of the experiments in this field is a study on gelatin released from camel skins by a group of researchers at the International Institute for Halal Research and Training (INHART), at International Islamic University, Malaysia[22].

1.6 Chemical reactions of gelatin during manufacturing.
The change in gelatin manufacturing is only a breakdown of some of the lateral bonds in the collagen molecule and a redistribution of some of them into the peptide chains. Acid chains and many lateral bonds remain intact. So, it is only a hydrolyzed collagen, and the transformation is no more than giving it the characteristic of being soluble in water. Its basic components remain unchanged.

Gelatin does not contain tryptophan because the collagen itself does not contain that amino acid. Despite this deficiency, there is no debate that collagen is considered as animal’s flesh.

Gelatin is produced by collagen hydrolysis in a heated, acidic or alkaline environment[23].

Hydrolysis is widely used in the field of food processing to improve some nutritional and functional characteristics of certain foods. Hydrolyzing milk with lactozyme in order to help people who are allergic to lactose and making babies’ milk is an obvious example because it remains milk despite the partial separation of its long chains.

Hydrolyzing meat leads to partial dissolution of the proteins in order to make it tender[24].

So we can notice the following:
- The source of gelatin can be traced by modern techniques.
- Gelatin does not differ much from collagen except in some secondary bonds which form bridges between protein molecules with a dissolution of some peptide bonds in the chain of amino acids[25]. Such a change happens to proteins naturally by hydrolysis that leads to the modification of some substance qualities.
- Gelatin can be obtained - even if in limited quantities - during normal cooking[26].

It is not appropriate to say that gelatin of a pig or non-slaughtered animal has been completely transformed by "Istihsala. It has been

[25] Because the core character of any protein is the acid chain and it is still present in gelatin.
proved that its composition and attributes have not changed and it has not become pure and halal to be consumed by Muslims. The reason why pork is forbidden in our religion is unknown, we cannot say that the partial dissolution of its proteins and the transformation of its collagen into gelatin deny its prohibition.

Part Two: Monoglyceride and its Istihala.
The direct consumption of animal fat decreased when people rejected it for fear of obesity and heart disease. Its price has also decreased because of the low demand. This has enticed food manufacturers to use it with increased frequency.

Animal fat contains a higher proportion of saturated fatty acids than vegetable oils, resulting in a better viscosity, elasticity and melting, which are required in food manufacturing. Fatty acid esters represented mainly by monoglyceride are among the fat derivatives which are used most. Monoglycerides are a fat from which some acids have been removed and other organic molecules have been added in order to obtain desirable properties.

If these esters are issued from a non-slaughtered animal or from a pig, is it permissible to use them based on the claim that Istihala has transformed it? More than 99% of plant and animal fats are composed of fatty acid esters[27], and most natural fats are made up of a mixture of triglycerides.

2.1 Steps of manufacturing the monoglycerides
The triglyceride can be formulated as follows:

\[
\text{CH}_2\text{OH} \quad \text{CH}_3\text{O} - \text{C} - \text{R} \\
| \quad | \quad O \\
\text{CHOH}+3\text{R} - \text{COOH} \rightleftharpoons \text{CHO} - \text{C} - \text{R} + 3\text{H}_2\text{O} \\
| \quad | \quad O \\
\text{CH}_2\text{OH} \quad \text{CH}_3\text{O} - \text{C} - \text{R}
\]

Glycerol, Fatty acids, Triglyceride, Water

Esters containing one or more fatty acids are prepared from triglycerides and a fifth of its weight of glycerol. Some fatty acids leave the triglyceride and combines with free hydroxyl groups in the added glycerol molecules[28]. The general formula for these glycerides is:

\[
\text{CH}_2\text{O}-\text{C} - \text{R} + \text{CH}_2\text{OH}
\]

Where R represents fatty acid[29].

After the removal of surplus glycerol a mixture called industrial monoglyceride remains. It contains at least 40 % monoglycerides, and the remaining is di and triglycerides. This combination is used in food as an emulsifier[30].

Monoglyceride can be purified to 95% by molecular distillation. However, due to the high price of pure monoglyceride, the non-distilled mixture is used[31].

2.2 Fields of use of monoglycerides:
Monoglycerides account for 75% emulsifiers used in food processing[32]. It is added to industrial ghee, bakery products, meat, bread making and fatty fillings for biscuits and chocolate, etc. Most emulsifiers used in margarine contain 40 to 60% monoglycerides and the remaining are di- and triglycerides. The use of pure monoglycerides is rare in the margarine industry[33].

2.3 Istihala of monoglycerides
As stated above, industrial glycerides, which are inserted into foods, are a combination of mono, di and triglycerides. The triglycerides are unchanged fat; therefore, it cannot be considered halal by Istihala.

However, if we assume that there are purified monoglycerides, can they be considered halal by Istihala?

2.4 Identification of the source of monoglycerides
Some of those who wrote on the subject relied on the impossibility of identifying the source of the substance by chemical analysis as a proof of Istihala[34].

In fact, the identification of monoglycerides’ source is difficult, but not impossible. The presence of the chemical bond between fatty acid and glycerol can determine the source of fat used in manufacturing.

Pig’s fat consist mainly of Palmito-2 in bonds 1 and 3 with a melting point of 68.5 ° C. Cow’s fat consists of the same acid, but in bonds 2 and 3, with a melting point of 63.3 ° C. It is noted that the difference lies in the location of bonds[35].

2.5 The residual monoglycerides means the preservation of the fat source.
The synthesis of fat in humans and non-ruminants depends on the type of fat that is ingested. When triglycerides are digested glycerol is totally released, and it is quickly absorbed by the blood and there is not enough left to re-synthesize fat in the body. While the consumption of monoglycerides lead to the synthesizing of di and triglycerides. As for ruminants, the synthesizing of fat in their bodies comes from glycerol and free fatty acids[36]. Thus, it may be understood that the remaining of monoglycerides is the remaining of the fat origin and the breaking up of fat into glycerol and free acids eliminates any trace of the origin of fat.

It may be concluded that Istihala of fat occurs when there is a total dissociation of all glyceride bonds.

If we rely on the principle of the impossibility of identifying the source then it may be said that the process of fat breakup into free fatty acids and glycerol is considered a complete Istihala[37].

Part Three: Cheese made of non-slaughtered animals’ rennet.
There are hundreds of cheese varieties, but they all share the main method of manufacturing[38]. The study focuses mainly on the coagulant factor, whether it is animal rennet or not and whenever it is from a non-slaughtered animal or a pig, and if it is permissible to consume the cheese?

In search for a substitute for bovine chymosin, manufacturers found that pig pepsin could compensate for the shortage. Using pepsin from the pig began during World War II, but was not widely utilized until the 1960s.

3.1 Fields of use of pepsin:
Pepsin treatments are making it more suitable for cheese industry. It is used in soft dairy cheese and pressed uncooked cheese, especially in cheddars[39].

[27] Dimane: op. cit, p 64.
[33] Jean-Louis Multon: op. cit, p 646.
[34] Mohamed Abdessalam: op. cit, p 607.
[37] The scholars differ in defining the concept of Istihala. Some of them see that Istihala is the impossibility of returning to the origin of the substance (Irreversibility), others believe that the source cannot be identified. Mohamed Abdessalam: op. cit, p 611. Nazih Hammad: Al-mawad al-mouharama wa’naajissa (Forbidden and impure substances), p 66.
[38] Hamad Nizar: op. cit, p 220.
Since cheese produced by pepsin is not without obvious defects such as the presence of a bitter taste and the increased coagulation time results in higher fat losses, the best way is to mix it 50/50 with cow chymosin[40].

Due to its poor quality, pepsin use has been decreasing and leaves room for other alternatives, such as bacterial enzymes[41] especially in France, where its use has declined since 1981[42]. The use of pig pepsin mixed with bovine rennet was particularly common in Anglo-Saxon countries.

Nowadays some people use pepsin extracted from chicken[43] which is closer to chymosin than to the gastric pepsin, and mixed with the bovine rennet by 30%. Its use has shown significant economic benefits, due to the huge amount of chicken consumed[44].

Pepsin was also extracted from animals other than pig and cow, such as seals and some Atlantic fish, and the results were excellent[45].

3.2 Ruling on cheese made with non-slaughtered animals' rennet

Animal rennet used in the cheese industry today is mostly a mixture of bovine chymosin and pig or cow pepsin, with most of the pepsin being derived from pigs. Therefore, it is difficult to make a judgment about bovine rennet apart from the pig's pepsin, because of the combined use of them. However, if we suppose that there is bovine rennet free of the pig pepsin, what is the judgment if it is taken from non-slaughtered cows?

The majority of the scholars[46] came to the conclusion that non-slaughtered animals rennet is nadjis and haram[47].

Some contemporary scholars have argued that the rennet of non-slaughtered animals is permissible based on Istihala[48]. The recommendations of fiqh seminar in Kuwait stated 'cheese coagulated by non-slaughtered animal rennet is pure, and can be eaten'[49].

But, what is the judgment on cheese which was made with that rennet? Does Istihala occur when it is used?

3.3 Istihala of animals' rennet

Rennet is an enzyme and acts as a catalyst which is not incorporated into the end product of the chemical reaction. It is a stimulus which reacts by contact, and remains unchanged after the completion of the reaction according to the following symbiotic formula:

$$E + S \rightarrow E.S \rightarrow P + E$$

Where E = enzyme, S = the substratum, ES = the enzyme complex with the reaction substance during contact, and P = the product of the reaction.

However, the enzyme’s activity becomes ineffective after the desired reaction is complete[50].

Does the enzyme’s activity cessation mean its transformation? Or is it not working because of the change of the appropriate conditions, and because the interaction has already been fulfilled and there is no function left?

3.4 Cessation of enzyme activity

As the enzyme does not enter the reaction it remains intact at the end of the chemical process[51]. This is confirmed by the possibility of retrieving the used rennet and reusing it once again[52]. Therefore, the cessation of enzyme activity at the end of any reaction is due to the changing of the chemical process circumstances; because enzymes are selective and work only in certain conditions of heat and acidity[53]. Once their function is fulfilled, these conditions change, thus the enzyme’s activity stops.

3.5 The denaturation:

The enzymes are proteins and among their properties is the change in their structure without the destruction of peptide bonds called denaturation.

Denaturation is caused by factors such as temperature, acidity level and salts, accompanied by some changes in the functional characteristics of protein.

Models of denaturation exist in our daily life. For example, when eggs are coagulated by heat or acids and when meat is cooked. It also happens for most proteins by freezing. That is why milk is clotted when frozen[54].

The factor that leads to protein denaturation is the way amino acids are synthesized in the protein, and how they are sequenced. Thus, denaturation is also known as "a change in the basic structure, which does not involve a change in the sequence of amino acids"[55].

The structure of protein molecule has four levels:

The binding of amino acids together by peptide bonds leads to the formation of the primary structure of the protein[56]. The composition of the acids themselves affects the nature of the secondary, the tertiary, and the quaternary structure of the protein. These structures affect the functional properties and behavior of proteins during different food processes. In the presence of hydrogen bonds between peptide chains, the secondary structure is composed of a helix or a sheet, and the tertiary structure is composed when flexing the chains and folding them together in integrated structures, which are bonded by hydrogen bonds and other two-sulfur bonds. When the protein molecules are at a certain level of large size the structure is quaternary where initial, secondary, and tertiary structures fusion in the form of layers or clusters[57].

Denaturation is a process in which proteins lose the quaternary, tertiary, and secondary structure, which is present in their native state, by application of some external compound such as a strong acid or base, or heat.

When food is cooked, some of its proteins become denatured. This is why boiled eggs become hard and cooked meat becomes firm. When we heat an enzyme, it loses its function as a mediator in the chemical reaction. However, the covalent bonds in the enzyme molecule do not change, but what changes is the shape, from spiral to an extended form. This change is not always permanent and may be reversible. It was proved that some proteins have been reversed from denaturation to their initial structure.

So, denaturation is a change in shape that inhibits function, but it never leads to a new function in the protein.

It is just a transformation from one structure to another without changing neither the amino acids that are the basis of protein

[42] P. Dupuy, Utilisation des enzymes en technologie alimentaire (Use of enzymes in food technology), p 159.
[46] Al-Maliky, al-Shafi’iyah and al-Hanabilah in one of their sayings.
[49] Islamic vision seminar: op. cit, p 1080.
molecule formation nor their sequence in the peptide chain.\[58\]. This cannot be *Istihala* in the sense of changing the composition and qualities of a substance. The proof is the transformation of boiled eggs, cooked meat and curd milk by denaturation, and nobody can affirm that these foods have been changed by *Istihala*.

**Conclusion:**
The reactions that occur to these substances do not let them reach the state of *Istihala* in its jurisprudential sense. Finally, it would be necessary to give experts their due position, and study these matters in the light of science and the findings of the latest researches. Science is developing rapidly, and Muslims should be the first to give it most importance when dealing with their religious and world matters as well. It is also desirable if the jurisprudential and Fatwa councils meet in unified sessions to review the rulings and decisions they have issued in order to follow up the latest developments in food manufacturing technologies.

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Part III

Meat and Slaughtering Studies
The term, clean meat, refers to genuine animal meat grown by farming cells directly rather than slaughtering an animal. Clean meat, also called cultured meat, synthetic meat, in vitro meat, lab-grown or vat-grown meat, and several other terms, have been used for meat grown in vitro through animal cell culture rather than from slaughtered animals. Production of clean meat is a form of cellular agriculture. First, starter cells from animals are removed by using a harmless biopsy needle and cells are allowed to proliferate. Cell types used for starter culture could vary from embryonic stem cells to fully differentiated cells. Next step after isolation of desired cell type is to provide the extracted starter cells the growth medium inside a stir-tank bioreactor. Cultivation of loose mass of myosatellite cells on a suitable medium containing appropriate nutrients, growth factor and energy sources, etc., is necessary to fulfill the growth requirement and help in the stem cells differentiation to mature muscle tissues inside the suspension present within a bioreactor. To avoid ethical or religious issues, completely free medium without animal components is preferred, which guarantees the consistency of the product quality.

Some of the advantages of clean meat technology are that it is environment and resource efficient as compared to traditional meat production. Scientists believe that clean meat would significantly reduce animal suffering and guarantees sustainable designer production that would be chemical and disease-free meat as it is possible to control and manipulate the circumstances in a clean meat production system without contamination risk with bacteria like E. coli and Salmonella. Clean meat technology is facing many hurdles among which bringing clean meat from the lab to the industrial scale is one of the main challenges. Another complicating factor is that clean meat lack muscle tissue and maturation process required for meat tenderization but researchers are working on to bring innovations. One more challenge that clean meat industry is going through is, clean meat prototypes have also lacked fat, which imparts flavor, aroma, and texture to meat. Lastly, the lack of naturalness of the clean meat is one of the major obstacles to the way of public acceptance.

Clean meat may also be considered as “unnatural” or a “Franken food” by the consumers as genetically modified organisms (GMOs). In addition, it has yet to be seen whether Muslim consumers will accept clean meat as a meat source since its status for the religious point of view has yet to be determined. Scientists still need to provide information about the clean meat manufacturing process to religious scholars so they can determine its status regarding Halal.

Introduction
The term “clean meat” refers to genuine animal meat grown by farming cells directly rather than slaughtering an animal. Clean meat, also called cultured meat, synthetic meat, in vitro meat, lab-grown or vat-grown meat, and several other terms, have been used for clean meat. Clean meat is utilizing the technique of regenerative cell culture in which meat is grown artificially through cell culture technology using animal biopsies rather than obtaining it from animal slaughter (Tuomisto, Teixeira de Mattos, & technology, 2011). The process of producing clean meat uses various tissue engineering methods conventionally utilized in regenerative medicine (Specht, Welch, Clayton, & Lagally, 2018).

Manufacturing Principles for Clean Meat Production:
There are five major principles involved in the production of clean meat. The first principle involves the extraction of the cells that are capable of multiplying especially stem cells that can be embryonic or adult stem cells in addition to myosatellite cells. The second principle involves the preparation of suitable culture medium as a way to provide nutrients (carbohydrates, vitamins, amino acids, lipids etc.), hormones (thyroid, insulin or other growth hormones) and growth factors (FGF, IGF, TGFβ) in order to ensure a high growth rate of the stem cells in growth medium. These nutrients and growth factors are required by the cells for proliferation and differentiation (Kadim, Mahgoub, Baqir, Faye, & Purchas, 2015).

The third principle is based on utilizing a biomaterial that assist cells to establish them in an order to form a tissue configuration. For this to happen, the cells are flooded in a scaffold or gel to provide a temporary support. It also permits cells to connect and fuse with other cells as a point of anchor for nascent tissue. These anchor points provide the area for the cells to align in between them that results in
building up tension that is required for contractile protein synthesis which themselves serves to create tension (Hocquette, 2016).

The fourth principle involves the designing of a large-capacity bioreactor to provide the nourishment to the cells under optimal conditions required for cell proliferation and differentiation on large scale (Moritz, Verbruggen, & Post, 2015).

The fifth principle is based on the production of muscle tissues that will look alike traditional meat as much as possible. But there are several issues related to that, such as color, taste, detailed composition of muscle tissues etc.

Halal Critical Control Points for Production of Clean Meat:

The crucial point to consider for Islamic community is the Halal status of clean meat which means that whether it complies with Islamic principles or not. Since clean meat is a new area of discovery, development and advancement by researchers that has never been addressed by Islamic scholars (fiqhah), there should be an ijihad by contemporary legal scholars in order to search for providing answers for newly introduced technology for its Halal status and compliance with Islamic laws. There are several critical control points to consider for Halal clean meat production. It is an issue that is opening critical discourses about how clean meat will be incorporated into the cultural cuisine.

Islamic Food and Nutrition Council of America, a major and largest Halal certification body in USA had not made any decision yet of this meat is suitable for Halal Consumer. On the other have clean meat issue has not been in deep discussions by halal organizations in USA, or any other part of the world yet and there is a long way to go with this with many things to consider and talk about, might be skeptical for many practical Muslims for a period of time.

1) Animal Slaughtering Following the Islamic laws:
An important critical control point for clean meat production would be the cells used as a source cell must originate from Halal animal. Islam has established certain conditions for slaughtering including the animal condition, slaughterhouse, slaughter person and equipment used for slaughtering. If the biopsies of cells are derived from living animals, not the Halal slaughtered animal, then the resultant meat cannot be Halal. Equipment used should also be designed to be used for Halal production of meat only (Wakaf & Kuwait, 1986).

2) Source Cells to be Used as Starter Cells:
Two types of stem cells can be used for production of clean meat: embryonic stem cells (ESCs) and adult stem cells (ADCs). As embryonic stem cells are derived from the fetus, ESCs should fall under Islamic regulations and principles. According to the Islamic principles, in order for the animal fetus to be Halal, mother should be slaughtered first by following the Islamic rules, but some of them implies that animal fetus should be mature enough based on its fur appearance. There are different school of thought based upon the use of fetal cells that needs to be identified and addressed by the religious scholars (Hamdan, Post, Ramli, Mustafa, & health, 2017).

On the other hand, Adult stem cells (ASCs) are derived from the part of meat on animal’s body, regardless of the fact that animal is alive or dead at the time of extraction of ASCs from animal’s body. Thus, in case of Halal clean meat production if the ADCs were extracted after the slaughtering of animal, then it can be lawful to eaten as derived from Halal source. If the ADCs are derived when the animal was still alive, then the resultant clean meat cannot be considered as clean and be forbidden for consumption (Meyers & Abrams, 2010).

3) Animal Component-Free cell Culture Media:
Normally used culture medium contains serum that is a fluid derived from animal blood through centrifugation technique. Serum has the same status as that of blood in Islamic laws because serum separation from the blood during centrifugation does not go through a procedure that can be considered Halal, hence it is unclean and cannot be consumed according to Islamic principles.

In the last ten years, many new advancements have been made to develop culture medium free of animal component because of the need of cell therapy industries, where culture media having animal component is problematic from the perspective of reproducibility, regulation, contamination, religion and ethical concerns (Brunner et al., 2010). There are currently hundreds of animal-free media-forms of formulations that are available commercially, developed as a result for the surge within cell culture industry to assign chemically-defined serum-free medium regarded as an essential component of good cell culture practice (GCCP) (Van der Valk et al., 2010).

Advantages Associated with Production of Clean Meat:

These products could be game changing just in terms of food safety as it poses no microbial contamination concern such as Salmonella and E. coli, intestinal bugs, free of fecal contamination, reducing the risk of numerous globally present pandemic such as Bird flu outbreaks, avian influenza that is transfereble to human beings from animals (Kadim et al., 2015).

The ultimate goal of clean meat approach is to make items that are used in every practical sense, genuine meat cuts showing multiple types of cell composes inside vascularized, thick tissues that can be successfully imitated by the meat analogues from plant origin so that the clean meat proposes an additional environmentally stable and humane manufacturing strategy to satisfy the demand of these products on the part of the consumers (Bhat, Kumar, Bhat, & nutrition, 2017).

Another important aspect to take into considerations is the prevention of food shortage that can be expected with an expanding load of the population on earth favors clean meat production and commercialization as well. In contrast to regular meat, there is the advantage to design the properties of clean meat by manipulating culture medium, fat content and fatty acids composition, to be more functional and healthier. Fat supplementation can be done after production of clean meat in order to control fat content by maintaining the ratio of saturated fatty acids, considered harmful for health to polyunsaturated fatty acids like omega-3 as a healthy alternative.

Less time is required considerably for clean meat production to develop the meat and needs just a few weeks rather than months or years in case of chicken and cows respectively before the meat will be ready to be harvested. The ideal time period for the tissues to be kept up is less noticeably, hence the amount of energy required and workforce input is much lower for clean meat production as compared to conventional meat system.

In addition to gratifying all the hedonic and nutritional needs of meat consumers, clean meat holds a great potential to minimize the sufferings of animals by making the consumption of animal meat unnecessary. Therefore, animal utilization will be decreased by the clean meat production system and according to the theory; just a single farm animal will be enough to fulfill the meat supply.
globally. Thus, continuous multiplication and differentiation of just ten stem cells for a couple of months will be enough for 50,000 metric tons of meat production (Alexander & Society, 2011).

Clean meat production technology is ecologically convenient, energy proficient, time and space saving than the traditional agricultural system. As indicated by a few specialists, clean meat could also be a solution to reduce greenhouse gas emission by up to 90% from animal farming and reduce the usage of water and land resources by up to 80% as a purpose to increase meat production (Fox, 2009). In another study by Tuomisto and de Mattos (2011), it was observed that clean meat could serve to reduce energy consumption by 7-45% than conventional meat, 78-96% less greenhouse gas emission, 99% less land usage, and 82-96% less water usage, with the assumption of utilizing cyanobacteria as a source of energy and nutrient (Bhat et al., 2017).

Challenges to Clean Meat Industry:

Despite the fact that production frameworks for clean meat are reported to be economical and secure as compared to production framework for traditional meat, it may still possess different risk profile. Clean meat may have few challenges regarding appearance and color in competing with traditional meat. Initially produced clean meat was comprised of tissue monolayer and Yolk-like globules gathered from the scaffolds for the arrangement of comminiated meat products (Hopkins, Dacey, & Ethics, 2008).

Conventional meat usually composed of muscle tissues and cells, formed from myoblasts and consists of fat and blood cells, smaller nerve proportion that are usually missing or present in minute quantities in clean meat. Clean meat producers are working on to improve co-culture cell techniques where they are trying to combine cultures of different cell types (Goodwin & Shoulders, 2013).

Another fundamental barrier in the production of clean meat is its extremely high prohibitive cost, although extensive scale production and market infiltration are typically related to the dramatic reduction in price. Clean meat technology is experiencing a slow start because of the research and experimentation cost involved with the technology to initiate it. In its initial stages, clean meat can be expensive and cost up to $50,000 per pound in order to grow and produce and should be developed in such small samples that one frankfurter could involve the utilization of tissues and cells from almost 3,000 individuals. Production of clean meat on a commercial level is practical only when a relatively profitable process will be established that creates a qualitatively competitive product compared to already available meat products in the market with the provision of government subsidies such as those that are provided to other agriculture-related businesses (Bhat, Fayaz, & technology, 2011).

The lack of naturalness of the clean meat is one of the major obstacles to the way of public acceptance. Clean meat may also be considered as “unnatural” or a “Frankenfood” by the consumers as genetically modified organisms (GMOs). However, the concept of unnaturalness in consumer’s mind seems to play as a driving force to resist them from the acceptance of new food technologies but clean meat industries need to consider these perceptions of unnaturalness seriously (Welin, 2013).

Extensive research studies are still required before the introduction of the large-scale production system for clean meat. Consumer’s response is vital for acceptance of clean meat as it is important for industries to know the information communicated through media about clean meat to consumers. Media is often considered as a source of information issues concerning to food consumption, that makes it necessary for meat industry pioneers to be aware of media scope and opinion related to clean meat.

Another barrier that could impede their success, regardless of whether they could scale up and contend on cost, will be potential government regulations and other bureaucratic impediments that could slow down pathways to the market. We have been applying current biotechnology to food quite a long time, however, directing organizations may, in any case, be wary of this specific innovation, given how novel it naturally appears, could back off the endorsement procedure.

Halal Status of Clean Meat

Consumers are now becoming more interested in food ethics that have been linked to religion and way of life with many religions have defined dietary guidelines that believers are expected to follow. Muslims have explicit dietary rules for consumption of meat related to its halal status as well. With a growing number of Muslims around the world globe and increasing demand for halal meat, clean meat can be considered as a potential alternative source. Muslim consumers will accept clean meat as a meat source since its status for the religious point of view has yet to be determined. Scientists still need to provide information about the clean meat manufacturing process, culture medium composition to religious scholars so they can determine its status regarding Halal.

Conclusion and Future Recommendations

The development of in vitro / clean meat is arguably the most important advancement in the food industry providing humongous benefits to multiple stakeholders. Not only does it maintain the same nutrition and sensory benefits, clean meat makes use of significantly less proportion of natural resources. Efficient utilization of land, energy, and water means considerable cost savings and environmental conservations. Foodborne diseases, nutrition-related illness, antibiotic-resistant strains of pathogens, animal welfare, ecological restraints are the other aspects related to the development of clean meat. Thus, clean meat production presents significant opportunities and holds great promises as an alternative approach to traditional meat production system. However, there are few restraints in the research phase such as sensorial, ethical and societal and consumer concerns, and identifying cost-effectiveness before processing with large-scale production. To determine its success scholars’ opinion is required by demonstrating them manufacturing process in order for it to be Halal certified.

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Bleeding Efficiency, Meat Drip Loss of Broiler Chicken Slaughtered With Traditional Halal, Non Halal and Decapitation Methods

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\textbf{ABSTRACT}

Slaughter is probably the most important operation in the transformation of an animal into pieces fit for human consumption. This crucial moment of killing is governed by strict regulations related to food hygiene and safety, working conditions and animal welfare. This study was conducted to evaluate the bleeding efficiency and meat drip loss of halal, non halal and decapitation slaughtered broiler chickens. To achieve this, a total of 30 broiler chickens of six weeks old with body weight between 2.2 kg and 2.5 kg were obtained from a commercial farm. The chickens were divided into three groups of 10 chickens each and subjected to either halal slaughter, non halal slaughter, or decapitation. It was found that halal slaughter method showed a high potential to improve bleeding efficiency and meat drip loss than those non halal and decapitation methods. Further research is needed to investigate the impact of halal slaughter method on meat quality parameters during post mortem aging period.

1. Introduction

Slaughter is probably the most important operation in the transformation of an animal into pieces fit for human consumption. This crucial moment of killing is governed by strict regulations related to food hygiene and safety, working conditions and animal welfare (Bergeaud-Blackler, 2007). Poultry processing is a complex combination of biology, chemistry, engineering, marketing, and economics. Poultry production and processing involve a series of interrelated steps designed to convert domestic birds into ready-to-cook whole carcasses, cut-up carcass parts, or various forms of deboned meat products (Alan, 2001).

Accepting that animals are to be slaughtered, then how this should be carried out? The methods used have varied between cultures and faiths worldwide. In our study, three manual slaughtering methods will be used that they are halal, non-halal and decapitation. The Islamic method requires the use of sharp knife, which according to Prophet Muhammad (peace be upon him) relieves the animal of any suffering (Sahih Muslim). Maximum drainage of blood is required. In the Holy Quran blood consumption has been forbidden by Muslims. Halal slaughtering process of animal involves restraining and severing of trachea (halqum), esophagus (mari’) and both the carotid arteries and jugular veins (wadajain) (Department of Islamic Malaysian Development. (2011); Department of Standards Malaysia (2009). MS1500: 2009).

Chicken meat is a good source of nicotinic acid, which helps fighting against cancer (Ali et al., 2011). It also have, trace amounts of mineral like selenium, which helps to make the hair strong and healthy. Other important B-complex vitamins like B6 and its co-ordinate function with nicotinic acid helps to convert the available food sources like carbohydrates, fats and pertains into energy sources and also important to maintain the cardiovascular health.

Eating is considered as a matter of worshiping God for Muslim. Islamic law prescribes a set of dietary rule, called “Halal” (legal, permitted by Allah) which lists the permitted food and prohibits the consumption of meat not obtained according to Islamic rules, covering livestock handling before and during slaughter (Regenstein et al., 2003; Bonne and Verbeke, 2008). “Halal” is also refers to the aspects of reliable, food quality, wholesome, hygiene and safety. Muslims must make an effort to obtain halal food of good quality. For non-Muslim consumers, halal foods are often perceived as specially selected and processed to achieve the halal standards of quality (Sams, 2001; Bonne, K. and Verbeke, W. (2008).

Nowadays, consumers demand convenience, health, safety, taste, uniformity, nutritive value, good appearance and variety of meat and meat products (Ademeyi and Sazili, 2014). From the Muslim’s point of view, decision to choose one food over the other depends on its halal status (Nakyinsinge et al., 2012). Thus, this study aims to determine whether halal slaughtering is comparable to non halal and decapitation slaughtering of broiler chickens in terms of bleeding efficiency and meat drip loss for five days aging.
2. Literature review

To optimize bleed out at slaughter and reduce carcass and meat defects is a major goal of the meat processing industry, as improved bleeding can improve the quality of the meat during storage (Ali et al., 2007; Department of Veterinary Service Malaysia, 2012). Inefficient and improper bleeding may cause more blood to be retained in the meat. Blood favors multiplication of spoilage microorganisms and acts as a carrier for food borne pathogens (Lerner, 2009). Additionally, residual blood in the meat equates to retention of more haemoglobin. Haemoglobin is a powerful promoter of lipid oxidation (Everse and Hsia, 1997; Alvarado et al., 2007). Lipid oxidation constitutes a major cause of non-microbial meat spoilage, especially under pro-oxidative conditions such as storage and cooking. It can also occur during refrigeration and frozen storage (Soyer et al., 2010).

The halal method has been thought to provide considerable bleeding when the heart is still beating, which might be beneficial for shelf-life extension or meat quality maintenance (Addeen et al., 2014). Although some investigations have been conducted on the efficacy of different slaughter methods on bleeding efficiency and meat keeping quality, most information originates from research in conventional slaughter methods with limited comparison to specifically halal slaughter method. This was due to the limited access to religious slaughter without stunning in most developed countries due to legal and welfare reasons (Nakynsige et al., 2013; Grandin, T. and Renegast, J. M. 1994).

The ability of fresh meat to retain its own water during storage is referred to as water holding capacity (WHC), and it is one of the significant factors that can affect yield and quality of raw products (Huff-Lonergan & Lonergan, 2005). Fresh meat after slaughter contains approximately 75% water, and this amount is subject to increase due to the gains during processing or reduction through the losses because of drip, evaporation or cooking (Offer & Trinick, 1983).

Water in the muscle cell is found within the myofibrils, between the myofilaments and cell membrane, between muscle cells, and between muscle bundles (Offer & Cousins, 1992). Water in the muscle cell is closely bound to protein. Fennema (1985) indicated that there are three types of water in the muscle, and each fraction differs on its mobility. The bound water exists next to proteins and has reduced mobility as well as strong resistance to freezing. During post mortem, the amount of bound water in the muscle does not change or may change very little (Offer & Knight, 1988). The bound water accounts for less than 10% of the total water in muscle (Huff-Lonergan & Lonergan, 2005). The immobilized or entrapped water is another fraction of water, which accounts for up to 85% of the total water that exists in the meat (Pearce et al., 2011). This water is held within the structure of muscle either by steric (space) effects and/or by attraction to the bound water. This type of water is not bound to protein and can easily convert to ice during freezing. Offer & Knight (1988) documented that immobilized water is most affected by the post mortem process, and dropping the pH makes this water drip as pure. The manipulation of the net charge of myofibrillar proteins and the structure of the muscle cell and its components as well as the amount of extracellular space within the muscle can maintain the retention of immobilized water (Huff-Lonergan & Lonergan, 2005). The third type of water present in the muscle is known as free water which is readily seen in pre rigor meat. Weak surface forces mostly hold the free water, and its outpouring from the tissue is unimpeded (Fennema, 1985). Many hypotheses have been presented to explain the improvement of meat WHC with aging. Offer and Trinick (1983) suggested that the swelling or shrinkage of myofilbrils as a result of the expansion or shrinkage of the filament lattice clarify the gain or loss of water in meat. The “leaking out” theory by Joo et al. (1999) and Van Moeskeke & De Smet (1999) explain that the loss of water during early post mortem in the form of evaporation or drip resulting in fewer water being lost at a later time post mortem, and hence enhance WHC.

As suggested by Kristensen & Purslow (2001) the degradation of the cytoskeletal proteins during post mortem gradually eliminates the linkage between the lateral shrinkage of myofibrils and shrinkage of whole muscle, thus eliminating the force that causes flow into the extracellular space and enabling the inflow of previously expelled water, thus improving WHC. This theory was supported by the findings of Zhang et al. (2006) that reduced drip loss in fresh pork was related with the degradation of integrin and desmin. More recently, the “spoon effect” is reported by Farouk et al. (2012) who explained that the improvement of meat WHC with long term aging may be due to the disruption of channels through which water is lost as a result of muscle structural breakdown and the formation of a “spoon effect” which slows the flow of the drip to the cut surface of meat.

Drip loss represents an important quality characteristic for both retailers and consumers. Product weight losses as a result of purge can range from 1- 3% when meat is cut into chops, and can be up to 10% in PSE products (Offer & Knight, 1988). Moreover, drip loss causes significant loss of proteins (Offer & Knight, 1988). Higher drip loss has been shown to occur during early post mortem storage and gradually decrease as ageing continues (Kristensen & Purslow, 2001). During the conversion of muscle to meat during the post mortem period, the mobilization of tissue water is related to physical processes, such as alteration of structural protein and cell membrane as well as longitudinal and lateral contraction of muscle fiber (Pearce et al., 2011). This pressure can cause a move of water from the intercellular to the extracellular space and then on to the meat surface (Kadim & Mahgoub, 2012).

Numerous shared interacting factors of both ante and post mortem can affect drip loss during conversion from muscle to meat; animal growth rate, pre slaughter handling, slaughter age, chilling rate, aging time, temperature and muscle fiber type (Pearce et al., 2011).

3. Objective

The objective of this study was to evaluate the bleeding efficiency and meat drip loss of halal, non halal and decapitation slaughtered broiler chickens.

4. Materials And Methods

A total of 30 broiler chickens of six weeks old with body weight between 2.2 kg and 2.5 kg were obtained from a commercial farm. The chickens were divided into three groups of 10 chickens each and subjected to either halal slaughter, non halal slaughter, or decapitation. The slaughter procedure was conducted at the Department of Animal Science research abattoir, Faculty of Agriculture, Universiti Putra Malaysia. In the halal method, the animals were humanely slaughtered by a licensed slaughter man according to halal slaughter procedure as outlined in the Malaysian Standard; MS1500: 2009 (Department of
Standard Malaysia, 2009). The procedure involved severing the carotid artery, jugular vein, trachea and oesophagus. In the non halal procedure, groups of ten chickens were slaughtered by a skilled slaughterer. The procedure involved severing the carotid artery, jugular vein without cutting trachea and oesophagus. Furthermore, the third group of chickens were slaughtered following decapitation method. In the procedure, the head and the posterior legs of the animal are stretched out on the opposite direction. The chicken is beheading from the backbone side with a single stroke of sharp knife which causes sudden death.

5. Determination of blood loss

The amount of blood loss of individual birds during 90 sec bleeding period was estimated as the difference between pre-slaughter weight and post-slaughter weight (Velarde et al., 2003) as follows:

\[ \text{Blood loss} = (W1 - W2) \times \frac{1}{W1} \times 100 \]

Where:
- \( W1 \) (kg) = weight before slaughter.
- \( W2 \) (kg) = weight after slaughter.

6. Carcass sampling

Samples from *Pectoralis major* muscle (approximately 20 g) of 0 d post mortem were labelled, vacuum packaged and transferred to the 4°C chiller for drip loss determination. Drip loss of fresh meat samples from *pectoralis major* muscle was determined as weight loss percentage of differences of initial weight at day 0 and sample weight after 5 d conditioning in a chiller at 4°C divided by sample initial weight (Honikel, 1998).

\[ \text{Drip loss} = \left( \frac{\text{initial weight} - \text{final weight}}{\text{initial weight}} \right) \times 100 \]

7. Data analysis

The data of meat quality was statistically analysed using the general liner model (GLM) procedure of Statistical Analysis System (SAS) package and the statistical significance will set at \( p < 0.05 \). Data of studied parameters were subjected to one-way analysis of variance (ANOVA) using a model that included treatment and animal as possible sources of variation. Duncan multiple range test was used to test the significance of variance between the means of the studied parameters.

8. Results and Discussion

8.1 Bleeding efficiency

Optimizing bleed out at slaughter and reducing carcass and meat defects is a major goal of the meat processing industry since improved bleeding can improve the quality of the meat during storage (Ali et al., 2007). Figure 1 shows the result of bleeding efficiency obtained from chickens subjected to the halal, non halal, and decapitation slaughter. Bleeding efficiency of chickens subjected to halal slaughter was significantly higher (\( p < 0.05 \)) than those subjected to non halal and decapitation slaughter, and therefore reduce the blood content in their meat and eventually reduce meat spoilage and increase the shelf life.

The consumption of blood is forbidden (Nakyinsige et al., 2012). Therefore, religious slaughter aims at draining as much blood as possible out of the carcass. In Europe and North America, modern slaughter practices are also based on traditions which require that animals killed for food should be properly bled before consumption. Normally, this is achieved through a bilateral or a unilateral neck cut to sever the carotid arteries and jugular veins. Factors influencing bleeding efficiency at sticking include: i) blood vessels that are severed, ii) size and patency of the sticking wound, iii) cardiac arrest at stunning, iv) orientation of the carcass – positioned horizontally or vertically, v) vasodilation or vasoconstriction in the capillary bed, vi) tonic muscle contractions squeezing blood capillaries and vessels, and vii) clonic activity causing movement of blood towards the sticking wound (Gregory, 2005). Poor bleeding efficiency can negatively affect colour of the meat and is considered to be a major quality defect, which can even cause undesirable discoloration and short shelf life (Griffiths and Nairn, 1984). Residual blood has also been associated with meat flavours. Greater blood loss during halal slaughtering can be due to the fact that when animals are bled, the greatest percentage of blood loss (between 75% and 85%) occurs while the heart is still bleeding.

Inefficient and improper bleeding may cause more blood (haemoglobin) to be retained in the meat. Haemoglobin is a powerful promoter of lipid oxidation and may decrease the shelf life of meat products. Residual blood is also important in promoting microbiological deterioration of carcasses (Warriss, 2000; Alvarado et al., 2007; Lerner, 2009). In addition to accelerating multiplication of spoilage microorganisms, blood acts as a carrier for food borne pathogens (Lerner, 2009).

\[ \text{Figure 1. Bleeding Efficiency (BE) of Chickens Subjected to Halal (H), Non Halal (NH), and Decapitation (DECAP) Slaughtering Methods.} \]

Bleeding efficiency of chickens subjected to halal slaughter was significantly higher (\( p < 0.05 \)) than those subjected to non halal and decapitation slaughter, and therefore reduce the blood content in their meat and eventually reduce meat spoilage and increase the shelf life.

8.2 Drip loss

During the conversion of muscle to meat, the ability of fresh meat to hold moisture is probably one of the main quality features of fresh yields. In addition to loss of weight (Huff-Lonergan & Lonergan, 2005), poor meat WHC also causes loss of an important amount of protein (Offer & Knight, 1988).

The results for drip loss are shown in Figure 2. The slaughter method had a significant effect on cooking loss, with halal slaughter exhibiting a lower drip loss than non halal and decapitation. Water holding capacity is influenced by muscle pH decline and temperature post-mortem. In our study, pH decline in the pectoralis major muscle was determined as weight loss percentage of differences of initial weight at day 0 and sample weight after 5 d conditioning in a chiller at 4°C divided by sample initial weight (Honikel, 1998).

\[ \text{Figure 2. Drip Loss of Fresh Meat Samples from Chickens Subjected to Halal (H), Non Halal (NH), and Decapitation (DECAP) Slaughtering Methods.} \]
muscle was faster during post mortem in the chickens slaughtered with halal method than those slaughtered with non halal and decapitation methods.

**Figure 2. Drip Loss in Chickens Subjected to Halal (H), Non Halal (NH), and Decapitation (DECAP) Slaughtering Methods.**

Drip loss in chickens subjected to halal slaughter was significantly lower ($p<0.05$) than those subjected to non halal and decapitation slaughter, and therefore the loss of weight will be lower. Additionally, higher meat drip loss also causes the loss of an important amount of protein.

9. Conclusion

From the findings of the current study, it is probable to conclude that halal slaughter method showed a high potential to improve bleeding efficiency and meat drip loss than those non halal and decapitation methods. Further research is needed to investigate the impact of halal slaughter method on meat quality parameters during post mortem aging period.

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Metabolomic Approach cum Advanced Mass Spectrometry Tools for Meat Differentiation of Zabeeha and Non-Zabeeha Slathered Animals: Chicken as a Case Study

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ABSTRACT

In Muslim community, there is a major concern regarding Islamic and non-Islamic ways of slaughtering animals, it is expected to have a good quality of meat, if it is slaughtered by Islamic way in comparison with non-Islamic slaughtering. where the amount of blood left in the body that alters the physiochemical property of meat quality, by growing microbes and lipid oxidation due to iron (Fe) and cobalt (Co). Unfortunately, limited number of studies has been conducted to resolve various issues related to zeeha (Islamic way of slaughtering) and non-zeeha (non-Islamic way of slaughtering). However, differentiation of meet obtains from zeeha and non-zeeha slaughtering process is a major concern to the Muslim community. Omics approach particularly use of metabolomics has a potential to be used for monitoring the food quality and processing. Similarly, advancement in mass spectrometry offers a comprehensive solution for the analysis of complex biological samplers like meet in a high-throughput manner with enhanced selectivity and sensitivity. In this study we have considered chicken meet as it is the most common and cheap source of meat that is widely being used worldwide, as a case study. Meet samples obtained from zeeha and non-zeeha slaughtering process were subjected to UPLC-HR-ESI-MS/MS analysis followed by chemometric evaluation. A characteristic pattern was observed among the analysed samples. Some peaks have shown an up-fold and down-fold changes between two groups and can be used for meet differentiation. Metabolites were identified based on various parameters including high-resolution masses, MS/MS analysis, database comparison etc. Outcome of this work will be highly beneficial for the food controlling Laboratories and Muslim Ummah, particularly.

Key Findings

Metabolomic profiling of chicken meat metabolites was performed in order to identify those compounds that can serve as markers to differentiate the slaughtering process of the chicken, i.e. if the chicken was slaughtered according to Islamic rights (Zabiha), and non-Islamic way (Non Zabiha).

Several metabolites were found that can be used to differentiate between these groups. An extensive chemometric analysis was also performed. PCA plot has shown that the both groups lie separately and clustered individually (Figure 1). Similarly, score scatter plot of PLSD was also used to evaluate the group clustering and found a clear separation among the group (Figure 2). Hierarchical clustering of the analyzed samples was performed to produce a dendrogram of all masses appeared in the spectra with different responses which illustrate similar types of metabolites among the two groups (Figure 3). Metabolites which are appeared in blue or red color shows a clear separation trend among the analyzed samples and therefore can be selected for further processing. However, most of the region was quite similar which means that majority metabolites are similar in both Zabiha and Non Zabiha. Some results were obtained from the Volcano plot (Figure 4). Progressions of those metabolites which have shown a characteristic pattern were further selected to monitor their intensities in all analyzed samples. Three compounds were selected which have shown a up- or down-regulation profile. Two of them were identified based on their high resolution molecular masses, molecular formula, isotopic pattern and MS/MS features. Moreover, identification of compounds was further confirmed through the comparative analysis of their spectral data with the open database which includes Mass Spectral data and NIST data. Metabolite at m/z 430 has shown an up regulation in Zabiha samples while metabolites at m/z 161 and m/z 418 have shown a down regulation pattern in Zabiha samples (Figure 5). In conclusion, the LC-ESI-MS/MS method can be used for the differentiation of meet samples obtained from Zabiha and Zabiha processes.
Prof. Dr. Syed Ghulam Musharraf is working in the field of mass spectrometry since 2005. He got post-doctoral experiences from Austria and USA on biological mass spectrometry. He has an extensive experience in new MS techniques such as Electrospray Ionization (ESI), Matrix Assisted Laser Desorption Ionization (MALDI), and Tandem mass spectrometry (MS/MS) particularly their utilization various applications of natural products chemistry, proteomics and metabolomics analysis. He is the author of over 100 research publications (impact factor around 300, h-index 18) published in peer reviewed journals and one US patent. Due to his scientific contribution, He has been received several awards and honor such as Selected member from Pakistan of Globe Young Academy; selected as a TWAS Young affiliates; Recipient of The Charles Wallace scholarship, UK; Recipient of European Erasmus Mundas Scholarship; Recipient of Endeavour Australian Fellowship; Recipient of OAD Scholarship, Austria., Received “Dr. Atta-ur-Rahman Gold Medal Award” from Pakistan Academy of Science, Elected as member of Pakistan Academy of Science etc. He has published research papers in top mass spectrometry and analytical journals within last three years, including Journal of the American Society for Mass Spectrometry, Scientific Reports (Nature publishing group), Analytica Chimica Acta, Analytical Chemistry, Analyst, Analytical and Bioanalytical Chemistry, Biomarkers, Journal Rapid Communication in Mass Spectrometry, International Journal of Mass Spectrometry, Journal of Natural Products, Phytochemistry etc. He is also serving as Editors of many international journals including Scientific Reports (a nature publishing group). Produced more than 15 Ph. D. students in the field of mass spectrometry and won several research grants from various international and national funding agencies.
Halal Pharmaceutical Education: A proposed syllabus for better understanding and applicable for sustainable future.

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ABSTRACT

Halal Pharmaceuticals has becoming one of the common issues in daily life among public. Public awareness regarding halal medications, cosmetics and related preparations has been noticed to be improved. However, the halal pharmaceutical education should begin early, at least at the university level where the actual learning process of halal pharmaceuticals being taught to the students with better understanding of the issues. This paper proposed some of the expected subjects to be taught at the university level including both didactic and practical part of the halal pharmaceutical. It is hope that this educational part of the halal world will improve with better understanding among the care takers of halal pharmaceutical products.

1. Introduction

Halal products have been the people choice ever since the Halal concepts was introduced to the world. Most of them especially Muslim can easily use products and foods that are genuinely halal without any feeling of uneasiness. Most of the halal concepts were based on foods, banking system, attires, tourisms and few others (1,2,3). Innovation in pharmaceutical companies has leading them to spearheading new findings and development of varieties of pharmaceutical products including development of Halal vaccines (4). It was expected within the next three years the world’s first Halal vaccine manufacturing center will be built in Malaysia. This production will be able to be distributed to the whole world for usage among the community. The State of the Global Islamic Economy Report 2017/18 has listed the top three countries as having the best developed Islamic economy for Halal pharmaceuticals and cosmetics (5, 6). Those countries are the United Arab Emirates (UAE) followed by Singapore and Malaysia. Four criteria were evaluated to reach such conclusion that included trade, governance, awareness and social. Halal nutraceuticals has been identified as a fast growth segment that will boost up the economics of the industries and able to on top of the list of halal pharmaceuticals if supported by patient, and strategic investment. With robust marketing and investment from financial and corporate entities alike, this opportunity can be realized. Non halal ingredients in vaccines for examples have lead to growing phenomenon of people, especially children, not being inoculated against diseases (7, 8). As healthcare providers and industrial players this may have big impact that the next generation of community will be having lots of problems with healthcare.

Education on Halal Pharmaceutical should be imparted so as to improve knowledge and public understanding of pharmaceutical products and the role of Halal Pharmaceutical industries. By addressing the challenges, all parties will be able to boost not only their businesses but also to take the industry to new heights, tapping into the growth of the sector. The industry has taken huge leaps forward as of late, but if more companies get involved, it could go even further, opening up whole new possibilities (9, 10). Not many of the published papers stress on the need of education part of the halal concepts. Generally when discuss about halal concepts, almost everyone focused on the business part, foods and related issues (11). Pharmaceutical products are being used regularly around the world for lots of reason. Ranges from beautify the skin and faces to pharmacotherapy and supplements, concept of education in this aspect is still shallow. To sustain the future generation with better understanding of halal pharmaceutical products, one has to start from the very beginning of the schooling years.

One of the proposed issues is to start this concept at the university level where they are already matured and readily prepared to understand the concept much better. In Muslim countries, most of the people usually take things for guaranteed that those products have to be halal since everyone is using the same products. From author experience in one of the Muslim countries, it was so surprised to know that even pharmacies are selling products which are based on pork gelatin without even realized the product is not halal. This could be due to ignorant or inadequate knowledge on the issues of halal pharmaceutical. Halal pharmaceutical is not just about the products from pork alone, there various aspects of halal pharmaceutical
that need to be learned and understood about (12, 13, 17).

2. What is Halal Pharmaceutical Products?
Halal pharmaceutical is can be defined as pharmaceutical products that contain ingredients permitted under the Shariah law & fulfill the following conditions (4, 17):

a) Do not contain najs and not prepared, processed or manufactured using equipment contaminated with najs
b) According to Shariah law it should not contain any human parts or products of animals which are not slaughtered and any parts or products of animals that are non-halal
c) Safe for consumption with proper dosage, non-poisonous, non-intoxicating or non-hazardous
d) Proper handling in its raw ingredients, processing, preparing, packing, storage and distribution should be according to Shariah Law and without najs at all stages.

To most Muslim public, whatever medications they are taking and using are assumed to be halal unless they are informed regarding the suspicious part of halalness for particular products. The Medicines Partnership Programme that was established by the Department of Health, United Kingdom in 2002 has promoted the concept of concordance or shared decision making as an approach to help patients to get the most from their medicines (15). This include Muslim right in choosing the proper drugs include right to have halal medication, right to have non-najs medication, right to be informed of medication, right to choose medication and right to give consent for usage of non-halal medication.

3. Obstacles for education on halal pharmaceuticals
Education on halal pharmaceuticals especially for pharmacy students, mainly obtained from conferences, workshop, congress or any other indirect knowledge that can be obtained from business or showing casing the halal pharmaceutical products (16, 17). Education on any subjects should be started in an early year of education or at a level where potential learners are able to distinguish the information that they obtained from the main sources. Currently, halal pharmaceutical as a subject for pharmacy students is not being offered as one of the main subject or elective subject. Few elements on why this subject is not offered as main or elective can be summarized in Table 1.

This could be some of the potential reasons why halal pharmaceutical is currently not offered officially as a subject. It is hope that the proper meeting among educators around the world are able to create and conclude on how halal pharmaceutical subject should be offered.

| Table 1: Reasons for lacking of Halal Pharmaceutical subject being offered as a main or elective subject in the Pharmacy School or Faculty |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Lack of proper understanding of what halal pharmaceutical is all about. | Most of the educators assume that all Muslim should know what is halal pharmaceutical products; therefore it is not a crucial subject to be taught at the university level |
| Lack of proper knowledge in the process of building up the halal pharmaceutical products | Currently the knowledge is obtained from various sources such as business meeting on halal products including pharmaceutical, congress, seminar or conferences |
| Lack of educators that involved in research and services on halal pharmaceutical products | Only few centers for Halal Pharmaceuticals either as research or services are available around the world. Numerous standardizations are available around the world, however the standard varies from one countries to another |
| Lack of Interest among the educators and students on halal pharmaceuticals | Most of the educators are more focus on the development of new entity for medicinal purposes while the students might see such subject is pretty dry and only meant for Muslim. |

4. Proposed Syllabus for Halal Pharmaceutical subject in the university
Based on various researches on halal pharmaceutical subject, listed in table 2 are the proposed subjects to be taught for the subject.

<p>| Table 2: The proposed syllabus for halal Pharmaceutical subjects including practicals |
|-----------------------------|----------------------------------------------------------------|
| Title                      | Number of Hours |
| Introduction on Halal Concepts based on Islamic Shariah Compliance and Halalan Toyyiban Terms and definitions | 2 |
| Specific requirements in halal products | |
| Halal status of Pharmaceutical products | 1 |
| Ingredients of Pharmaceutical products | 2 |
| Raw materials | |
| Main sources of the raw material | |
| Basic form of different dosage form of pharmaceutical products | |
| Basic references in Halal Pharmaceutical ingredients and products | 2 |</p>
<table>
<thead>
<tr>
<th>Title</th>
<th>Number of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps in producing halal pharmaceutical products</td>
<td>2</td>
</tr>
<tr>
<td>Sources of raw materials</td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical plants/Industries</td>
<td></td>
</tr>
<tr>
<td>SOP use to produce Halal Pharmaceutical products</td>
<td></td>
</tr>
<tr>
<td>Halal Pharmaceutical Products</td>
<td>2</td>
</tr>
<tr>
<td>- 1st gate keeper as safety, efficacy, quality and hygienicity</td>
<td></td>
</tr>
<tr>
<td>- 2nd gate keeper as shariah compliance and halalan toyyiban</td>
<td></td>
</tr>
<tr>
<td>Halal Pharmaceutical standards available in the world and differences between the guidelines/standards</td>
<td>2</td>
</tr>
<tr>
<td>Main requirement for Halal Pharmaceutical Products</td>
<td>2</td>
</tr>
<tr>
<td>Quality management</td>
<td></td>
</tr>
<tr>
<td>Management responsibility</td>
<td></td>
</tr>
<tr>
<td>Halal Assurance System</td>
<td></td>
</tr>
<tr>
<td>Fundamentals for halal pharmaceuticals in GMP</td>
<td></td>
</tr>
<tr>
<td>Halal Quality Control</td>
<td></td>
</tr>
<tr>
<td>Personnel and responsibility</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>Personal hygiene</td>
<td></td>
</tr>
<tr>
<td>Main features that are needed for halal pharmaceutical products</td>
<td>2</td>
</tr>
<tr>
<td>Premise and equipment</td>
<td></td>
</tr>
<tr>
<td>Production and control areas</td>
<td></td>
</tr>
<tr>
<td>Ancillary areas</td>
<td></td>
</tr>
<tr>
<td>Documentation</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td></td>
</tr>
<tr>
<td>Packaging materials</td>
<td></td>
</tr>
<tr>
<td>Contract manufacture and analysis</td>
<td></td>
</tr>
<tr>
<td>Other features for Halal Pharmaceuticals</td>
<td>2</td>
</tr>
<tr>
<td>- Self inspection</td>
<td></td>
</tr>
<tr>
<td>- Legal requirements</td>
<td></td>
</tr>
<tr>
<td>- Compliance</td>
<td></td>
</tr>
<tr>
<td>- Halal certificates</td>
<td></td>
</tr>
<tr>
<td>- Halal certification mark</td>
<td></td>
</tr>
<tr>
<td>List of non-halal pharmaceutical substances and available alternatives</td>
<td>1</td>
</tr>
<tr>
<td>List of non-halal pharmaceutical products and available alternatives</td>
<td>1</td>
</tr>
<tr>
<td>Driving factors for better halal pharmaceutical businesses</td>
<td>1</td>
</tr>
<tr>
<td>Types of analytical methods used to detect various non-halal pharmaceutical products/ingredient</td>
<td>2</td>
</tr>
</tbody>
</table>

**Conclusion on halal pharmaceutical products and role of pharmacists in promoting halal products**

Proposed hours of practical: 18

Proposed Unit = 3, based on the average of 1 unit is equivalent to 10-12 hours of lectures and 1 unit of practical is equivalent to 18 hours.

5. Conclusion:
Halal pharmaceutical knowledge can be better obtained through proper education on the subject matter. Having a proposed syllabus and adequate amount of knowledge and theory on halal Pharmaceutical, it is hope that the relevant parties especially pharmacists are able to play their role in promoting halal pharmaceutical concepts to the community in a better way.

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Prof. Dr Syed Azhar Syed Sulaiman obtained his undergraduate degree from Universiti Sains Malaysia and later pursue Doctor of Pharmacy Degree from Michigan USA. He worked as junior lecturer for 2 years then he was elected to the deputy Dean and later Dean School of Pharmaceutical Sciences Universiti Sains Malaysia from 2002 until 2012. He is actively involved in teaching clinical pharmacy in Malaysia and various countries in Asia Pacific. He was invited by the faculty and schools of pharmacy namely in Iran, India, Turkey, Vietnam, China, Jordan, Hong Kong, Taiwan, South Africa, Indonesia, Thailand, Philippines, Mongolia, India, Pakistan, Emirates, Sudan and few other countries to teach undergraduates and Master in Clinical Pharmacy program. In the countries he is also actively being invited to numerous of public and private universities to teach clinical pharmacy.

Research Interest

He is also actively involved in research activities involving Palm oil tocotrienol for diabetes, Alzheimer, peripheral neuropathy; halal concept of pharmaceutical products, production of new insulin like structure for diabetes product from frog and few other research areas. He has produced more than 2 dozens PhD’s and master in clinical pharmacy by research and published more than 200 papers in various journals and abstracts around the world. He is also the editor and committee members for various journals in Malaysia, Indonesia, Mongolia, Canada, India and few others around the globe.

Professor Zhari Ismail is a Professor in Pharmaceutical Chemistry, University Sains Malaysia, where he has been a lecturer since 1982.

As an academician and professional in the pharmacy discipline and having wide experience in participating and setting standards for the halal industry, particularly in the halal pharmaceutical, cosmetics, nutraceuticals and health related products.

Appointments:

Member National Fatwa Council for Malaysian Islamic Affairs, and Fatwa Research Committee Member, JAKIM (2012-2019)

Elected Senate member, Universiti Sains Malaysia USM (2011-2014)

Head, HASRaT, USM Halal Services, Research and Training Cluster (2018)


Editor (verification), The Halal Index, Vol.1 (Pig Based Pharmaceuticals) and “Adakah Ubat-Ubatan anda Halal?” (Are your Medicines Halal?).

Head of R & D for CHEST 2010-2011 (Centre for Herbal Standardisation), Biotropics Malaysia Berhad-USM Collaboration and Principal Trainer for Halal Pharmaceuticals.
Keywords:
Halal pharmaceuticals
MS2424:2012
Standard revision

ABSTRACT

To fulfill the needs of the ummah and to spearhead the halal industry, the Malaysian Standards MS2424:2012 Halal Pharmaceuticals: General Guidelines was formulated. Revisions of MS2424:2012 involves technical editing and addition of new areas regarded as contentious was added. Guidelines on Halal vaccines was included as addendum to the main document and specific details on halal issues addressed. Potential areas to be included are guidelines related to pharmaceuticals having intoxicant properties and biopharmaceutics especially related to blood products and human products. Examples of the above issues will be detailed out in this paper.

Patients not taking medicine is still a major cause of unnecessary ill health and death. Such non-compliance is mostly intentional and results from a considered decision made by patients about the benefits and disadvantages of medicines, rather than just ‘forgetfulness” Patients are much more likely to follow treatment if they have been active partners in prescribing decisions and their views and preferences have been recognized and taken into account. Consumers are now more knowledgeable/ discerning. Information on Halal and health matters are easily accessible on the internet and the Halal agenda is gaining greater prominence. Current developments in healthcare practices where patient awareness on informed consent of origin and status of medicines prescribed have added new dimension in bioethics. The needs of the Muslim ummah in the 21st century requires the formulation of rulings based on Islamic teachings.

To resolve the issue on modern medicines in fulfilling the needs of the ummah and to spearhead the halal industry, the Malaysian Standards MS2424:2012 Halal Pharmaceuticals: General Guidelines was formulated. It provides the definition of halal similar to foods and beverages as in MS1500:2004. This stems from the concept that permissible items as food was clearly stipulated in the Islamic Shariah with all its categorisations. The underlying principle for such pharmaceutical products requirement has also to be thoyyiban (wholesome, safe, quality) conforming to current Good Manufacturing Practices.

Sources of the materials are important criteria as determining factors apart from its effects that can constitute poisons or intoxicants. The whole range of material origin consists of plants, animals, minerals, microorganisms including genetically modified organisms (GMOs). Packaging materials of pharmaceutical products shall also fulfill the halal requirements. Based on this basis modern medicines were pragmatically classed into the red list constituting the haram materials mainly derived from the pig, the grey list or the masbooh items derived from the halal materials but not treated or processed according to the shariah and the green list consisting of materials that are deemed halal.

MS 2424:2012 Halal Pharmaceuticals –General Guidelines serves as reference standard for the Pharmaceutical Industry. Halal standards are additional requirements to current system which is currently enforced. Only registered pharmaceutical products with the Drug Control Authority (DCA), Ministry of Health Malaysia are allowed for the halal certification. The total halal built-in philosophy in the Malaysia Standard guidelines for halal pharmaceuticals (MS2424:2012) is applied for pharmaceuticals in a highly regulated pharmaceutical sector.

The scope of pharmaceuticals includes biopharmaceuticals, radiopharmaceuticals, traditional medicines and investigational medicinal products. It includes addressing and endorsing halal raw materials including the active pharmaceutical ingredients (API), excipients, packaging materials, dedicated premise and infrastructure, management, equipment and machineries. Replacement of porcine and non-halal derived pharmaceuticals commonly used with halal available sources. The halal standards for the API materials and excipients must be formulated as official
halal pharmaceuticals. This involves intense research and development to be undertaken by halal R & D centers together with industry partners. The task now is to prepare the halal standard features for the individual pharmaceuticals to gradually initiate the formation of the Halal Pharmacopoeia. Collaborations between industry, regulatory and researchers are vital. Multi-National Companies (MNC) have shown interest and requires National, Regional & Global effort to harness resources in addressing the various aspects of halal pharmaceuticals that requires examining and sieving through the origin of all medicinal compounds in a concerted effort amongst committed and knowledgeable individuals. A comprehensive web database is in the offing and contributions are most welcomed.

The Malaysian Standards relating to halal have been developed to meet the challenges of the growing demand for halal products and services, to complement the halal ecosystem within Malaysia. This standard was formulated based on the concept of halal built-in and used by existing competent authorities towards halal certification. Halal built-in is a systematic approach to halal product development which begins with predefined objectives by the management. It embeds or integrates the requirements of halal as part of the overall management and control systems. It includes all aspect of manufacturing/ production, from strategy/ planning to research and development to raw material sourcing until delivery of finished product to its point of purchase. This ensures continuous compliance to the specific halal requirements and the aspects of product safety, performance, efficacy/ effectiveness and quality, along with the hygienic aspects in manufacturing and handling of the halal product. Halal requirements are as stated by Shariah and fatwa that are incorporated into halal standards which are in the form of the standards developed by the Department of Standards Malaysia. Halal should be built-in into the entire system. Obtaining halal certification is a business strategy and is seen as a value added element. Since, the main requirements of all pharmaceuticals are their safety and performance as such, all pharmaceuticals have to be registered with the competent authority before they can be certified halal.

Revisions of MS2424:2012 involves several editorial and technical editing and the addition of new fields often regarded as contentious was included. Requirements on Halal Vaccines was included as addendum to the main document and specific details on halal issues addressed. Future potential areas to be included are guidelines and requirements related to pharmaceuticals having intoxicant properties and biopharmaceuticals especially related to blood products and human products. The Industry Standards Committee on Halal Standards (ISC I) under whose authority this Malaysian Standard was developed, comprises representatives from various government agencies, industries and NGOs. A separate Technical Committee and Working Group on revision of MS 2424 –Halal Pharmaceuticals was represented by JAKIM, Industries, Universities, Regulatory Agency, and the Defense Ministry.

Major modifications in this revision includes:

a) the title of this Malaysian Standard has been replaced with “MS 2424:2018 Halal Pharmaceuticals - General requirements”;
b) incorporation of specific definition on “activated saccharide”, “adjuvant”, “carrier protein”, “control cell culture”, “filling lot”, “Halal competent authority”, “internal halal committee”, “manufacturing area/facility”, “master cell bank”, “master seed lot”, “fatwa”, “purified polysaccharide”, “sertu”, “vaccine”, “working cell bank” and “working seed lot”;
c) incorporation of definition on “Active Pharmaceutical Ingredients (API)”, “API Starting Materials”, “buffer”, “excipients”, “growth medium”, “intermediates”, “materials”, “preservatives”, “process aids”, “raw materials”, “solvents” and “stabiliser”;
d) amendment on clause “Quality management” to “Halal pharmaceutical quality system or quality management”;
e) amendment and improvement on clause “Management responsibility”;
f) amendment and improvement on clause “Manufacturing premise and equipment”;
g) amendment on clause “Production and storage areas” to “Manufacturing and storage areas”;
h) amendment on clause “Production” to “Manufacturing”;
i) incorporation of new requirements on “Transportation”;
j) incorporation of new requirements on “Synthetic materials”;
k) incorporation of new requirements on “Packaging and labelling”;
l) amendment on clause “Contract manufacture and analysis” to “Outsourced activities”;
m) incorporation of new Annex B: Typical Halal Control Points for Vaccine Manufacturing Process

This Malaysian Standard cancels and replaces MS 2424:2012, Halal pharmaceuticals - General guidelines. Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations

1. Scope
This Malaysian Standard specifies the general requirements in the manufacturing and handling of halal pharmaceuticals. It serves as a basic requirement for halal pharmaceuticals in general.

2. Normative references
The following normative references are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the normative reference (including any amendments) applies. MS 2393, Islamic and halal principles – Definitions and interpretations on terminology Pharmaceutical Inspection Cooperation Scheme (PIC/S): Guide to
3. Terms and definitions

24 entries are included. For the purposes of this standard, the terms and definitions given in PIC/S Guide to Good Manufacturing Practice for Medicinal Products, GMP Guidelines for Traditional Medicines and Health Supplements, MS 2393 and the following shall apply (items 3.1-3.24)

4. Requirements

For the purposes of halal pharmaceuticals, the following requirements shall be incorporated with PIC/S GMP Guidelines and PIC/S Annexes or GMP Guidelines for Traditional Medicines and Health Supplements currently being enforced by the relevant competent authority (items 4.1-4.20)

4.1 Halal pharmaceutical quality system or quality management

4.2 Management responsibility (4.2.1- 4.2.7)

4.3 Halal Assurance Management System

4.4 Fundamentals for halal pharmaceuticals (items 4.4.1- 4.4.2)

4.5 Halal quality control

4.6 Personnel and responsibility

4.7 Training (items 4.7.1- 4.7.2)

4.8 Personal hygiene

4.9 Manufacturing premise and equipment (items 4.9.1- 4.9.8)

4.10 Manufacturing and storage areas

4.11 Transportation

4.12 Quality control areas

4.13 Ancillary areas (items 4.13.1- 4.13.2)

4.14 Documentation

4.15 Manufacturing

4.16 Materials (items 4.16.1- 4.16.3.6)

4.17 Packaging and labelling

4.18 Outsourced activities

4.19 Self-inspection

4.20 Legal requirements

5. Compliance

This standard shall be used to demonstrate compliance towards certification of halal pharmaceuticals by the halal competent authority. The procedures and requirements for certification will be as specified by the halal competent authority.

6. Halal certificates

The halal certificates shall be issued by the halal competent authority in Malaysia.

7. Halal certification mark

Each halal pharmaceutical, upon approval by the competent authorities in Malaysia, may be marked with the halal certification logo of that authority provided the product conforms to the requirements of this standard.
Prescribing Haram and Najis Pharmaceuticals: Clinical Guidelines for Doctors, Pharmacists and Other Health Care Related Professionals

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ABSTRACT

The halal pharmaceuticals awareness starts to increase around the Muslim world. There are many haram and najis chemicals used in Muslims medicine since the majority of medicine are produced and imported from non-Muslim countries. Another factor which limit the improvement in this field is the current fatwa which doesn’t set clear rules to organize the necessity concept and when it is consider necessary to prescribe the haram medicine or not. This article suggests a clinical guideline for Muslim prescribers to follow beside the necessity index and the halal pharmaceuticals priority index to be the first in world to regulate this science. These guidelines produced after long survey and several meeting with halal pharmaceuticals experts. The conclusions set the required steps to make the basic regulations in the halal pharmaceuticals field.

1. Introduction:

Pharmaceuticals are manufactured from different sources and origins; chemicals, minerals, plants, animals, biotechnology and immunological. Muslim consumers around the world subscribe to the halal pharmaceuticals, which is a part of Shariah or Islamic law. Halal is an Arabic word for the lawful or permitted, usually used for food but also covers all aspects of life. Halal pharmaceuticals are drugs that contain permissible ingredients and are produced according to the rules and conditions of halal pharmaceuticals.

According to the Dharwra الضرورة (necessity) concept which found in all Islamic fiqh schools Muslims can consume haram or najis medicine if there is essential need to use it.1 While the necessity concept has strict rules to allow eating haram food these rules are almost not found in case of pharmaceuticals. The different fiqh schools let the decision to a qualified Muslim doctor (يجوز إذا وصفه طبيب مسلم عدل). This famous fatwa and concept lead to dramatic results which include the absence of halal pharmaceuticals in the majority of medicines all around the world.

The fatwa may change according to the place and time conditions while the Shariah principles and sources are stable (Quran and Sunnah). This fatwa make big mistake when it gives the final decision to the Muslim doctor. Doctor can prescribe medicines but they don’t know how it is made and the process of it is manufacturing, scientists in pharmaceutical industry, pharmaceutical technology, biotechnology and chemical engineering are the real people who know these information. Since the manufacturing of medicines become more complicated it is even not true to said that’s normal doctor or normal pharmacists knows how medicine is made, we have around 9000 medicines then this responsibility should be for a committee or an organization not for normal doctor or pharmacist. This organization or committee will set the strict rules when it is possible to use haram or najis medicine.

Clinical guidelines (also called a clinical practice guideline) "are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances."2 It is a document with the aim of guiding decisions and criteria regarding diagnosis, management, and or treatment in specific areas of healthcare. Halal pharmaceuticals as new field need well-written clinical guidelines to achieve world acceptance.

Writing clinical guidelines needs experience and knowledge about the topic process and management. Writing any guidelines usually follows these steps:

1. Map out the core processes.
2. Define each core process possibilities or activities.
3. Document each possibility or activity into a series of steps.
4. Determine the required records, forms, and management metrics (in this case a practical manual is produced).
5. Build and design the documents, reports, and graphs that form the management system (in this...
case a practical manual is produced).

To write well and practical clinical guidelines there is a need for teamwork from different fields, to cover all possible chances and to have different points of view on the issue, the language used in it should be simple and it is preferable to use flow charts. The team usually depends on the prior knowledge of the experts, initial data, and using failure mode effects analysis (FMEA) or similar tools. This article aims to write a practical clinical guidelines and measuring indexes to be used in the halal pharmaceuticals field.

2. Methods:

The following methods were used to achieve objectives:

2.1. Collecting and Formulating the Proposed Halal Pharmaceuticals prescription guidelines. To write the suggested draft of the Halal pharmaceuticals prescription guidelines the researcher follows the medicine trip from the beginning as raw material, until consumption by the patient. During the trip any step related to the halal pharmaceuticals was highlighted and discuss from all sides. The researcher focuses on the prescription possibilities and all choices which may lead to consume haram or najis medicine. After this step some model related clinical guidelines were collected from different pharmaceuticals companies and organizations to learn from their experience before writing the guidelines.

2.2. Meeting and Contacting Halal Pharmaceuticals Experts Contacting experts in halal pharmaceuticals is very helpful due to the lack of written resources, in any science arranged meeting with professional help the researcher to discover many new issues and points. During the research letters and question inquiries sent by email to 15 persons working in halal pharmaceuticals field and to more than 30 doctors in different specialties. The different meetings with the halal expert’s last December during the sixth world halal summit in Istanbul help in adding valuable points to the final draft.

2.3. Halal Pharmaceuticals prescription clinical guidelines Knowledge and Importance: An Expert-focused Questionnaire. The questionnaire sent by email to more than 100 participants but only 40 persons sent their feedback. The first part in the questionnaire has been designed to analyze the knowledge of the worker in halal pharmaceuticals (both manufacturing and prescribing) field. The second part and the open ended question parts of the questionnaire were used to get their opinion, suggestions and objections on the model that had been designed by the researcher. The inclusion criteria include expert people in halal pharmaceuticals; people in responsible position in halal committee in halal pharmaceuticals certified factories, and people in halal pharmaceuticals certifying bodies beside specialized doctors. The exclusion criteria exclude any worker in halal pharmaceuticals certified company but not in direct responsibilities of halal issues in the factory, workers in the halal certification bodies but they are responsible for other fields like food or cosmetics certification were also excluded. The questionnaire was pre-tested/pilot-tested and improved by a feedback of small sample of eight expert academic lecturers in pharmaceutical technology, pharmaceutical chemistry and clinical pharmacy departments at Universiti Sains Malaysia (USM).

3. Results:

This article suggests a halal pharmaceuticals prescription clinical guideline which guide prescribers when it is necessary to prescribe haram or najis materials as medicines and when not. Also it introduced the Halal pharmaceuticals necessity index and the Halal pharmaceuticals priority index which can name as Halal pharmaceuticals opportunities index also. These guideline and indexes is a small and important step to regulate halal pharmaceuticals until we achieved the final goal when we are sure that medicines used by Muslims are 100% halal. The halal pharmaceuticals prescription clinical guideline consists of three questions or sections. The prescriber should answer and follow the scheme as stated below to make sure that he prescribes the haram or najis medicine only when there is real necessity.

3.1. Section one: Medicine according to its components consists of:

1. Active ingredient(s)
2. Excipient(s)
3. Packaging material(s)

**Question 1: which one of these components contains haram or najis materials?**

Pharmaceuticals include both Active Pharmaceutical Ingredients (API) and excipients. API is defined as: “any substance or mixture of substances intended to be used in the manufacture of a drug (medicinal) product and that, when used in the production of a drug, becomes an active ingredient of the drug product. Such substances are intended to furnish pharmacological activity or cause other direct effects in the diagnosis, cure, mitigation, treatment, or prevention of disease or to affect the structure and function of the body” 3. An excipient is an inactive or inert substance that forms a vehicle, formulated alongside the API of a medication to serve various therapeutic, manufacturing process and for stability enhancing purposes. 4 Famous categories include: anti adherents, binders, coatings, colors, disintegrants, fillers, flavors, glidants, lubricants, preservatives, sorbents, and sweeteners. The packaging materials include the container which contains the medicine and any lubricants or chemicals used to ease its use. Gelatin capsules consider as packaging material.

The necessity rule doesn’t applied with excipients and packaging materials due to the availability of many halal alternatives for each chemical compound. It is the responsibility of the health ministry and the food and drug agency to list all haram and najis chemicals to be
banned from entering the country and to ask each company to replace it with halal alternative.

3.2. Section two: Medicines according to its activity and uses:
1. Indications
   a) FDA-approved, also called labeled indications.
   b) Non FDA-approved, also called off-label indications.
2. Claims (usually for dietary supplements, homeopathic and traditional medicines)
   a) Convincing evidence
   b) Probable evidence
   c) Possible evidence
   d) Insufficient evidence

Question 2: which one of the above is more suitable to describe the prescribed medicine?

The necessity rule doesn’t apply with the off-label indications unless the Muslim doctor sees that there is strong scientific support to this use. For the claims only the convincing evidence can be reason to use haram or najis product.

Muslim prescriber should not prescribe haram or najis product which have probable or less evidence on their claims because there are many halal alternative for the dietary supplements and other traditional medicines beside the non-urgent need for it is action.

3.3. Section three: Medicine according to their medical category:
3.3.1. Formulated pharmaceutical preparations
   a) To cure or alleviate Life threatening disease
   b) To cure or alleviate moderate disease
   Muslim prescriber should substitute the haram or najis product following the rules of substitution. If there is no substitute then he can prescribe the haram or najis product.

Immunological products
   a) To cure or prevent Life threatening disease (antiserum and immunoglobulins).
   b) To prevent life threatening diseases (compulsory vaccination)
   c) To prevent life threatening disease during travel to certain places (e.g. meningitis vaccine)
   d) To prevent diseases (non-compulsory vaccination). Even this group of medicines work to prevent diseases but it is more important than cure medicines since it is prevent the big communities from diseases spread and epidemic disasters. The prescriber and the patient should decide to take the haram vaccine only in case of non-compulsory vaccination.

3.3.2. Herbal drugs and herbal medicinal products
   a) Herbal products contain animal parts or insects parts (e.g. Chinese medicine).
   b) Herbal products extracted by alcohol or other intoxicant solvent (alcohol not found in the final product).
   c) Herbal products extracted by alcohol or other intoxicant solvent (alcohol found in the final product).

If there is strong evidence on the activity of the animal part or the insect part then it is possible for the Muslim prescriber to write after following the rules of substitution. It is important to notify that the Chinese medicine and other traditional medicines used parts of endangered species, Islam prohibited hunting and killing these species especially if there is no scientific evidence to use it in medicine.

It is advisable to prevent herbal products which contain alcohol or other intoxicant in the final product. The prescriber should estimate the minimum amount needed to dissolve the organic compounds in the extract (usually less than 1% and maximum 3%) any product which contain extra alcohol amount then it is advisable to substitute it following the substitute rules. Compounding pharmacists can play in important rule to substitute haram and najis excipients until the companies produce the halal product. Also the compounding pharmacists can prepare certain herbal extracts using the accurate amount of alcohol in its minimum amount.

3.3.3. Materials for use in the manufacture of homoeopathic preparations
   The homoeopathic preparations have three main problems in it (animal parts, alcohol and lack of scientific evidence) due to these problems it is advisable not to prescribe it unless the prescriber find it is beneficial to the patient and follow the substitution rules accurately.

3.3.4. Blood-related products
   In halal pharmaceuticals, blood and its derivatives are forbidden to use as dietary supplements (following the food ruling), while using them in blood transfusion is halal. According to the decision of the international Islamic conference which was held in Malaysia in April 1969 5 taking blood form a healthy person and transferring it to a patient or weak person seems like using medicine or nutrition to get power and immunity. If this use is more like the second one (nutrition), then Muslims can use blood in case of Dharwra (necessity) and in an amount which can save that person’s life. According to the decision made by IOMS seminar about additives in food and medicines (it is permitted to use blood and its derivatives in treating, deriving or preparing different medicines, if there is a need and is proven scientifically beneficial and not harmful and if there are no halal alternatives available)
Most of the products produced from the human blood used according to the previous fatwa which issued in 1969, still many other products in this category need special discussion from the fiqh council to decide their halal status also the fatwa should revised according to the new scientific finds during the last 50 years.

3.3.5. Radiopharmaceutical preparations
The Muslim prescriber should follow the substitution rules if there is halal or najis product from this group.

3.3.6. Dietary supplements
These products are not classified as medications and their activity usually describes as claims not as indications. They used to provide nutrients in order to increase the quantity of their consumption, or to provide non-nutrient chemicals (e.g. vitamins) which are claimed to have a biologically beneficial effect. The only prescription use of this group found in vitamins as a treatment of the vitamin deficiency, or as prophylaxis of vitamin deficiency during pregnancy. Due to the wide halal alternative products and the lack of emergency it is forbidden to prescribe the haram and najis dietary supplements.

3.3.7. Cosmetics
Some products have two uses as medication and cosmetically product (e.g. dermal fillers and botulinum toxin) in this case it is possible for the Muslim prescriber to write the haram or najis product as medicine after following the substitution rules below. It is forbidden if it is for cosmetics used. There are two types of cosmetics procedures; the first one aims to correct a problem to return it to the normal level among most of the people, this one consider as medical treatment and may consider as a reason to use some haram or najis materials after following the substitution rules. The second cosmetic procedures aim to improve and increase the beauty of normal parts of the human body. It is forbidden to use haram and najis materials for this type nevertheless some scholars accept this type or not.

**Question 3: which one of the above is more suitable to describe the prescribed medicine?**

If the answer to the previous three questions leads that the medicine must prescribed then the prescriber should follow the substitution rules below.

3.4. Substitution rules:
Muslim prescriber should follow these rules before prescribing haram or najis product. It is consists of logical questions and steps to find the halal alternative. When there is no halal alternative then the prescriber can write according to the necessity rule.

1. Is there halal product from different brand (same scientific name but from different company)?
2. Can the compounding pharmacist help to compound halal product using same active ingredients and change haram excipients only?
3. Is there halal product from the same class (differ in the last 2 digits of the ATC code only)
4. Is there halal product from different class suitable for the patient case? If the answer is negative to the above questions then there are the following possibilities:
   a) There is halal product from different class with side effects or longer treatment time.
   b) There is less haram or najis product from the same class.
   c) There is less haram or najis product from the same class with side effects or longer treatment time.

Then the Muslim prescriber should decide which one of the previous is the best for the patient health after discussion with the patient. Prescribing the haram or najis product is possible due to the necessity rule at the beginning of this last step (after negative answer to the 4 questions). There is an important point which needs to discuss from the fiqh academy to list the degree of haram and najis inside these medicines. In fiqh there is three degree of najis but there is no degree of haram. I suggested the following system to distinguish between the less haram products from the greatest. (see table 1).

3.5. Halal pharmaceuticals opportunities index
This index designed to give governments and regulation bodies (e.g. ministry of health, food and drug agency) a clear road map which medicines needs to review their importing rules and which modifications should asked from the producer and the importing companies. This index gives a clear priority list can be used by the government or by the investors who want to take the opportunity to produce halal pharmaceuticals. The index designed by giving marks for each questions and if the product have higher marks then it is advisable to invest in it. The governments should ask companies to find halal alternative according to this index also. If the governments and the regulation bodies didn’t ask for modification in the pharmaceutical products it is impossible to have any improvement in the halal pharmaceuticals sector. Experts advised to give certain time after telling the producer companies of the needed modifications to make the product hundred percent halal. The time limit vary according to the different factors include difficulty, cost, time needed for research and others. The companies which fulfill the new regulations can complete produce and export these products to the Muslim countries while the products which still haram should banned. By
this way the governments used the reward and punishment rule until the medicines that imported are 100% halal. The index will give 45 points (maximum) and 7 points (minimum), any medicine will get 27 points or more then it is with high priority and opportunity. Any medicine which gets less than 27 points will conclude that it is with low priority and low opportunity. The responsible committee or organization should produce a list contains all haram and najis materials inside each medicine so the prescribers can practice the clinical guideline and the researcher and investors can use the indexes above.

<table>
<thead>
<tr>
<th>Table 1: how to calculate degree of haram for medicinal products</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the product fulfills both 1 and 2</td>
</tr>
<tr>
<td>If the product fulfills only 1</td>
</tr>
<tr>
<td>If the product fulfills only 2</td>
</tr>
<tr>
<td>1. The haram or najis chemical is found in the final product</td>
</tr>
<tr>
<td>Active ingredients</td>
</tr>
<tr>
<td>Porcine source</td>
</tr>
<tr>
<td>Non halal animals</td>
</tr>
<tr>
<td>Non halal bovine</td>
</tr>
<tr>
<td>Blood</td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
<tr>
<td>Increase the haram inside the product especially when one or more from the components are haram</td>
</tr>
<tr>
<td>2. The haram or najis chemical is used during the production and not found in the final product</td>
</tr>
<tr>
<td>Porcine ingredients in culture media</td>
</tr>
<tr>
<td>Porcine enzymes</td>
</tr>
<tr>
<td>Blood in culture media</td>
</tr>
<tr>
<td>Non halal bovine in culture media</td>
</tr>
<tr>
<td>Non halal bovine enzymes</td>
</tr>
<tr>
<td>Microbial enzymes produced from non halal culture media</td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Halal pharmaceuticals priority index or Halal pharmaceuticals opportunities index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of medicine</td>
</tr>
<tr>
<td>Given marks</td>
</tr>
<tr>
<td>Disease morbidity rate</td>
</tr>
<tr>
<td>Given marks</td>
</tr>
<tr>
<td>Disease mortality rate</td>
</tr>
<tr>
<td>Given marks</td>
</tr>
<tr>
<td>Time needed to find halal alternative</td>
</tr>
<tr>
<td>Given marks</td>
</tr>
<tr>
<td>Approximate budget to find the halal alternative</td>
</tr>
<tr>
<td>Given marks</td>
</tr>
</tbody>
</table>

3.6. When to prescribe haram and najis material even with the availability of halal alternative? Emergency and Time factor: this will affect the patient health due to short time available to order the halal alternative. Then the patient can use the haram product until the halal alternative provided.

3.7. Is it important to have halal veterinary medicines? Using halal pharmaceuticals to treat animals is another goal Muslim scientists should achieved. The difference that the veterinary vaccines are more important than the medical preparations which used to treat animals. The priority should be on the following order:
1. Halal vaccines for animals and poultry consumed by humans
2. Halal medications to treat animals and poultry consumed by humans
3. Halal vaccines for pets and exotics animals
4. Halal medications for pets and exotics animals

Numbers 1 and 2 is more important and have higher priority than the dietary supplements and cosmetics (give them 13 marks when use the
priority index) and it should be noticed when ask investors to choose priorities in halal pharmaceuticals.

4. Conclusions:
The famous fatwa which allow the use of haram and najis medicines without conditions and let the Muslim doctor decide whether to prescribe it or not must review and update to fulfill the Islamic shariah goals (Maqasid Alshariah). The modern world depend on institutions not on individual persons, it is the responsibility of the related ministry in each Muslim country to regulate the halal pharmaceuticals import and production (usually health, trade and industry ministries). These ministries will appoint a professional committee from scientists in pharmaceutical industry, pharmaceutical technology, biotechnology and chemical engineering beside representatives of medical doctors and other health care related professionals. The committee is responsible to give opinion about the halal status of each medicine and chemical material and will issue a list of halal critical chemicals and medicines according to the halal pharmaceuticals standards and law.

The committee will list the halal alternative for each haram and najis material and if the halal alternative is found then it will prohibit the haram sources to enter the Islamic countries. The halal alternative list will updated from time to time and according to the halal priority and opportunities index the committee will follow the manufacturers and importers until they fulfil the halal pharmaceuticals standards to have 100% halal pharmaceuticals in the Muslim countries.

There is no need to repeat the work in each Muslim country since we have the same religion the same list can be used for all Muslim countries and the same guidelines can followed by Muslim doctors and pharmacists any place in the world.

It is important to accept that Muslim world is still use many haram ingredients inside medicines consumed by Muslims but we should solve the problem by producing halal alternatives and regulate importing and production of pharmaceuticals. Allow using haram medicine should have limit and it should be able to measure and apply by prescribers. The researcher tries to suggest the halal pharmaceuticals prescription clinical guidelines to solve this problem. While the halal priority index will help in regulate importing haram medicines to the Muslim countries.

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He is also a Medical, Biological and scientific translator, he worked with USM language centre, WHO EMRO and other private offices, with long experience in translate and writing the medical leaflet and the drug safety monographs according to the drug information writing rules.
Part V

Laboratories and Halal Authentication
Halal Standards and Removing Obstacles

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ABSTRACT

Access to Halal Food is not privilege, it a fundamental right of any Muslims. Many in the global food industry look at the idea of halal as a new marketing tool. To enter this lucrative market, industry needs to understand and respect the religious and scientific foundations of halal requirements and respect the sensitivities exist within Muslim communities.

To protect Muslim consumer rights implementation of proper Halal Food Quality Infrastructure are inevitable.

There is also a need to develop scientific solutions which required the deep understanding of the relation between Sharia and Scientific criteria.

The other important issue is the threat which Halal food Integrity is facing from Food fraud and adulterations. In this paper further details on Challenges associated with Halal Standards and Removing Obstacles will be explored more in depth.

1. Introduction

For centuries, we need a common language that defines quality and safety in our daily lives, especially when it comes to trade issues called as Standard.

Many examples exist in our everyday life such as Sizes, Measurements, Electrical Wiring including their Colour Codes and AC Power Plugs and Sockets have been standardized by the various manufacturers at the industry, so that people can easily repair and replace them. Also, cloth and shoe sizes which have common general standard.

Halal standards have been discussed in Muslim countries since many years ago while at the beginning they were more focused on systematic monitoring of slaughtering process of the imported meat but later covered the local slaughtering too. In more recent years they covered processed food and other food items as well.

The halal activities upon their national policies involved range of organizations including National Standard Bodies, different Ministries such as Agriculture or Health or Industry as well as religious Authorities as they had other duties on control of imported as locally produced food, historically.

In order to carry out their duties from 2008, the National Standard Bodies of Muslim countries had been coherently involved in the development of halal standards and the establishment of a halal quality infrastructure as members of the Organization of Islamic Cooperation (OIC).

The results of almost a decade tremendous efforts put to develop series of unified Halal Standards at the OIC level successfully flourished and later intensively followed at the Standards and Metrology Institute for the Islamic Countries (SMIIC).

The use of haram-based compounds in food technology in countries around the world, especially the West, is not limited to pigs and its related byproducts such as Pork (pig meat), Lard (pig fats) and Gelatine, but the use of enzymes such as rennet and pepsin from haram animals, emulsifiers like E471 and E472, mono and di-glyceride from haram animals and ethanol are widely spread.

The issue of food fraud is a major concern in the global food trade and industry. The frauds in many cases are involved in replacing expensive materials with lower quality and cheaper alternatives which is a common phenomenon in many countries.

Food Fraud could be defined as any deliberate actions taken by businesses or individuals that deceive others businesses and/or individuals in terms of misrepresenting food, food ingredients or food packaging that brings about a financial gain. The seven main types of fraud includes: Adulteration, Tampering, Product Overrun, Theft, Diversion, Simulation, and Counterfeiting.

Use of fraudulent products can be very lucrative and attractive for some food manufacturers or suppliers of raw materials and shall harm the integrity of halal food presented into the market.

2. Proper Halal Food Quality Infrastructure

Quality infrastructure is the foundation on which metrology, standardization, testing, quality management, conformity assessment activities such as certification and accreditation with full participation of both public and private institutions provide the necessary framework within which they all operate and resulted in delivery of high quality products and services to the society at large.

One of the definitions on Quality infrastructure is given by Network on Metrology, Accreditation and Standardization for...
Developing Countries (DCMAS Network) recently in 2017.

DCMAS Network is comprised of ten international technical organisations including the International Bureau of Weights and Measures (BIPM), the International Accreditation Forum (IAF), the International Electrotechnical Commission (IEC), the International Laboratory Accreditation Cooperation (ILAC), the International Organization for Standardization (ISO), the International Trade Centre (ITC), the International Telecommunications Union (ITU), the International Organisation of Legal Metrology (OIML), the United Nations Economic Commission for Europe (UNECE) and the United Nations Industrial Development Organization (UNIDO).

Based on the definition adopted in June 2017 by the DCMAS Network Quality Infrastructure is:

“The system comprising the organizations (public and private) together with the policies, relevant legal and regulatory framework, and practices needed to support and enhance the quality, safety and environmental soundness of goods, services and processes.

The quality infrastructure is required for the effective operation of domestic markets, and its international recognition is important to enable access to foreign markets. It is a critical element in promoting and sustaining economic development, as well as environmental and social wellbeing.

It relies on the five following elements:

1. metrology
2. standardization
3. accreditation
4. conformity assessment, and
5. market surveillance

The resolution OIC/CFM-45/2018/ECO/RES/FINAL (page 33) of the 45th Session of the Council of Foreign Ministers (CFM) of the Organization of Islamic Cooperation (OIC) which was held in Dhaka the capital city of the People's Republic of Bangladesh, (05-06 May 2018) read as follow:

Agrees on the need for the establishment of a global halal conformity assessment system under SMIIIC in order to provide a basis for the mutual recognition of halal certificates between accreditation bodies.

Based on this resolution on such Halal Quality infrastructure with the title OIC Halal Conformity Assessment Infrastructure, this infrastructure should be established. (Fig1: OIC Halal Conformity Assessment Infrastructure)

At OIC level in this frame work consisted of:

1) SMIIIC Standardization Management Council (SMIIIC SMC) which is the organ assigned the task of development of OIC/SMIIIC standards in cooperation with Member States will make sure of continuing development of unified halal standards through full participation of National Standardization Bodies (NSBs) which act as National Halal Standardization Bodies (NHSBs) of Member States at the relevant Technical Committees.

2) SMIIIC Accreditation Council (SMIIIC AC) is the organ carrying out activities aimed at the establishment of an accreditation scheme in the OIC Member States. AC is responsible for supporting actions for establishing a sound accreditation system OIC-wide and raise awareness of accreditation concept within the Member States. AC is responsible for implementing OIC/SMIIIC accreditation standards and performing peer assessment. Accreditation Council consists of members from National Accreditation Bodies (NABs) act as National Halal Accreditation Bodies (NHABs) authorized by the Member States and Observers of SMIIIC.

3) SMIIIC Metrology Council (SMIIIC MC) is consisting of National Metrology Institutes (NMIs) which also act as National Halal Metrology Institutes (HNMI) of the Member States and Observers of SMIIIC. MC shall make cooperation in all types of metrology activities and policies among SMIIIC Member States. MC shall have an inventory of existing calibration standards and establish a chain of traceability to reference standards for each basic unit especially Halal metrology. MC shall act as intermediary, for any unit, for meeting calibration requirements which may arise at any link of the chain to be established. Halal Metrology is the Science of measurements in the field of Halal. Halal Metrology could be classified as part of chemistry metrology which focused on Authenticity Test Methods as well as Authenticity Test Methods used in Halal Food. MHM must participate in international comparisons of its Halal Measurement Capabilities (HMCs). SMIIIC MC shall maintain a comparison database and a list of Halal measurement capabilities.

At National level in this frame work consisted of:

1) National Standardization Bodies (NSBs) which act as National Halal Standardization Bodies (NHSBs) not only shall participate at standard setting activities at SMIIIC but also shall make sure of full adaptation of SMIIIC developed standards or at least the equivalency of the national ones with SMIIIC ones in a way that they might have more stringent requirements abut not widening the scopes.

2) National Accreditation Bodies (NABs) which shall act as National Halal Accreditation Bodies (NHABs) are responsible for accreditation of Conformity assessment bodies including Halal Certification Bodies (HCBs), Halal Inspection Bodies (HIBs) and Halal Laboratories (HLSs) in the country as well as preparation of themselves for peer assessment by SMIIIC AC.

3) National Metrology Institutes (NMIs) which also act as National Halal Metrology Institutes (HNMI) of the Member States shall participate in international
comparisons of their Halal Measurement Capabilities (HMCs). Production of Certified Reference Materials as well as organizing Proficiency Testing Schemes, for Authenticity Test Methods and Authenticity Test Methods used in Halal Food are two other main duties of HNMI. To fulfill these duties they need to establish or designate the National Metrology Reference Halal Laboratory through which the control the National Halal market as well as helping the National Halal Regulator Reference Halal Laboratory/s in exerting their duties.

National Competent Halal Regulator Authority shall monitor the results of Halal Conformity assessment and shall exert its regulatory duties in collaboration with the above mentioned bodies if the country wishes to establish a Competent Halal Regulator Authority.

It should be noted in many member countries of the Organization of Islamic Cooperation lack the proper halal quality infrastructures is felt as majority of people are Muslims and consider automatically their products as halal.

Fig2: OIC Halal Conformity Assessment Infrastructure- Tangible Halal Products

3. Other Halal Challenges

Fraud and cross contaminations of food ingredients, additives are major concerns of food industry and its trade. Halal food which is properly processed and certified is the foundation of free trade in Halal food business at international level.

It should be noted in many member countries of the Organization of Islamic Cooperation lack the proper halal quality infrastructures is felt as majority of people are Muslims and consider automatically their products as halal.

Halal certification is not just a final product certificate, but also is a confirmation of all the ingredients and all processing steps as well.

Therefore, the confirmation and certification of all materials for halal compliance by the Competent Islamic Authorities is very important issue. As we discussed such Competent Islamic Authorities may act as National Competent Halal Regulator Authority or participate in all Halal Conformity Assessment Infrastructure as main player.

Passing through self-declaration processes and certification of the second party (based on contract), towards third party attestation by non-biased third party certification body can play an important role in facilitating trade at the national, regional and international levels.

It should be noted that more rigorous monitoring systems are needed for halal authorities and laboratories techniques are a major challenge in determining the authenticity of the halal foods.

Therefore, applied research is urgently needed in order to select efficient, up-to-date and valid scientific methods for detecting non-halal compounds (such as those of porcine origin) in food products.

Establishment of an Islamic Center with purpose of coordination in relation to the Islamic jurisprudence of different school of thoughts in regards to halal products and recent and future technical advancement in this sector as well as establishment of a Halal Industry Research and Development Center at national levels, to develop Halal Science is a crucial steps.

Halal Science could be defined as the use of knowledge and scientific methods (a branch of experimental science) to ensure the conformity of halal products in accordance with the Sharia law and the requirements of Islamic religion in Iran are the basic needs of such infrastructures.

4. Halal Food Integrity / Food Authenticity (Halal FIFA)

The new concept which is now under development at international levels is Food Integrity and Authenticity concept notably at Codex Committee on Food Import and Export Inspection and Certification Systems. Base on the current discussion paper at CCFICS the following definitions are proposed:

Food Integrity: The status of a food product where it is not altered and / or modified with respect to expected characteristics including, safety, quality, nutrition, and authenticity.

Food Authenticity: Is the quality of a food is genuine, undisputed in its nature, origin, identity, claims, to meet expected properties.

Food Fraud: Any deliberate action of businesses to deceive others in regards integrity of food to gain undue advantages.

Types of food fraud includes but not limited to: adulteration, substitution, dilution, tampering, simulation, counterfeiting, and misrepresentation. Note that Economically Motivated Adulteration is a subset of food fraud.

On these bases we could define following terms:

Halal Food Integrity: The status of a Halal food product where it is not altered and / or modified with respect to expected characteristics including, safety, quality, nutrition, and authenticity including its Halal status.

Halal Food Authenticity: Is the quality of a Halal food is genuine, undisputed in its nature, origin, identity, claims, to meet expected properties according Halal standards.

5. Halal Authenticity Test Methods

To test the halal status of Halal product we need to use the testing methods which divided to 2 sub-groups:

1) Halal Authenticity Test Methods

2) Authenticity Test Methods used in Halal Food.

Halal Authenticity Test Methods are again can sub divvied to confirmatory and screening methods. Any test results could be divided True positive, true negative, false positive and false negative. If a method only produced True positive, true negative (or statistically not significant false results) called confirmatory. If the test methods produce both false positive and false negative results will be abolished. There are methods that they do not produce false negative but may contain false positive results. Such test methods called screening test methods. Screening test methods are preliminary tests that could give a qualitative (Positive – Negative) or semi-quantitative or even quantitative results and could be conducted by a rapid test method or using laboratory instrumentation. Any positive results from a screening test method shall be reconfirmed by a Confirmatory test method before taking any legal action.
Halal Authenticity Confirmatory test methods of analysis used for Halal food control purposes shall be prove beyond reasonable doubt are:

1. Objectively identified from the Halal source of Food
2. It is free from any non-Halal and ritually unclean (Najis) components according on risk based approach
3. The requirements slaughtering according the Islamic rules and Law are fulfilled (wherever is possible).

It is recommended that fully validated confirmatory methods (i.e. Methods validated by collaborative trials for relevant matrices) are used where appropriate and available.

Any test that only reveal the first or second part and cannot confirm the third part could be called Authenticity Test Methods used in Halal Food.

Any development of Halal Authenticity Test Methods needs the deep understanding of Islamic requirements and the relationship of Islamic & Scientific criteria. In some instances both Islamic & Scientific criteria are almost superimposed in these cases a scientific criterion could be used interchangeably as an acceptable substitution of Islamic criterion like the calculation of noon praying by mathematical means while in some instances it is almost impossible like prediction of new moon in Islamic lunar calendar.

**Table 1:** Two-way table of True positive, true negative, false positive and false negative.

<table>
<thead>
<tr>
<th>True Condition Status</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halal (+)</td>
<td>True Positive</td>
</tr>
<tr>
<td>Haram (-)</td>
<td>False Positive</td>
</tr>
<tr>
<td>True Positive</td>
<td>True Negative</td>
</tr>
<tr>
<td>False Positive</td>
<td>False Negative</td>
</tr>
</tbody>
</table>

6. What can we do to support Muslim consumers?

The first step has been done and now we have 3 important Halal Standards as:


These standards have been developed based the common denominators of the eight officially recognized school of thoughts by International Islamic Fiqh Academy (IIFA) of Organization of Islamic Cooperation which are available to Muslims around the globe as reference documents.

The Amman Declaration of the International Islamic Conference held in Amman on July 4-6, 2005 stated: Whosoever is an adherent of one of the four Sunni Schools of Jurisprudence (Hanafi, Maliki, Shafi'i and Hanbali), the Ja'fari (Shiite) School of Jurisprudence, the Zaydi School of Jurisprudence, the Ibadi School of Jurisprudence, or the Thahiri School of Jurisprudence is a Muslim.

However OIC/SMIIC 1:2011, General Guidelines on Halal Food this is just a guide, and now we need to develop specification and test methods for many products based on a prioritized list.

Moving from knowledge to standard is sometimes very complicated, but it is a prerequisite for the existence of strong and robust standards.

Muslims have the right to expect foods they eat are lawful and also healthy and hygienic for consumption. Determining the limits for accepting consignments is another important step in any control and monitoring program for Muslim consumers.

Non Halal contaminants are materials that may be entered into the food chain due to environmental contamination, agricultural and animal husbandry practices or deliberately as deception and fraud.

In general, from the point of jurisprudence view, non halal parts should not be present at any level in food, so we have to go to values close to zero; although scientifically this means that it would be a detection limit of a validated method.

It means the maximum limits which finding higher values than those levels in the laboratory make food product inappropriate for halal labeling. We also should understand the uncertainty of measurements and the fact that some issues are not so black and white.

This requires close collaboration between high-ranking Jurisprudents and experimental scientists to reach agreement that laboratory results replace systems based on witnessing alone.

In order to achieve such an aim, it is essential that they speak same language and achieve an equal understanding of a subject.

Then, the relevant regulations are implemented by the competent authorities to ensure that any food entering into the market a halal for consumption and it does not contain any possible contamination with Non Halal or ritually unclean (Najis), and certainly contains no prohibited ingredients, within the limits of the detection of valid methods.

This is achieved by sampling according to valid methods; the test is based on valid laboratory methods and decision-making through a comprehensive National Halal Control Plan.

Supervision over the quality of goods, especially bulk commodities, is a crucial element in domestic and international trade and both seller and buyer are concerned about the likelihood of loss in such transactions.

The seller must be able to determine the possible risk involved in sending a lot that has been sampled at the country of origin and found to comply with the standard but in the subsequent sampling and testing at the destination is rejected.

The buyer also needs to determine the risk of accepted goods which might be rejected at later stages especially at market surveillance activities.

Without a close estimation of such possible risks, the expansion of international trade will be too risky.

Therefore, based on valid sampling protocols, it is necessary to estimate the buyer's risk or competent authorities should be determined by drawing of the Operating Characteristic Curve of the sampling protocol performance.
Fig 3: Operating Characteristic

Operating Characteristic Curve is an important tool that has been used in quality control for many years and has been successfully applied in the field of sampling.

Operating Characteristic curve may show the probability that a product lot in a particular validated test from the point of one specific compound or a group of compounds with known maximum limits which sets in the specification of the given product (e.g. the presence or absence of porcine gelatin in a product) will be more or less than the limit of detection or quantification of that validated method.

To prepare an Operating Characteristic Curve for a specific sampling method, it is necessary to identify all components related to variance and their distribution as a function of the contamination level in the consignment. This may be a big challenge in many situations due to the lack of normal distribution.

Halal Food Sovereignty is a new concept that may define as the right of Muslims to safe and culturally appropriate halal food produced through ecologically sound and sustainable methods in conformance with Islamic values, and their right to define their own halal food and related agricultural systems. This concept will assure Muslims to control their halal food only through their preferential method of production and process.

Therefore, we first need to extend the use of halal science which is application of knowledge for halal purpose; so that we can start our journey from science to the standard of halal.

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Laboratories in Halal Industry: Current Situation, Challenges and Future Perspectives

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ABSTRACT

Testing laboratories play an important role in the conformity assessment system. Laboratories which provide non halal conformity test are still new in the Halal system infrastructure (Halal Standardization, Halal Certification, and Halal Accreditation). There are only few specialized laboratories (governmental or private) which provide non halal assuring tests. These Laboratories are very important in the Halal system especially for testing food, cosmetics, pharmaceuticals and the other halal products for Halal authenticity, free from adulteration and quality assurance. Another important role of these laboratories is to provide a conclusive evidence of fatwa, to update and introduce new analytical techniques to keep up with the latest Halal standards as well as improve the halal authenticity testing. This article will provide a list of the available laboratories working in this field, current situation and challenges. The article also gives suggestions of infrastructure needed, ethics and regulations to be apply, and future research needed for producing new halal authenticity testing.

1. Introduction

Halal is an Arabic and Qur’anic term which means “permitted, allowed, authorized, approved, sanctioned, lawful, legal, legitimate or licit.” Guidelines for halal are given by Allah in the Holy Quran; “Forbidden to you (for food) are: dead meat, blood, the flesh of swine and that on which hath been invoked the name of other than Allah…” (Surah Al-Ma’idah 5: 3). Halal term is used in relation to food and other consumer goods, means “allowed be eating and using by Muslims.” Haram is the opposite of halal while Shubhah or Mashbooh, means doubt or suspicion[1].

The global Halal market value for trade in Halal foods is estimated at US$547 billion a year. This large market has created interest from food-producing countries worldwide. The global halal food industry is increasing and this demand develops halal standards, traceability systems, and halal science centers for halal food detection[2].

It is important for Muslim customers to trust that their food, pharmaceutical, health care products etc are halal. Hence, the importance of establishing laboratories and using analytical techniques (methods) of authenticity in food for ensuring food safety and protecting consumers from fraud and deception as well as for product recall purposes. So testing laboratories offers the analytical support for ensuring the quality of products and halal or not.

halal Laboratories which provide non halal conformity test are still new in the Halal system infrastructure (Halal Standardization, Halal Certification, and Halal Accreditation). These Laboratories are very important in the Halal system especially for testing food, cosmetics, pharmaceuticals and the other halal products for Halal authenticity, free from adulteration and quality assurance. Another important role of these laboratories is to provide a conclusive evidence of fatwa, and to update and introduce new analytical techniques to keep up with the latest Halal standards and improve the halal authenticity testing. And also to provide necessary technical supports to strengthen Halal certification Services.

Laboratory data may help define the overall scope of work, levels of worker protection, and remediation and disposal methods. Instrumental methods in detection of contamination and/or adulterants in food would clarify any doubt to Muslims, and information can be disseminated for consumer transparency giving better trust and confidence to the authority[3].

At present, very limited analytical methods are available for halal food verification. Rapid, sensitive, reliable, and yet affordable methods are urgently needed for halal food verification and for detection of non-halal components (e.g., porcine origin) in food products[3].
2. Halal Laboratories

2.1. Laboratory: Body that performs one or more of the following activities ) testing, calibration, sampling) associated with subsequent testing or calibration ( ISO 17025-2017).

2.2. Halal Laboratories: : Body that performs one or more of non halal tests ( Halan tayyiban ,shariah and safety ) by competent and Trustworthy muslims or at least one muslim.

3. Non Halal Test

Analysis or testing (a series of tests or analyzes) necessary to ensure that the product ( final product , raw material , ingredients ....etc.) is free from non-halal substances

Some of non halal substances including[10] :
• Pork and lard—pork is a pig meat, while lard is pig fat in both its rendered and unrendered forms.
Pig and derivatives are Haram as stated in Quran.
• Alcohol—Liquor (khamr) is defined in Islamic Law as an intoxicating drink that could affect the person’s mental coherence. In Hadith, it means “whatever intoxicates in large quantity, and then a small quantity of it is also forbidden”.
• Gelatin—substance derived from skin or collagen of animal or plant. The gelatin from porcine skin is most used. The technique widely used for quantitatively and qualitatively analyzing of gelatin is chemical and crystallization reaction.
• Collagen—subcutaneous protein which is widely utilized for beauty purpose and mainly produced from swine
• Emulsifiers (Monoglyceride and diglyceride)— obtained from digested oils or fats. It is Haram if it is from unlawful origin. Its fatty acid profile provides sample informations of origin
• Fats and oils—can be identified for their origin by analyzing their hydrolyzed fatty acid profiles
• DNA—in order to identify presentation of porcine and/or canine or other fraud identification or contaminations in food products and ingredients.
• Blood and other materials of human or animal origin — All types of blood and its by products are non-halal
• Genetically modified food (GMF)- Genetically modified organisms (GMO) or ingredients or products containing GMOs shall not be made by the use of genetic material which is non-halal

4. Current situation and Challenges of Halal Laboratories

In the beginning of Halal Infrastructure(Halal Standardization, Halal Certification, and Halal Accreditation) , attention was limited to the halal standards ,and how to issue the halal certification but the halal testing laboratories neglected, despite its important role in the Halal infrastructure.

After time, some countries are become aware about the importance role of halal testing laboratories in the halal infrastructure. so There are some laboratories doing some of non halal tests and they are governmental and private sector around the world for example in (Malaysia, Indonesia, Pakistan ,philippine , Singapore , Tailand , Bangladesh , Germany , UK , Turkey , Egypt , UAE , South Africa , USA ,... ) . and some of these laboratories call as halal laboratories and others not.

some of these laboratories not accredit and The lacke of qualified Muslim technicians to run Halal analyzes, non of the halal standards specify test protocols required for halal verification , there are no endorsed or aproved test method for critical tests ( lard derivatives ) , Equipment needed for doing non- halal tests are very expensive ( GC-MS , LC-MS, PCR, FTIR , ...etc), too many food technology , highly-processed food and there are hidden nd new ingredients in Food, cosmetics , pharmaceutical and health care products far too many to list , lack of advances in biotechnology ( GMO Pig, Chicken , fish , ...etc) also The lack of important awarness Halal Laboratories , that are some challenges face halal laboratories.

So etablishing of halal laboratory becomes mandatory for some reasons : is to ensure the accuracy of test results, increase the confidence of halal certification and Extend strong technical support to Certification Bodies. provide a conclusive evidence of fatwa, No product can be certified to be truly Halal without the aid of testing and to update and introduce new analytical techniques to keep up with the latest Halal standards and Information dissemination and implementation of product standards and Contribute to the accreditation of Halal certificate and providing Technical Training.

5. Detection Method of Non halal Substances using Different Instrumental Analysis

سورة البقرة : يا أبناء الثامن كُلوا من الأرض خلاصًا طبيعة
O people, eat from the earth what is Halalan Tayyiban.(168).

Determination of Halal & Tayyab is based on Shar’iah Requirements and Halal products should meet Food Safety and Quality Requirements to fulfill consumer needs . Halal Quality is a system based on a standard which respects both the Shar’iah requirements, the Government Regulations and
relevant Food Safety and Quality standards. So how we can detect the products are Halal? Analytical methods are a vital component in different products. Officially-approved methods are continuously used to monitor for known issues. In response to new and emerging issues, new analytical methods are sometimes developed, and developed rapidly. Accurate data from sound analytical methods are required and critical to make sound decisions. Islamic food laws are based on cleanliness, sanitation, and purity. Hence, the importance of establishing laboratories and using analytical techniques (methods) of authenticity in food for ensuring food safety and protecting consumers from fraud and deception as well as for product recall purposes. At present, very limited analytical methods are available for halal food verification. Rapid, sensitive, reliable, and yet affordable methods are urgently needed for halal food verification and for detection of non-halal components (e.g., porcine origin) in food products. There are some of the instrumentation and methods used for verification of Halal products [3].

5.1 Current Analytical Methods for Halal food Authentication.

Identification of ingredients in processed or composite mixtures and verification that the components are authentic and from sources acceptable to consumers has become necessary. Authentication is the process by which a food is verified as complying with its label description [1].

- So the labeling of food products is essential to inform consumers what kind of products they are buying. Moreover, due to the continuously increasing load of information given on labels with regards to product composition and quality, the development and standardisation of analytical methods to either confirm the information given on the label or to detect fraudulent activities is demanded [5].

On a global scale, Muslim consumers are concerned about several factors concerning meat and meat products such as substituted pork, undeclared blood plasma, use of prohibited ingredients, pork intestine casings and non-halal approved methods of slaughter. Specific and accurate analytical techniques have been developed to assist in different issues, but it is commonly accepted that the most suitable technique for any particular sample is usually determined by the nature of the sample itself [6].

With regards to heavy metals, food manufacturers and processors are not only interested in confirming that their products do not contain toxic metals, or essential trace elements, above certain limits or meet various legal requirements or codes of practices, but they also support the development of methods that will be used to confirm that the products do not contain metals that may deteriorate the quality of the products. As a result, surveillance methods for quantifying and evaluating metals intake through consumption of foods are also required [7].

There are many analytical methods currently used to detect halal authentication includes: DNA polymerase chain reaction (PCR), Fourier transform infrared spectroscopy (FTIR), gas chromatography-mass spectrometry (GC–MS), high performance liquid chromatography (HPLC), differential scanning calorimetry (DSC), Proton transfer reactions-Mass Spectroscopy (PTR-MS), Proton Nuclear Magnetic Resonance (1H NMR) Spectroscopy, and also sensor such as Electronic Nose (e-Nose) [1]. Other methods used to detect halal Tayyiban and quality includes: Atomic absorption spectroscopy (AAS) for determination of heavy metals, gas chromatography-mass spectrometry (GC–MS), high performance liquid chromatography (HPLC) for pesticides and veterinary drugs residues, aflatoxines.

5.1.1 Gas Chromatography (GC).

Gas–liquid chromatography (GLC), or simply gas chromatography (GC), also known as vapor phase chromatography (VPC), Detectors such as flame ionization detector (FID), thermal conductivity detector (TCD), electron capture detector (ECD), and mass spectroscopy (MS) [1] is used in organic chemistry for separating and analyzing compounds that can be vaporized without decomposition [3]. Typical uses of GC were for the determinations of non-halal ingredients in food or for the analysis of toxicity, which makes the food non-toyyib, i.e., non-halal [3].

A large number of volatile compounds, such as esters, alcohols, fatty acids, aldehydes, ketones, hydrocarbons, ethers, sulfur compounds, alicyclic compounds, aromatic compounds, heterocyclic compounds, and others can be detected by gas chromatography [8]. The adulteration of foods and beverages especially in oils, fats, and alcohol has been a problem for Muslim consumers. Gas chromatography coupled to flame ionization detection (GC-FID) has been used as a routine method for the detection of fatty acids in oils and fats [1]. This technique detects adulteration by comparing the retention times and peak areas of the fatty acids which have been derivatized into fatty acid methyl esters against appropriate standards. A comprehensive list of fatty acids with various carbon lengths and degrees of saturation has been compiled by CODEX 2009[9].

Structure and composition of fatty acids in fats and oils could be used as an indicator for determination of the source of lipid. Information on fatty acids profile is important for health awareness and religious commitment [10]. In addition, gas chromatography can be used for metabolomic profiling of alcohols derived from various origin since alcoholic beverage is often used as an ingredient for flavoring and preservation in the foodservice industry. As stated in Islamic Law, lard, pork, and alcohol are forbidden for Muslims. Therefore, the development of GC techniques using various detectors is in great demand for halal food authentication for identifying the origins of alcohol and source of lipid present in...
5.1.4 Gas Chromatography–Mass Spectroscopy (GC–MS).

It is similar as GC (above); however, it is more accurate, reliable, and fast since two techniques (GC and MS) are integrated to form a single powerful method for analyzing mixtures of chemicals [3]. GC-MS is an advanced technique that cannot be compared with other modern analytical equipment but can be complemented by mass spectrophotometer to achieve GC-MS/MS. It has broad range of applications that caters to academic research, quality control as well as industrial applications. Foods and beverages have several aromatic compounds existing naturally in native state or formed while processing.

GC-MS is exclusively used for the analysis of esters, fatty acids, alcohols, aldehydes, terpenes etc. GC-MS is also used to detect and measure contaminants, spoilage and adulteration of food, oil, butter, ghee that could be harmful and should to be controlled and checked as regulated by governmental agencies.

5.1.5 Polymerase Chain Reaction (PCR)

PCR is a technique to amplify a single or few copies of a piece of DNA, as primer, across several orders of magnitude, generating thousands to millions of copies of a particular DNA sequence.

The PCR technique can be used to verify, certify, and monitor most animal proteins and related products for halal authentication efficiently and effectively as well as some other consumer products such as the genetically modified organisms (GMOs).

PCR analysis of a food includes the following steps: isolation of DNA from the food, amplification of the target sequences by PCR, separation of the amplification products by agarose gel electrophoresis, estimation of their fragment size by comparison with a DNA molecular mass marker after staining with ethidium bromide, and finally, a verification of the PCR results by specific cleavage of the amplification products[14]. Real-time PCR is a rapid, sensitive, and reliable method for the detection of pathogens in food and environmental samples and ingredient authentication.

The full advantage of PCR testing, as compared to conventional techniques, in the food industry is still to come.

5.1.6 Competitive Indirect Enzyme-Linked Immunosorbent Assay (ELISA).

ELISA is an immunological assay commonly used to measure antibodies, antigens, proteins, and glycoproteins in biological samples. ELISA plays a major role in food industry. It is the main platform for identifying food allergens such as those present in milk, peanuts, walnuts, almonds, and eggs[15]. The applications of ELISA in various different fields including food industry, vaccine development, immunology (autoimmunity and humoral immunity), diagnosis (pregnancy, cancer and infectious diseases), toxicology, drug monitoring, pharmaceutical industry, and transplantation ELISA can also be employed to corroborate the authenticity of the food products[15]. This technique is of great help to avoid possible economic losses caused by fraudulent substitution[16]. In the case of meat and meat-based products, ELISA has proven to be a reliable technique that provides careful monitoring of the product, especially when religious considerations in the choice of food are concerned. ELISA is also an essential technique for quality control of fish, milk (as well as their chemical changes that involve endothermic (energy consuming) and exothermic (energy producing) processes, or changes in heat capacity [12]. DSC is particularly suitable for analysis of food systems because they are often subject to heating or cooling during processing. The calorimetric information from DSC can be directly used to understand the thermal transitions that the food system may undergo during processing or storage. DSC is easy to operate and in most cases no special sample preparation is required. With a wide range of DSC sample pans available, both liquid and solid food samples can be studied[13].

DSC is a thermo-analytical technique to study the physical behavior during processing and storage of carbohydrates, fats and oils, proteins, alcohol/water content, and food packaging. Many scientists have used DSC to deal with adulteration problems associated with edible fats and oils, and fat-based products[1].

DSC is also used to measure the temperature and heat flows associated with phase transitions in materials, as a function of time and temperature. Such measurements can provide both quantitative and qualitative information concerning physical and chemical changes that involve endothermic (energy consuming) and exothermic (energy producing) processes, or changes in heat capacity [12]. DSC is particularly suitable for analysis of food systems because they are often subject to heating or cooling during processing. The calorimetric information from DSC can be directly used to understand the thermal transitions that the food system may undergo during processing or storage. DSC is easy to operate and in most cases no special sample preparation is required. With a wide range of DSC sample pans available, both liquid and solid food samples can be studied[13].

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sub products), genetically modified foods, irradiated foods, or other harmful food components that can be transferred to human, such as bovine spongiform encephalopathy. Non-meat proteins such as soybean have valuable nutritional properties. Nonetheless, due to the similarity to the mean product, they are seldom added to the meat products undeclared. Careful monitoring of the products with ELISA prevents such adulteration. Unethical competitions for higher economic gain often lead to the potential health hazard through the consumed food and beverage.

Production of ELISA kits for food industry applications is challenging as a selection of adequate control and standard samples is necessary to carefully calibrate the assay. Additionally, ELISA can target different types of analytes in the same food sample, thus the manufacturers should provide a complete set of kit components for the potential target biomolecules[ 17 ] .

5.1.7 Fourier Transform Infrared (FTIR) Spectroscopy).

FTIR spectroscopy could be used to analyze food samples such as animal fats, chocolate, cake, and biscuits for the presence of non-halal ingredients such as lard. Analyses include characterizing and identifying the differences in FTIR spectroporfiles. FTIR spectroscopy with chemometric analysis offered rapid, simple, reliable, and environmentally friendly analytical technique that can detect and quantify low level of lard-adulterated food samples (3–5 % detection limit) [3].

Electronic Nose (E-Nose) Technonlogy.

E-Nose can be used as a rapid detection of non-halal food contaminants in the food matrix by characterizing simple and complex odors. These instruments could be used for the authentication of halal food, non-halal items such as alcohol and intoxicating materials and to some extent to detect whether the slaughtering of animals is following the Islamic slaughtering, which is a purposeful act, the intention of which is to take the life of the animal in order to use it as food [3]. Electronic noses have provided a plethora of benefits to a variety of commercial industries, including the agricultural, biomedical, cosmetics, environmental, food, manufacturing, military, pharmaceutical, regulatory, and various scientific research fields. Advances have improved product attributes, uniformity, and consistency as a result of increases in quality control capabilities afforded by electronic-nose monitoring of all phases of industrial manufacturing processes[ 18 ]

5.1.8 Proton Nuclear Magnetic Resonance (1H NMR) Spectroscopy.

Nuclear magnetic resonance (NMR) spectroscopy has been extensively utilized in the authentication of olive oil because it requires minimal sample preparation, shorter analysis time, its nondestructive nature, and good reproducibility when compared to chromatographic methods which are coupled to mass spectrometry. Investigated the authentication of 10 vegetable oils (extra virgin olive oil, olive oil, canola oil, palm oil, soybean oil, corn oil, sunflower oil, rice bran oil, peanut oil, and coconut oil) with heating fats (adipose tissues of pig, mutton, beef, and chicken) using proton nuclear magnetic resonance (1H NMR) spectroscopy, gas chromatography–mass spectrometry (GC/MS) fingerprinting, and chemometrics. However, NMR data does not successfully establish a good detection in terms of sensitivity and specificity as compared to GC/MS data using partial least squares discriminant analysis (PLS-DA) and orthogonal projections to latent structures discriminant analysis (OPLS-DA) as classification models[9 ]

5.1.9 Atomic Absorption Spectroscopy (AAS)

AAS is a spectroanalytical procedure for the quantitative determination of chemical elements using the absorption of optical radiation (light) by free atoms in the gaseous state. In analytical chemistry the technique is used for determining the concentration of a particular element (the analyte) in a sample to be analyzed. AAS can be used to determine over 70 different elements in solution, or directly in solid samples via electrothermal vaporization is used in pharmacology, biophysics and toxicology research and food industry [ 19 ]

6. Quality management of Halal Laboratories

In order to achieve the highest level of accuracy and reliability, it is essential to perform all processes and procedures in the laboratory in the best possible way. The laboratory is a complex system, involving many steps of activity and many people. The complexity of the system requires that many processes and procedures be performed properly [ 20 ] Therefore, the quality management system model, which looks at the entire system, is very important for achieving good laboratory performance. A quality management system can be defined as “coordinated activities to direct and control an organization with regard to quality.” This definition is used by the International Organization for Standardization (ISO), In a quality management system, all aspects of the laboratory operation, including the organizational structure, processes, and procedures, need to be addressed to assure quality. There are many procedures and processes that are performed in the laboratory and each of these must be carried out correctly in order to assure accuracy and reliability of testing. An error in any part of the cycle can produce a poor laboratory result. A method of detecting errors at each phase of testing is needed if quality is to be assured. Laboratories not implementing a good quality management system are guaranteed that there will be many errors and problems occurring that may go undetected. Implementing such a quality management system may not guarantee an error-free laboratory, but it does yield a high quality laboratory that detects errors and prevents them from recurring. Establishing and maintaining laboratory quality standards are essential. Establishing and maintaining laboratory quality standards are essential. there are some
of standards (Table 1) that can be readily applied to laboratories at every level of the halal test system.

<table>
<thead>
<tr>
<th>ISO/IEC17025-2017</th>
<th>General requirements for the competence of testing and calibration laboratories</th>
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<tbody>
<tr>
<td>OECD GLP</td>
<td>OECD principles on good laboratory practice</td>
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<tr>
<td>ISO 8402</td>
<td>Quality management and quality assurance – vocabulary</td>
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<tr>
<td>ISO 9001 -2015</td>
<td>Quality management systems – requirements</td>
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<tr>
<td>ISO 45001-2018</td>
<td>Occupational health and safety management systems</td>
</tr>
<tr>
<td>ISO 14001-2015</td>
<td>Environmental management systems</td>
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</tbody>
</table>

These standards are important for several reasons, including ensuring the quality and traceability of test results; supporting technical decision-making; procuring equipment; use of standard techniques and reagents; for sharing documentation; training programmes; quality assurance; and compliance with national or international accreditation also. These Standards have item called risk. Based thinking and this help to identify the risks occurs from operations and activities in laboratory and how to remove or eliminate it.

7. Halal Laboratories Infrastructure

The infrastructure of laboratory is very important because it gives confidence to test specialist when testing or analysing, easy to move in laboratory and handling with sampling and equipments. As mentioned in the definition of laboratory (Laboratory: a place or building equipped for scientific experiments, testing, analysis, research, or teaching, or for the manufacture of drugs or chemicals). The infrastructure should be suitable for the field (scope) of the laboratory. In halal laboratories we deal with halal and non-halal samples, so there must be a separate place for the storage of standard reference materials - disposal of halal and non-halal samples. Sufficient area or space for testing proper lighting and ventilation. Having the right and applicable equipment. Facility for data encoding and management. Sufficient space for storage (for consumables, sample retention and documents), Sufficient supplies (reagents and standards), Facilities to address personnel’s proper hygiene, safety in laboratory, Install emergency eyewash and showers in strategic locations in the lab, and there should at least be two emergency exits from the laboratory area in case of an emergency. We can also apply the occupational health requirements using ISO 45001-2018 as guidelines and also this laboratory have impact in environment so using ISO 14001-2015 series as guidelines.

8. Ethics of Halal Laboratories

The purpose of ethics in Islam is to build the concept of piety, which makes the performance of good work a must, and makes avoidance of harmful work obligatory, and makes fear of Allah stronger. The basic values in Islam are constant and do not change because they are valid for all times and places and that morality, faith and Sharia are not man-made and therefore they are based on time and time remaining in different environments and ages and that the right will remain the right does not change (21-23).

Therefore, the most prominent rules of Islam is (the stability of values) and therefore (the stability of ethics) and the moral obligation is a basic law represents the axis around which the values of ethics. The laboratory shall have a document or Endorsement for Ethics of Muslim test specialist in halal laboratory and also procedure of how to eliminate or remove the risks that arise from laboratory activities.

Some of Halal Ethics: 1- Impartiality, the laboratory shall be responsible for the impartiality of its laboratory activities and shall not allow commercial, financial or other pressures to compromise impartiality as mentioned in ISO 17025-2017. 2- Confidentiality, information about the customer obtained shall be between customer and the laboratory and shall not shared with the other customers according 17025-2017. 3- Anti-bribery management system as ISO 37001-2016, is a good practices that can be applied to all organizations where small or large (public or private). this standard gives the requirements and guidance for establishing, implementing and maintaining and improving an anti-bribery management system. The application of this system also requires leadership and commitment to impartiality and transparency through Spread anti-bribery policy to all employees and external parties (suppliers - partners – stakeholders,........) to reduce the risk of bribery.

9. Conclusion

The need for laboratories that examine non-halal substance has become urgent after Halal products gained wider recognition not only due to meeting Shari’a requirements, but also hygiene, sanitation and safety aspects. Increasing demand for halal products is being seen in a number of Muslim and non-Muslim countries. As too many food technology, highly-processed food and there are hidden and new ingredients in Food, cosmetics, pharmaceutical and health care products far too many to list so the halal certification body must make the testing samples (not only sharia but also tayyban) as mandatory step in the process of issuing halal certificate and also the halal standard organization establish the committee for putting methods to detect non halal substances.

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Preliminary Studies for Development Kit Detection: Protein Analysis for Halal Authentication of Meat Products

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ABSTRACT

Indonesia belongs to a largest Muslim country in the world with the Muslim population of around 89%. Consequently, Islamic way of life, including the concept of halal, is practiced in daily life in Indonesia. However, currently there are many cases of pork, mixing in processed products circulating in the community because the price of pork is relatively cheaper than beef. Therefore, in this research, an analysis method developed based on specific meat protein contained different animal species, including chicken, beef, lamb and pork was conducted. The specific meat protein of pork is especially important for peak identification in a processed food product. The meat protein isolation was conducted by centrifugation followed by precipitation using ammonium sulfate with different saturation level and dialysis using Phosphate Buffered Saline (PBS). Proteins were identified by means of Sodium Dodecyl Sulfate Polyacrylamide Gel Electrophoresis (SDS-PAGE) after purification using ion exchange chromatography and gel filtration chromatography. The isolated specific protein was quantified using the Lowry method and then immunized into the BALB/c strain mice. The polyclonal antibodies formed were tested using antibody titres and agglutination tests. The results showed that the differentiating specific protein of pork from chicken meat, beef, and lamb was found to have a molecular weight of 19,736 KDa as could be observed in electrophoregram. The agglutination test results revealed that the reaction between the specific polyclonal antibodies of pork with the crude antigen protein of pork resulted in agglutination, while in the case of chicken, beef and lamb no agglutination was observed.

1. Introduction

Indonesia belongs to a largest Muslim country in the world with the Muslim population of around 89%[1]. Consequently, Islamic way of life, including the concept of halal, is practiced in daily life in Indonesia. However, currently there are many cases of pork, mixing in processed products circulating in the community because the price of pork is relatively cheaper than beef.

Research on the detection of pig content in a product that is in foods, drugs and cosmetics has been done with various methods such as Real Time Polymerase Chain Reaction (Real-Time PCR) using the D-Loop 318 primers performed in analyzing the pig gelatin content in the usual capsule shell used in Pharmaceutical Industry companies, also analysis contamination of pigs on commercial meatballs with a specific gene target of cytochrome b mitochondria using TaqMan Probe Real Time Polymerase Chain Reaction (Real Time PCR)[2]. But these methods require special equipment and techniques and take a long time to get the results, therefore we need a method to detect pork content in food, medicine or cosmetics easily, quickly and accurately.

In this study a method will be developed by utilizing specific proteins in pork, which are not found in other meat proteins, such as proteins in chicken, beef and lamb. The method used was electrophoresis by purification using ion-exchange column chromatography and filtration gel chromatography. This specific protein is immunized in BALB/c strain mice get specific antibodies that can be used to detect differences in chicken, beef, lamb, pork meat quickly, easily, and cheaply.

Polyclonal antibodies contain a complex mixture of antibodies with different specificities, affinity, and isotopes that react with a number of different determinant antigens in the antibody. With the introduction of multiple antigen configurations, polyclonal antibody serums can be used to identify configurations formed by antigen groups[3].

The purpose of this study is to develop a method to detect the presence of pork content in a protein-based food products circulating among the people of Indonesia as one way to ensure the halalness of a product.
2. Materials and Methods

2.1 Materials

The materials used in this study were chicken, beef, lamb and pork, ammonium sulfate (NH₄)₂SO₄, Ethylenediaminetetraacetic acid, Acrylamide, N’N Bisacrylamide, Sodium dodecyl sulfate, β-Mercaptoethanol, Bromophenol Blue, N,N,N’,N’-tetramethylethene-1,2-diamine, Ammonium Persulfate, Standard Protein-Broad Range Marker Molecular Weight Marker Protein, comassie blue, G-100 sephadex gel, Diethylaminoethyl-cellulose, Bovine Serum Albumine, Tris base, Sodium Hydroxide, Natrium Chloride, Potassium Chloride, Disodium phosphate, Potassium dihydrogen phosphate, Sodium Carbonate, Copper(II) sulfate, Sodium Tartrate, Reagents Folin-Ciocalteu, Complete Freund's Adjuvant, Sheep Red Blood Cell, Female BALB/c mice aged 7-8 weeks were obtained from PT. Biofarma, Cisarua - Lembang, West Java, Indonesia.

2.2 Methods

2.2.1 Extraction of protein

Prepared various types of meat (chicken, beef, lamb and pork) in the same amount as much as 50% in Phosphate Buffered Saline solution chopped and ground until smooth, then centrifuged at 4°C, with speed 12000 rpm for 15 minutes, from the results of the centrifugation will be found two separate layers. Supernatants obtained are collected for the next stage.

2.2.2 Precipitation using ammonium sulfate

Supernatant was added gradually with ammonium sulfate ((NH₄)₂SO₄) with different levels of saturation, the solution was stirred using a magnetic stirrer for 4 hours at a temperature of ± 4°C. After completion, the solution was centrifuged at 4°C at a speed of 12,000 rpm for 30 minutes. The resulting precipitate was reconstituted with a Phosphate Buffered Saline solution for dialysis, while the supernatant obtained was collected for precipitation with a higher saturation level.

2.2.3 Dialysis

The dialysis process begins with the activation of the dialysis membrane. Reconstituted precipitates using Phosphate Buffered Saline solution are put into activated dialysis bags. The dialysis bag is placed on a glass beaker containing 1 liter of distilled water. The dialysis solution was replaced three times, namely in the first 4, second, and third hours and then left until the total dialysis time was 16 hours. The samples of dialysis were then centrifuged at a speed of 4500 rpm for 20 minutes at 4°C. Supernatants obtained are protein fractions which are then characterized.

2.2.4 Electrophoresis

Protein molecular mass was measured by SDS-PAGE using 12% polyacrylamide separating gel and 4% polyacrilamide stacking gel. The formed gel is ready to be used for electrophoresis. This process is carried out by inserting a sample of 5 µL into the well on the gel. Electrophoresis cells are then connected to the power supply and given an electrical voltage of 150 V. After the running process is complete, the gel can then be colored using comassie brilliant blue.

2.2.5 Ion Exchange Chromatography

A total of 5 mL of the dialysis result was inserted into the Diethylaminoethyl-cellulose gel column which had been saturated using phosphate buffer. Then the NaCl gradient was made with concentrations of 0.1%, 0.2%, 0.3%, 0.4%, 0.6%, 0.8% and 1.0%. Each NaCl gradient concentration is inserted into the column after the sample is inserted. The elution is collected as much as 2 mL. Reconfirmation using SDS-PAGE to see the separation pattern.

2.2.6 Filtration Gel Chromatography

A total of 5 mL of the dialysis product is inserted into the sephadex gel column G-100 has been saturated using Phosphate Buffered Saline. The elution results are accommodated as much as 2 mL using a fraction collector. Read the absorbas using UV-Vis at a wavelength of 260 nm and reconfirmed using SDS-PAGE, then determined the protein concentration by the Lowry method to determine the dose to be immunized in mice.

2.2.7 Determination of protein concentration

Stock Solution of Bovine Serum Albumin (BSA): mixed with 4 mg of protein standard in the form of BSA into distilled water as much as 2 mL, from the stock solution made a series of dilutions to obtain a concentration of 0.25; 0.50; 0.75; 1.00; 1.25; 1.50; 1.75; 2.00 mg/mL. Then 0.2 mL of sample (protein extract) and BSA solution were added 0.2 mL of 2N NaOH and hydrolyzed in a 100°C water bath for 10 minutes. Added with 2 mL complexing solution consisting of 2% Na₂CO₃, 1% CuSO₄.5H₂O and 2% Potassium Sodium Tartrate with a ratio of 100:1:1 (per volume), then incubated for 10 minutes at room temperature, then the solution is added with 0.2 mL of Folin I N reagent and homogenized using vortex and then allowed to stand for 30-60 minutes. The final step measured by absorbance using UV-Vis spectrophotometer at λ = 550 nm.

2.2.8 Polyclonal antibody preparation

Immunization in mice was carried out by injecting antigens which are specific proteins to 5 mice of BALB/c strain. The first injection dose, specific protein emulsified with Complete Freund's Adjuvant (1:1), subsequent injections in the second, third and fourth weeks using the same dose at the first injection, specific proteins emulsified with Incomplete Freund's Adjuvant. Injections are carried out intraperitoneally (i.p). One week after the last injection the blood serum is taken to see antibody titers, if the booster is still low for 3 days and for taking polyclonal antibodies from mice started serum extraction is carried out through intracardiac and then stored in a sterile tube, centrifuged for 10 minutes at 12000 rpm so that a clear liquid is separated from the blood clots, the clear liquid is taken and put in a sterile tube and stored at -20°C.
2.2.9 Testing of Antigen and Antibody Reactions by Agglutination method

Antigens are mixed with serum above each object’s glass, 1 drop, if agglutination occurs, it indicates that the antigen contains pork specific protein. The determination is based on the least number of agglutinates formed where strong reactions are marked (++), weak (+), and (-) if there are no clots.

3. Results

3.1 Determination of Protein Molecular Weight

Molecular weight profiles of constituent proteins in various types of meat can be identified using SDS-PAGE electrophoresis method. Electrophoresis results were obtained by electrophoregram which showed the distance of protein in the various fractions of migrating meat (Figure 1). From the electrophoregram profile can be determined molecular weight by making a standard curve of a standard protein. The Log Value of Molecular Weight and Rf of the marker in SDS-PAGE (Table 1). Standard protein data analysis was done by linear regression of the relationship between the Y-axis (logarithm of molecular weight) and the X-axis (relative mobility) obtained by the equation \( y = -1.1997x + 5.0067 \) with \( R^2 = 0.9858 \). The regression equation is used to determine the molecular weight of protein in chicken, beef, lamb and pork. In this study, protein bands were found to be the differentiator between proteins contained in pork and not found in other meat proteins, which were found in fraction 5, with molecular weights ranging from 19-20 KDa, which were then purified to obtain a single band on electrophoresis gel.

<table>
<thead>
<tr>
<th>No.</th>
<th>Molecular Weight of Standard Protein (Da)</th>
<th>Log Molecular weight</th>
<th>Protein Migration Distance (cm)</th>
<th>Rf</th>
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<td>5.00</td>
<td>0.30</td>
<td>0.05</td>
</tr>
<tr>
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<td>0.70</td>
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<tr>
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<tr>
<td>7</td>
<td>10000</td>
<td>4.00</td>
<td>4.80</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Figure 1. (i) The electrophoregram of chicken meat; (ii) The electrophoregram of beef; (iii) The electrophoregram of lamb; (iv) The electrophoregram of pork
3.2 Purification of Protein

In the first stage, protein purification was carried out using ion exchange column chromatography method, which uses DEAE-C as an ion exchanger. The purification mechanism is when the protein mixture is bound to the anion exchanger, DEAE-C. When the pH is reduced, the -COO group in the protein begins to protonate and lose its charge, because the overall negative charge of the protein decreases its affinity for resin reduction. Based on the results of the purification can be compared between line A which is the result of fractionation at the concentration level of ammonium sulfate 80-100% with line B which is the result of fractionation followed by purification using ion exchange column chromatography passed on DEAE-C matrix, visible reduction of tape but not specific only one band is desired, therefore in this study continued with purification using another method that is using Filtration Gel Chromatography method. Protein purification results were carried out using ion exchange column chromatography and continued with gel filtration, resulting in a single band found at a molecular weight of 19.736 KDa (Figure 2, ii line B). This shows that the purification will produce one band on the electrophoresis gel which is characteristic that the protein that distinguishes between proteins in the pork sample and other meat proteins (chicken, goat and cow) has been isolated, which will then be determined using the Lowry method to determine the dose will be immunized in test animals.

3.3 Determination of Protein Concentration

Determination of protein concentration was carried out using the Lowry method. Determination of concentration is done by calculating the equations obtained from the standard protein curve. The standard protein used to make a standard curve is Bovine Serum Albumin. The curve is made from series concentration of 0.25; 0.50; 0.75; 1.00; 1.25; 1.50; 1.75; and 2.00 mg/mL. Based on table 2 it can be seen that the highest level of each meat is in fractions 3 and 4 with the concentration of ammonium sulfate 40-60% and 60-80%.

3.4 Production of Polyclonal Antibodies

In this experiment, 8-week-old BALB/c strain female mice were used. In the preparation of meat protein, obtained results that distinguish between pork samples with other meat samples (chicken, goat and cow) that is found in the molecular weight of 19.736 KDa. By using the Lowry method to determine protein levels, the dose of the specific protein that will be injected into the BALB/c mice is 2.57 mg/mL. From the results of the experiment, it was found that the higher the dilution level, the greater the activity in forming aglutinin. The first well is a stock solution containing antibodies from the serum of the test animal with PBS with a 1:2 dilution. The second well up to the 12th well is the level of dilution which indicates that the higher the level of dilution will provide greater agglutination or precipitation.

3.5 Testing of Antigen and Antibody Reactions by Agglutination method

Specific antibody testing results in several meat samples showed different agglutination reactions in each sample. Determination of this antigen test is based on the amount of agglutinate formed, the results that give a strong reaction are marked (++), medium (+), and (-) if there is no visible agglutinat.

4. Discussion

Physically, chicken, beef, lamb and pork meat can be distinguished based on color, fiber, and odor. Meat proteins from several animal species were isolated by centrifugation, precipitation leveled with ammonium sulfate, dialysis and protein purification using ion exchange column chromatography and gel filtration chromatography methods.
In the preparation of meat protein obtained results that the difference between pork and chicken meat, goat and beef is found in the molecular weight of 19,736 KDa. With the Lowry method obtained the protein content of pork with a concentration of 2.57 mg/mL which will be used as an antigen for immunization in mice. This specific protein acts as an antigen that can generate an immune response in mice, so that antibodies are produced which have a high specific affinity for the antigen. The use of test animals in the form of mice on the grounds that the BALB/c strain mice gave a more specific response to the antigen reacted in the body to produce antibodies, also selected females of the same age to avoid unexpected and relatively less aggressive effects on other mice.

Immunization is carried out by emulsifying a specific protein solution with CFA, subsequent injections in the second, third and fourth weeks using the same dose at the first injection of specific proteins emulsified with IFA. Injections are carried out by i.p. Addition of adjuvants is carried out to enhance the immune response by activating T cells by increasing the accumulation of Presenting Cell Antigen (APC) in the place of antigen exposure and expression of co-stimulators and cytokines by APC.

The mycobacterial adjuvant using a dead and dried Mycobacterium suspension includes M. tuberculosis, an adjuvant mixture with an antigen will increase immunity in test animals, especially cellular immunity.

After the last injection is seen an antibody titer to find out how many antibodies have been formed. Antibody titer is the highest dilution that shows agglutination or precipitation. To determine the antibody titer, serial serum dilution is made and then a constant amount of antigen is added and the solution mixture is incubated and examined to see agglutination or precipitation. From the table 3 it can be seen that the results of testing specific pork antibodies against pork, which act as antigens show an agglutination reaction as indicated by the formation of clear agglutinates (+++) compared to antibody reactions to chicken samples which show a weak reaction (+) whereas in lamb and beef samples were not seen as agglutinat (-). This shows that the specific antibody harvested can only form an antigen-antibody complex bond with the antigen in the form of a pork sample.
5. Conclusion

Specific proteins in pork that are not found in other meats such as chicken, lamb, and beef have been isolated by electrophoresis method and purified using ion exchange column chromatography and gel filtration chromatography, the specific protein is found at 19.736 KDa molecular weights, and results in the reaction of the antigen and antibody analyzed showed a strong bond between the antibodies produced with the pork antigen which was proven by the agglutinate formed, and from the results of this study, research can be continued to design diagnostic kits based on immuno chromatography to check pig content in protein-based foods.

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References


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Structural Comparison of Gelatinase from Halal (Cattle) and Non-Halal (Wild Boar) Sources

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ABSTRACT

Gelatinase is an enzyme that has ability to degrade gelatine. It can be classified into two types, gelatinase A and gelatinase B. Gelatinase has been used widely in food and pharmaceutical industry. It can be obtained from halal or non halal source. It is important to study the difference between halal and non halal source. The difference can be studied based on 3D structures of halal gelatinase and non halal gelatinase. The methods include multiple sequence alignment, phylogenetic tree, pairwise alignment, protein modeling, structure validation and superimpose. Based on superimpose result, the identity between halal and non halal model is 97%. Hence, there is 3% difference between the two gelatinase structures. This suggests to a new research that will investigate which part of the structures does the difference occur and what the impact the function of the structures.

1. Introduction

Global demand for gelatine industry is increasing especially in food and pharmaceutical industry [1]. This is because gelatine is very useful substance that can be commercially modified into many products. Examples of gelatine products are marshmallows, children’s vitamins, shampoo, jello, yoghurt, digestive aid, skin mask, cream cheese and many more. Gelatinase is a type of distinct group protease, an extracellular metallo- endopeptidase or metalloproteinase which is able to hydrolyse gelatine and other compounds such as pheromone, collagen, casein and fibrinogen [2]. It is a proteolytic enzyme that is important in breaking down gelatine into smaller polypeptides, peptides or amino acids [3]. Gelatinases are widely used not only in chemical and medical industries but also in food and basic biological science field [4]. Gelatinase can be produced from Bacillus spp. bacteria. This gelatinase is used in biodegradation of feather waste. Enzymography and zymography analyses indicated that enzymatic extracts from the Bacillus spp. excellently degraded keratin and gelatin substrates as well as, casein, hemoglobin and bovine serum albumin [5]. Gelatinase also gives contribution to drug development as it has good potential role in connective tissue degradation associated with tumor metastasis. The potential uses of gelatinase and their high interest, the requirement exists for the discovery of new strains of bacteria that produce enzymes with novel properties and the increasing of low cost industrial medium and extraction formulations. Discovering new species, producing gelatinase with novel properties will be of high value to the enzyme and pharmaceutical industry for different applications. According to Balan [2], gelatinase enzyme produced from a potential wild strain Bacillus spp with maximum activity and the results showed its applicability for the industrial scale production of this enzyme several commercial uses. Gelatinase may come from many sources and these sources can be Halal or Non-Halal. Halal and Non-Halal source is an important matter for Muslims all around the world. This is because Muslims are required to use only Halal products and from Halal sources to follow their religious rules and obligations. Halal means permissible and lawful while Haram means prohibited [6]. Halal products issues have invited debates in various aspects of Muslim lives. Under the Shariah law, the concept of ‘Halalan toiyyibban’ which is the products that the followers consume, must be hygienic, pure, clean and have quality. The ‘Halal’ meaning that has been misunderstood is that, it must be free from non Halal ingredients or substances that contain pork and alcohol, whereas the true concept of Halal is to ensure that the whole process in preparation of the product has met the Shariah guidelines. Good quality assurance can be obtained through Halal assurance system exercised along the production of the products. Quality is also an important factor that can preserve and prolong one’s healthy live. Pharmaceutical products also face with issues on the hazardous effects resulting from the consumption of the products, the insertion of GMO (Genetically Modified Organism) within the production process, and the unrevealed Non-Halal ingredients. The status of enzymes including the raw elements used and the on-going production techniques is needed to facilitate Halal food production and comply with religious demands. Enzymes derived from Haram (not allowed) animals or from raw materials obtained from Haram sources are considered to be Haram. Whereas, enzymes derived from microorganisms during fermentation are considered to be Halal if the raw materials or any other ingredients used in the growth medium and in the final product are not from Haram or doubtful sources. If genetically modified (GM) microorganisms are used for enzyme production, recombinant DNA should not be from Haram or doubtful sources [7]. Halal issue become attention in the market, and it is influencing in the marketplace in most Islamic countries [8]. Islam emphasizes on the aspect of hygiene of the preparation and processing of food and products. Furthermore, in today’s global market, the concept
of halal cannot simply conclude that the food is ‘pork free’. It includes a multitude of forms such as emulsifiers and other food contents. Examples are gelatine, enzymes, lecithin and glycerine as well as additives such as stabilizers, flavourings, colourings and breadcrumbs. These contribute to food that has been enhanced or added by doubtful substances into halal products and questionable in Islamic law. Taking in consideration the importance of gelatinase in the industry, this research aims to study on the differences of the gelatinase protein from halal and non halal source at their structural level using bioinformatics analysis tools and hence would able to compare both protein structures. In order to understand proteins and their functions, comparative analyses of protein sequences and structures need to be implemented as it become an important role in this process [9].

2. Material and Methods

2.1 Obtaining the gelatinase sequences from NCBI

Sequence is the order in which amino acid or nucleotide residues are arranged in a protein or DNA. Since gelatinase is a protein, amino acid sequences were selected and searched in the online database. DNA sequences of gelatinase were obtained in NCBI database. 24 total gelatinase sequences were found. They came from various organisms such as mammals, reptiles, amphibians and fishes. Their length is from 660 to 690 residues.

2.2 Multiple sequence alignment

Multiple sequence alignment is an important task to do after collecting gelatine sequences. The purpose is to compare the identity and similarity of all sequences collected. After all sequences were aligned, sequence analysis can be done and phylogenetic tree can be constructed. There are several softwares and online servers that provide multiple sequence alignment tasks. ClustalX2 software was used to perform sequence alignment because it is easy to apply and the result was illustrated in colour so that it can be understand easily. In this method, all 24 sequences were aligned by using ClustalX2 software. The software aligned all sequences and give result base on the identity and similarity arrangement of sequences.

2.3 Phylogenetic tree

Phylogenetic tree is a type of tree that shows evolutionary relationship between all organisms that are being investigated. There are several types of phylogenetic trees such as Maximum Parsimony, Maximum Likelihood and Neighbor-Joining tree. Bootstrap tree also can be constructed which give value for the branch of tree. Multiple sequence alignment file was used to create phylogenetic tree. Phylogenetic tree was constructed by using MEGA 7 software. This software was selected because it is user friendly and gives clear figure of trees. In this method, two types of trees were constructed which are Maximum Parsimony and Neighbor Joining trees. Bootstrap trees were also constructed with 100 replicates.

2.4 Selection of halal & non halal sequences

After phylogenetic trees were created, the next step is to select two closest sequences based on their position in phylogenetic tree. The sequences must be halal and non halal sequences. They are selected to observe and to compare their difference. In order to choose the two sequences, they must be located at the same clade.

2.5 Pairwise alignment

After choosing the two closest sequences, pairwise alignment was performed. Pairwise alignment is a method to find more details about the percentage of identity and similarity of two closest sequences. Pairwise alignment was done by using CLUSTAL OMEGA server.

2.6 Sequence analysis

Sequence analysis is the process of subjecting a DNA, RNA or peptide sequence to any of a wide range of analytical methods to understand its features, function, structure, or evolution. It involves the comparison of sequences in order to find similarity, to interpret if they are related or homologous. The two sequences were analysed based on the pairwise alignment result. This analysis will lead to identification of conserve region which contribute to difference percentage of identity and similarity of the sequences.

2.7 Protein modeling

Protein modeling is a method to create protein model based on protein sequences selected before which are from halal and non halal source. This is the essential method of this project which will give result that can visualize protein structures clearly. It was done by using Swiss Model server. Halal and non halal sequences that had been selected before were submitted to the server. The server provided the best model for the protein. The model then will be used for the next step.

2.8 Structure validation

Structure validation is a process to evaluate reliability of 3D model that was built. It is important to validate the 3D model to give high confidence to the discussion and conclusion that will be inferred later. In this project, ProQ server was used to validate the 3D model. ProQ predicts the quality of protein model. It involves measurement and gives result in the form of LGscore and MaxSub. The range of value will contribute to correct, good and very good model.

2.9 Superimpose

After obtaining good value from structure validation method, the two protein structures from halal and non halal are need to be superimposed. The protein structures were superimposed by using DALI server. Superimpose technique was done to compare the two structures and visualize the similarity or difference of the two models. Hence, the difference part can be viewed from the superimposed image. It also gives percentage of identity between halal and non halal structure.

2.10 Structure analysis

The protein structures were analysed based on the results obtained from previous methods. The 3D structures were viewed by using Rasmol software. The details of the structure are identified such as number of chains, atoms, bonds, hydrogen bonds, helices and turns.

3. Results and Discussion

3.1 Multiple sequence alignment

Multiple sequence alignment was done after collecting gelatine sequences from NCBI database. ClustalX2 software was used for this purpose. The result is as below:

![Multiple alignment result obtained](image)
Figure 1 shows a part of multiple sequence alignment produced from ClustalX2. Regions with high similarity for all sequences can be identified. These regions are called conserved regions. It is called conserved regions when there are similar or identical protein sequences exist across the gelatine sequences. The conserved regions are regions that have same colour for all sequences. Based on the output of ClustalX2, it can be deduced that all gelatinase sequences have their own conserved region according to colour scheme that visualized through the output. The file of multiple sequence alignment must be saved because this file will be used for the next step. It is saved as .aln file.

3.2 Phylogenetic tree

Phylogenetic tree must be constructed to see the evolutionary relationships between all gelatinase sequences that come from different organisms. For this project, the evolutionary relationship between halal and non halal was developed. MEGA 7 software was used to construct the phylogenetic trees. The results are shown below:

Figure 2. Phylogenetics tree constructed based on Maximum Parsimony method

Figure 2 shows Maximum Parsimony (MP) tree that had been constructed using MEGA 7 software. It was constructed with bootstrap of 100 replicates. MP tree is a tree topology that requires the smallest number of changes to explain the observed differences. The position of non halal sequence which is wild boar should be observed. From the figure, wild boar is located at the middle of tree. It is located at the same clade with cattle and bovine. The bootstrap value for the clade is 79 which is a good bootstrap value.

Figure 3 shows Neighbor-Joining tree, also created by using MEGA 7 software. It was constructed with bootstrap of 100 replicates. Neighbor-Joining (NJ) tree is a tree topology that based on the distance between each pair of taxa. Non halal sequence is located at the middle of the tree. Similar to MP tree, wild boar is located at the same clade with cattle and bovine.

The bootstrap value for the clade is 75, which show a strong branching arrangement. Figure 4 shows pairwise alignment between cattle (halal) and wild boar (non halal) by using CLUSTAL OMEGA server. It gives 96.4% identity and 97.7% similarity. This statistics prove that halal and non halal sequences are not 100% identity because there are certain regions that have difference sequence of amino acids between those sequences. This difference will give effect to structure of protein model that would be constructed.

3.3 Pairwise alignment

Figure 4. Pairwise alignment of cattle (halal) and wild boar (non halal) sequence

3.4 Protein modelling

Swiss model server was used to predict the 3D protein structure for halal and non halal gelatinase from their DNA sequences. Halal model was visualized in Figure 5. The predicted protein structure is 96.35% identical to its template which was 1ck7.1. A protein gelatinase A. Figure 6 visualized the predicted
structure of non halal gelatinase from Swiss model server. It has 96.20% sequence identity to its template, 1gxd.1.A which is 72 KDA type IV collagenase. Based on Swiss model results, it can be seen that the template selected for halal model is from gelatinase but the template selected for non halal model is from collagenase type.

Table 1 shows structure and details of structure both halal and non halal models obtained from Rasmol software, a PDB file viewer software. The analysis showed both structures have difference number of groups, atoms, bonds, H-bonds and turns. The biggest difference is number of H-bonds. Halal model has six H-bonds more than non halal model. This means that halal protein model is more stable structure compared to non halal model. This is because hydrogen bond functioned to hold protein molecule together into a specific three-dimensional form that gives the protein its particular function.

3.5 Structure validation

Structure validation was done using ProQ server (Wallner & Elofson, 2003). It is an analysis tool that gives results based on LGscore and MaxSub. Based on the range of values, the quality of the model could be obtained. Halal protein model obtained from Swiss model result was validated and obtained LGscore of 4.977 as shown in Figure 7.

Hence it can be considered as extremely good model. For MaxSub it achieved value of 0.470 which is more than 0.1. Hence it is a fairly good model based on MaxSub. The predicted gelatinase protein model from non halal source obtained LGscore 5.120 which can be considered as extremely good model according to ProQ validation test. For MaxSub it has value of 0.483 which is a fairly good model based on MaxSub. Hence, both predicted structure models passed the validation test and were proceed for the superimpose analysis.

![Figure 5. The predicted protein structure of gelatinase from halal source](image)

Both models have high percentage of sequence identity and high region of coverage. Therefore, halal and non halal models constructed were the best models for this project.

![Figure 6. The predicted protein structure of gelatinase from non halal source](image)

<table>
<thead>
<tr>
<th>Model</th>
<th>Halal</th>
<th>Non Halal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of chains</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>No. of groups</td>
<td>630 (3)</td>
<td>631 (3)</td>
</tr>
<tr>
<td>No. of atoms</td>
<td>5 000 (3)</td>
<td>4 999 (3)</td>
</tr>
<tr>
<td>No. of bonds</td>
<td>5 161</td>
<td>5 159</td>
</tr>
<tr>
<td>No. of H- bonds</td>
<td>330</td>
<td>324</td>
</tr>
<tr>
<td>No. of helices</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>No. of turns</td>
<td>90</td>
<td>89</td>
</tr>
</tbody>
</table>
The production of gelatinase enzyme from Bacillus spp isolated from the sediment sample of Porto Novo Coastal sites.


**Figure 9.** Superimpose image from DALI server

Figure 9 shows superimpose of halal and non halal model by using DALI server. It gives 97% identity between the two structures. It means that halal and non halal structures are not fully identical to each other. There is 3% difference between halal and non halal structures. This difference is contributed by number of groups, atoms, bonds, hydrogen bonds and turns as mentioned in protein modelling part before. This little difference should be researched more at which part of structure does the difference occur and the function of the part of structure can be studied. Based on all results obtained, it can be observed that there is a slight difference between halal and non halal structure. The most obvious difference is the number of hydrogen bonds between the two structures. Halal structure has more hydrogen bonds than non halal structure. This proves that halal gelatinase structure is more stable than non halal gelatinase structure.

**4. Conclusion**

Based on the results of this study, it can be concluded that there is difference between halal and non halal structure of gelatinase. This was shown by overall multiple sequence alignment of all 24 gelatinase sequences. Phylogenetic trees which are MP and NJ tree show evolutionary relationship between all sequences from various organisms. From the trees, the position of non halal sequence and its clade which show the closest halal sequences could be identified. Based on the clade, two closest sequences were selected which are cattle (halal) and wild boar (non halal). Pairwise alignment between the two sequences shows 96.4% identity and 97.7% similarity, which show the difference between them. Protein modeling show the best model of those structures based on the closest template and superimposes of the structures gives 97% identity. Therefore, structural comparison between halal and non halal structures show that they have 3% difference, which suggests to a new research that will investigate which part of the structures does the difference occur and what the impact to the function of the structures.

**Acknowledgment**

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**References**


**Recent Developments in Tracing Non-Halal Substances in Foods**

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Spectroscopy  
Halal authenticity

**ABSTRACT**

In recent years muslim consumer’s awareness have been increased to know what is in the food they are eating in terms of halal status. Accordingly, halal food fiqh rules and guidelines require that source (provenance) of the food can be traced back to its origin to fulfill halal requirements. For all these reasons, the halal status and authentication of food labeling issues must be addressed, and therefore there is a need for accurate and reliable analytical methods to verify the origin of the food components which are compatible with the halal food requirements. Many different instrumental and molecular techniques have been studied for food origin analysis. Even though conventional methods are still being used, foodomics consisting of metabolomics, proteomics and genomics is emerging as a new approach to help complement existing techniques to verify the claims made about halal status of food products. Foodomics covers the application of omics tools (e.g., proteomics, genomics, metabolomics, transcriptomics, lipidomics, microbiomics) along with systems biology approaches in food science. This work focuses on updated overview of the applications, pros, cons, and challenges of methods studied for halal food authentication in terms of the foods compliance with halal food requirements and policies.

1. Introduction

The global Halal food market size is predicted to be US$1.6tn by 2018, up from US$1.1tn in 2013 and Halal food market is predicted to contribute up to 17.4% of the world food expenditure by 2018 [1]. According to the predictions, the Muslim population, currently estimated at 1.6bn, is expected to reach 2.2bn by 2030 [1] and this will result in significant increase in demand of Halal products. Due to the increasing demand for halal food and the increased globalization of trade, there is a higher risk that adulteration or misuse of the halal food fiqh rules and guidelines can occur throughout the food chain [2,3]. Haram or doubtful food additives or food ingredients such as pork meat substitution and the use of undeclared prohibited ingredients that are cheaper might be added to food products to counterfeit Halal components and it is difficult to notice physically [4–6]. Furthermore, due to processing several food products in the same facilities, unintentional cross-contamination may occur to ruin the Halal status of food products. Therefore, the halal status and authentication of food labeling claims must be guaranteed, and hence accurate and reliable analytical methods are needed in order to verify the origin of the food components which must be compatible with the Halal requirements. The halal requirements have been released by the official international standards body ‘Standards and Metrology Institute for the Islamic Countries (SMIIC)’, the affiliated institution to the Organization of Islamic Cooperation (OIC), as General Guidelines on Halal Food [7] with the reference of Codex Alimentarius Commission’s (CAC) General Guidelines for the use of the term “Halal” (CAC/GL 24-1997) [8] [2].

Most of the recent methods developed relied upon the detection of specific markers present or absent in the food sample. In addition, different techniques and methods have been studied and proposed to authenticate halal products and identify non-halal components in food materials, such as Fourier transform infra-red (FTIR) spectroscopy in combination with chemometric analysis [9], Raman microspectroscopy [10], thermal analysis profiles with crystallization parameters and the melting point of non-halal compounds using differential scanning calorimetry (DSC) [11,12], various polymerase Chain Reaction (PCR) assays [13–15], real-time PCR [16], multiplex PCR [17], sandwich ELISA [18], electronic nose [5, 19], GC-MS [20], GC-TOF MS [21], LC-MS [22], measuring dielectric properties [23], colorimetric methods [24], immuno strip test [25], electrochemical detection of alcohol [26] as well as immunochemical [27] and electrophoretic [28] methods. However, these methods might be limited to verify the non-Halal items which are...
not physical, chemical, or biological in nature like dead or improperly slaughtered animal which do not comply with halal requirements [3,29].

In this review the aim is to give comprehensive and updated overview of the current and potential applications of non-Halal component detection techniques (current utilization and limitation of the existing techniques) which can be used to assess halal status of food products as well as their limitations. Furthermore, the approaches, technologies, methodologies, commercial kits and tools used in analysis are reviewed and these are then followed by potential specific applications along with future perspectives are highlighted.

2. Methods Used For Tracing Non-Halal Substances

Numerous food authentication and identification methods have been proposed and developed including lipid-based, protein-based and DNA-based method including spectroscopic analysis, chromatographic analysis, immunological assays, DNA Profiling and DNA barcoding [30]. Gas chromatography (GC) and liquid chromatography (LC) are strong candidates to separate and identify different components, and they have been used to detect non-Halal substances in foods. Spectroscopic methods including infra-red (IR) and Raman in conjunction with chemometric analysis are useful techniques to determine the origin of non-Halal substances by determining molecular fingerprint [31]. Lubis et al. (2016) reviewed the analytical techniques to be used in analysing proteins from non-Halal origin. Specific immunological assays, i.e. enzyme linked immunological assay (ELISA), have been used to detect species-specific and heat-stable proteins. However, specific antibody is needed for the detection. Alternatively, mitochondrial genes are proven to be more appropriate in differentiating species in food matrix [30]. This review highlights some methods reported in recent years, which have great potential for their future development as non-Halal tracing tools in order to determine the Halal status of food products [4]

2.1 Analytical methods

Spectroscopy (NIR, FIR, FTIR, Raman) deals with the interaction between electromagnetic radiation in infrared region with molecules [31]. The molecular properties analysed based on vibrations at molecular level, linked to the chemical bonds in the sample, is noticeably selective [31]. These methods are rapid, sensitive, simple in operation, nondestructive, no toxic solvent involved and noninvasive which gives useful data related to the molecular composition, interactions and structure within a sample. Peak and shoulder absorption in the spectrum provide information about the presence of certain functional groups. The spectra obtained using spectroscopic methods need to be interpreted with chemometrics procedure which allows multidimensional calibration [4,32]. FTIR spectroscopy along with multivariate calibration has been studied to detect the presence of lard in selected food samples. FTIR spectroscopy is reported as an ideal technique for classification of gelatin sources [31]. The main drawback is that the calibration model must be redeveloped because the spectra of pig derivatives varies if the composition of the sample to be analyzed is different.

Liquid chromatography (LC) or gas chromatography (GC) were also used to determine proteins in food products. In these methods, separation of the fractions takes place into its separate components as a result of interaction between a liquid or gas mobile phase. For successful species identification, comparison of published protein profiles should be made [33]. Chromatography can be combined with mass spectrometry (MS). MS can separate proteins due to their molecular weight and amino acid sequence. MS gives robust and reliable results and can be used to analyse highly processed meat samples because primary structures of peptides are relatively resistant to harsh conditions [4].

For the detection of the presence of pork in meat samples, Nurjuliana et al. (2011) [5] employed an electric nose based on surface acoustic wave sensor. They report that the device analyses specific chemical profile of an odour. GC-MS coupled with a headspace analyser was also studied to identify the components contributing to the pork flavour [4].

2.2 Omics approach

Oomics techniques have a great potential to be applied for detection and identification of targeted substances in foods [34]. Foodomics can be defined as the application of systems biology approaches in food science by using and integrating a variety of omics tools (e.g., proteomics, genomics, metabolomics, transcriptomics, lipidomics, microbiomics) [35–37]. Foodomics approach has been used and different techniques has been developed recently to discover biomarkers, to understand the complex structure of food matrix and to analyse authentication [38]. Identification of novel heat stable peptides to evaluate meat authenticity in highly processed foods has been an emerging approach. Nanoflow liquid chromatography mass spectrometry (nLC–MS/MS) was used to produce a database of markers for different animal species to detect fraud or unwanted species in food products as low as 0.5% (w/w) [39]. Using peptidomics to determine the authenticity of meat products has been discussed by Montowska (2017) [40] in detail. It has been stated that peptidomics has great potential to be implemented in the authentication of highly processed foodstuffs. Matrix-assisted laser desorption/ionisation mass spectrometry (MALDI-MS) methods have been used for the combined peptidomic and proteomic profiling of raw and thermally treated milk samples to detect fraud [41]. High-performance liquid chromatography–mass spectrometry (HPLC–MS) along with multiple reaction monitoring (MRM) method was employed to analyse tryptic digests of protein extracts to detect meat authenticity allowing for the detection of 0.13% pork in beef [22]. Fourier transform infrared (FT-IR) metabolomic/lipidomic finger-printing methodology has been successfully utilized to identify food authenticity using lipidomics and metabolomics approaches [34]. Nuclear magnetic resonance (NMR) spectroscopy has also been used for the determination of origin [42] as well as gas chromatography–mass spectrometry (GC–MS) based multimarker profiling method has been used to elucidate significant metabolites as markers to determine authenticity [43]. Two-tier LC–MS-based metabolic profiling [44], LC-ESI-MS/MS [45], MALDI–TOF MS [46,47], GC-TOF-MS [21] and high resolution magic angle spinning nuclear magnetic resonance (HR-MAS-NMR) spectroscopy were
some other methods studied to determine the metabolomic profile [48]. Some of the methods studied to evaluate authenticity and to detect non-halal substances are presented in Table 1. Comparison of different metabolomics technologies has been discussed by Wishart (2008) [49] and Cevallos-Cevallos et al. (2009) [50] and some new instrumental methods for foodomics analyses have been given and discussed in detail by Alejandro (2013) [38].

2.2.1 Protein and DNA-based methods

Protein-based and DNA-based methods have been extensively used for species detection and identification in food material [4,51]. Enzyme-linked immunosorbent assay (ELISA) has been used to recognize specific protein fractions by using antibodies and aptamers and isoelectric focusing (IEF) have been employed to separate protein fractions. Additionally, electrophoresis and chromatography techniques have also been utilised to separate and identify proteins. Other methods such as mass spectrometry and Fourier transform infrared spectroscopy (FTIR) are also useful techniques to analyse protein fractions by using DNA profiling or fingerprinting. Further, electronic nose coupled with gas chromatography mass spectrometry-headspace (GCMS-HS), use of PCA, sandwich ELISA, Enzyme immunoassay (ELISA/immunosensor) with chemometrics, Tristimulus colorimetry and derivative UV–Vis spectrometry, Raman with chemometrics analysis, PCR, SDS-PAGE, western blotting, LC-ESI-MS/MS, nanoLC-MS/MS, DSC, GC, HPLC, nano-LC-Q-TOF-MS/MS are also useful techniques to analyse protein fractions by using DNA profiling or fingerprinting methodology. DNA barcoding is a useful technique to identify the identification of specific biological specimens (i.e. porcine DNA) to authenticate the highly processed halal food products [3]. Protein- or DNA-based methods have been proposed for the field of meat authentication, specifically identification of pork species in meat and/or processed meat products. Protein-based methods have some limitations in analysing cooked, baked or heat-treated food products since the protein structure is denatured by heat and cooking process [4]. Different techniques/assays have been developed based on DNA analyses such as species-specific polymerase chain reaction (PCR), real-time or quantitative PCR (qPCR), and polymerase chain reaction extension fragment length polymorphism (PCR-RFLP). DNA-based methods were reported as more effective comparing to protein-based approaches when applied to the analysis of heavily processed foods, because proteins are easily denatured by heat, salt, and pressure [3,16]. Despite the success level of protein- and DNA-based methods, the methods developed are not only complicated and time-consuming, but also need technical specialists and expensive instruments. Different applications as well as pros and cons of these techniques have been discussed in detail previously [3,4,23,52].

2.3 Nanotechnology-nanobiotechnology

Nanobiotechnology is basically an application of nanotechnology in life sciences [4]. It has been used to study the interactions between biomolecules to establish bioanalytical testing methods to be used in detecting non-halal substances in foods such as small biosensor chips in identifying the presence of porcine or alcohol in minute. Therefore the potential of nanotechnology with regards to rapid detection of non-halal materials is pertinent [4]. Lateral flow strips, lab-on-a-chip system and microfluidic analysis system have been emerging to produce cost-effective and portable testing devices to analyse the food samples on site quickly. The improvements in this field would lead to expand the accessibility and practicality of halal analysis to direct consumers [4].

Table 1. Some of the methods used to evaluate authenticity and to detect non-halal substances.

<table>
<thead>
<tr>
<th>Methods</th>
<th>Sample-analyte</th>
<th>Detection limit</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric constant and dielectric loss factor was measured over the Frequency range of 0.5 to 50 G, rapid on-site detection approach</td>
<td>Meat authentication</td>
<td>Two distinct peaks were observed only for both raw and sterilized pork samples at the frequency around 7.43 and 31.19 GHz.</td>
<td>[23]</td>
</tr>
<tr>
<td>PCR</td>
<td>Meat authentication</td>
<td>&gt;0.1% of raw pork</td>
<td>[14,53–55]</td>
</tr>
<tr>
<td>Real-time PCR assays</td>
<td>Meat authentication</td>
<td>detection limit from 0.01% down to 0.001% (w/w)</td>
<td>[16,56]</td>
</tr>
<tr>
<td>Multiplex PCR, -RFLP (mPCR-RFLP: reaction-restriction fragment polymorphism)</td>
<td>Meat authentication, gelatine</td>
<td>0.01–0.02 ng; &gt;0.1% adulteration</td>
<td>[13,57–60]</td>
</tr>
<tr>
<td>RAPD: Random amplified polymorphic DNA-PCR</td>
<td>Meat authentication</td>
<td>-</td>
<td>[61]</td>
</tr>
<tr>
<td>Nested PCR</td>
<td>Meat authentication</td>
<td>-</td>
<td>[62]</td>
</tr>
<tr>
<td>Tetraplex PCR</td>
<td>Protein identification using specific primers</td>
<td>&gt;0.01%</td>
<td>[15]</td>
</tr>
<tr>
<td>DNA based colorimetric method using gold nanoparticles</td>
<td>Meat authentication</td>
<td>0.25 to 1.16 mg/kg</td>
<td>[30]</td>
</tr>
<tr>
<td>Fourier transform infrared (FTIR)</td>
<td>Biomarker identification</td>
<td></td>
<td>[21,63]</td>
</tr>
<tr>
<td>Electronic nose coupled with gas chromatography mass spectrometry-headspace (GCMS-HS), use of PCA</td>
<td>Meat authentication</td>
<td>Pork meat was differentiated by flavour profile analysis</td>
<td>[5]</td>
</tr>
<tr>
<td>Sandwich ELISA</td>
<td>Non-Halal Plasma</td>
<td>Transglutaminase</td>
<td>-</td>
</tr>
<tr>
<td>Enzyme immunoassay (ELISA/immunosensor)</td>
<td>Meat authentication</td>
<td>0.01% of pork adulteration within 20 min</td>
<td>[52]</td>
</tr>
<tr>
<td>FTIR with chemometrics</td>
<td>Carminic acid (CA)</td>
<td>&gt;10.0% CA without any sample</td>
<td>[64]</td>
</tr>
<tr>
<td>Tristimulus colorimetry and derivative UV–Vis spectrometry</td>
<td>Carminic acid (CA)</td>
<td>&gt;2.0% (w/w).</td>
<td>[64]</td>
</tr>
<tr>
<td>RP-HPLC-DAD</td>
<td>Carminic acid (CA)</td>
<td>&gt;0.2%, (w/w)</td>
<td>[64]</td>
</tr>
<tr>
<td>GC-MS</td>
<td>Alcohols</td>
<td>From 0.25 to 1.16 mg/kg</td>
<td>[65]</td>
</tr>
<tr>
<td>Immuno strip test (using gold nanoparticles)</td>
<td>Meat authentication</td>
<td>0.1% (w/w)</td>
<td>[25]</td>
</tr>
<tr>
<td>LC-MS</td>
<td>Meat authentication, SS gelatin detection</td>
<td>&gt;0.13%</td>
<td>[22,66]</td>
</tr>
<tr>
<td>Raman with chemometrics analysis</td>
<td>L-Cysteine</td>
<td>&gt;0.125% (w/w)</td>
<td>[10]</td>
</tr>
<tr>
<td>PCR, SDS-PAGE, western blotting, LC-ESI-MS/MS</td>
<td>Porcine Pancreatic α-amylase</td>
<td>-</td>
<td>[45]</td>
</tr>
<tr>
<td>nanoLC-MS/MS</td>
<td>Milk replacer proteins</td>
<td>-</td>
<td>[67]</td>
</tr>
<tr>
<td>DSC, GC, HPLC</td>
<td>Lard detection</td>
<td>-</td>
<td>[68]</td>
</tr>
<tr>
<td>nano-LC-Q-TOF-MS/MS</td>
<td>Proteins of non-meat origin</td>
<td>-</td>
<td>[69]</td>
</tr>
</tbody>
</table>
While sequencing the whole genome of an organism (the genome, transcriptome, or epigenome) allows specific species identification, the assays are expensive and requires the use of highly trained personnel working in a specialised laboratory facility, rendering it not currently ideal for routine halal analysis [4].

3. Future Perspectives And Recommendations

The current halal testing methods have some drawbacks such as the high cost of the equipment, the need for specialized technicians, and the duration of analysis. Researchers working in food technology, food chemistry, biochemistry, analytical chemistry, microbiology, molecular biology, bioinformatics and clinical sciences should work together for future development of foodomics which can be used to produce cost-effective, robust, versatile, easy-to-use and rapid halal testing methods with simplicity of sample preparation, cheap, easy and high productivity of serial testing. ELISA techniques may be strong candidates to be reliable rapid techniques, highly sensitive and specific for screening substances from non-halal sources (i.e. enzymes). Development a robust and reliable analytical strategy to detect the possible undeclared presence of foreign enzymes in foods is needed.

Protemoics and PCR methods are used to analyse species authentication. However, the detection of trace amounts of specific species in processed food is still challenging. The DNA barcoding technology might be promising tool to evaluate halal animal and meat products. However these methods have disadvantages for routine analysis because they are relatively costly, time consuming, laboriously demanding and complex to perform. Therefore, there is a need for cost effective and a practical assay methods which are user friendly, robust and easy to perform. In particular, they could be applied in the field like at home setting, restaurant, supermarket etc.

Some commercial halal test kits have been developed providing an analysis time of between 5 and 10 min. Rapid and reliable techniques should be developed in order to improve analysis efficiency to overcome the time constrains in halal verification. Since the combination of FTIR/Raman spectroscopy and chemometrics (i.e. principle component analysis) produces results in just minutes per sample, more researh work need to be done to identify molecular fingerprint of non-halal substances in food matrices. Portable detection system which uses a smartphone by connecting the smartphone to a sensor or biosensor could also be developed for consumers’ use.

4. Conclusion

In this work, different methods and approaches studied in halal analysis in food samples have been briefly presented. There is a need for improvement in current trusted technologies in halal certification analysis to accomplish reliability, cost-effectiveness, sensitivity, specificity and faster processing time. The technological improvements within the past decade have witnessed the development of several novel methods with great potentials in detecting non-halal substances in food products. However, there is still a great demand in portable, easy-to-use, low-cost and reliable methods to be used in halal testing to ensure the conformity to halal requirements.

The omics approaches discussed in this paper and their potential use hold a great deal of promise for the detection of non-halal components. Using an integrated omics approach together with future technological and computational advances would lead to valuable new insights and applications.

References

Dr. Ertan Ermiş received his Ph.D. in Food Powders (Biopowders) Engineering from the University of Greenwich as part of a EU funded Project. After completion of his degree he was appointed as a Faculty Teaching Member in the Department of Food Engineering at Istanbul Sabahattin Zaim University (IZU). Dr. Ermiş served at different departments at different levels. He has attended to various scientific events and exchange activities within Europe. His interests are focused on food microbiology, microbial metabolites, and food powders characterization. In particular his current research activities focused on understanding the production of cysteine from microorganisms to conform Halal requirements. Dr. Ermiş is a consultant for some food companies in Istanbul area.
A Molecular Biologist’s View on Halal Food Authenticity

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ABSTRACT

As food production and supply has become complex and industrialized, assuring halal authenticity in the modern world has become a very challenging issue. Are Muslim communities prepared for this? This is an overview and opinion paper about the current state of halal product authenticity testing by molecular biology tools with a special emphasis on meat products. In this context, assurance of halal authenticity in the modern world is also discussed. Author suggests that besides to detection of alcohol or DNA testing for species identification, other factors such as use of pesticides, antibiotics, endocrine disrupting chemicals have to be taken into the spectrum for halal authenticity testing. Moreover, publicly available, standardized protocols for authenticity testing have to be developed with the guidance of comparative data. In line with these, identification, prioritization and public funding of the research problems addressing these issues are required in order to stimulate scientific research in these directions which will eventually guide public policy and implementation bodies.

1. Introduction

Food fraud, in the form of ingredient substitution and mislabeling has been observed globally. Regarding this, fruit juice authenticity, fish species misdescription, the declared origin of meat, origin and quality of spices, authenticity of Halal and Kosher food products and many others are common (Dennis and Kelly, 2013[1]). The fraud in food sectors requires the evaluation or validation of food safety and authenticity. Thus, Food and Drug Administration (FDA) in the USA or European Food Safety Authority (EFSA) or Food Standards Agency (FSA) in the UK besides to many other national and international organizations suggest standardized protocols for the identification and certification of raw or processed food. According to regulations of European Parliament No 1169/2011, food labeling is one of the essential characteristics to ensure that consumers are not misled (article 7):

(a) as to the characteristics of the food and, in particular, as to its nature, identity, properties, composition, quantity, durability, country of origin or place of provenance, method of manufacture or production; (article 7/1-a).

In addition to food labeling legislation, food ingredients, food quality, composition of food require specific methodologies to validate food safety and quality. Thus, the food authenticity is central theme to be addressed by respective authorities. For example, FDA ensures the food safety and authentication by standardized “Measurement and Analysis Using Current Laboratory Methods” [2], in order to check the values that appear on the “Nutrition Facts Label and Supplement Facts Label” and “to ensure that food packaging is made of materials that are understood to be safe; to test for potentially harmful levels of chemicals in foods; test for the presence of food-borne pathogens or unintended allergens in a food or food processing environment; to evaluate the effectiveness of preventive controls designed to ensure food safety; and to provide other information that can be used to help ensure the public health”.

Apart from those described above, The Codex Alimentarius commission of the UN Food and Agriculture Organization (FAO) describes the approved test methods. Moreover, The British Standards Institution (BSI) describes standardized protocols for authenticity testing besides to Standard Operating Procedures (SOP), which have been developed by FSA and Department for Environment, Food and Rural Affairs (DEFRA) Food Authenticity projects. These efforts continuously increase due to the scandals of food fraud. For example, the horse meat fraud in Europe has triggered the effort of standardization of testing and validation of meat authenticity: In the beginning of 2013, Irish food inspectors announced the incidence that horse meat found in the frozen beef burgers made by companies in the Irish Republic and the UK. These products were
sold by well known supermarket chains such as Tesco, Aldi and Lidl across the Europe. This in turn caused the Findus, Nestle and many other related companies in the meat supply chain to withdraw their beef ready meals as their products have been spotted to contain horse DNA. Soon after it became clear that the food industry’s supply chains across Europe is of huge complexity revealing the high risk of food fraud. For example, according to BBC news dated 10 April 2013, “In France, where seven supermarket chains have withdrawn all frozen beef meals made by Findus and Comigel, an initial investigation has found that horsemeat sold as beef originated from Romanian slaughterhouses before being sold to a Dutch food trader, then on to a Cypriot trader and on again to a French firm. In Nestlé’s case, the Swiss-based firm has halted deliveries of products containing meat from a German supplier. Meanwhile, Silvercrest Foods in Ireland and Dalepak in the UK - suppliers of beef burgers to UK supermarkets and caterers - both said they had never bought or traded in horse product and have launched an investigation into their continental European third-party suppliers” [3]. A complete inspection and analysis of this scandal showed that 23 out of 27 samples of beef burgers also contained DNA of porcine (Food Safety Authority of Ireland. 22 January 2013, [4]). Although porcine DNA found in these samples were very little, it still raises a serious issue for religious communities such as Muslims and Jews. Consumption of pork and its products is prohibited in Islam (Quran [5:3]). Thus, halal authenticity of meat products is particularly sensitive for Muslims. On the other hand studies to test the halal authentication of food, cosmetics, and pharmaceuticals are very limited. For example, different methods of identification of species in raw or processed meat products are increasingly accumulating in the literature ([11, 12, 13 14, 15, 16, 17, 18, 19, 20]). However, more studies for replication, comparison and metaanalysis are required. The utility of emerging and integrated methods for food authenticity such as “Foodomics” [21], DNA barcoding [22], has to be investigated in detail. In addition, the publicly available and continuously updated guidelines for standardized specific protocols for testing halal authenticity are missing. Database of food products brands that provide the systematic information for halal authenticity are required. For example, biological and chemical data for a given food sample should be available for comparison.

2. The matter of standardization

The current analysis of detecting meat species in food is based on protein or DNA analysis. Especially increasing technologies of DNA analysis have led to the identification of several methods including hybridization, polymerase chain reaction (PCR) followed by agarose gel electrophoresis or sequencing. Genomic loci in the nuclear or mitochondrial DNAs have been suggested for species identification. Addressing these, studies testing the halal authenticity of meat products accumulate in the literature [5, 6, 7, 8, 9]. Which technique is the most sensitive and reliable is questionable.

Halal Products Research Institute based in Malaysia provided a list of the “recognized foreign halal certification bodies and authorities” [10]. This list includes 66 bodies located in 42 countries. The questions are: “are they reliable”? “Are the certification methodologies standardized”? “Are there any agreements on the choice of specific scientific approach among the existing ones, i.e., nuclear DNA or mitochondrial DNA”? “Are there agreements on the expression units, i.e., w/w%”. These questions should be addressed in multiple domains and in multiple dimensions (Figure 1) such as policy making, administration, research... Herewith, I will focus on the “research” domain.

Research related agenda of the international halal food authenticity require at least the followings: Identification and prioritization of the research problems related to halal authenticity and subsequent calls for scientific project proposals to address the selected research problems. Regarding this, a brief literature search within the scope of this short paper already reveals the need of replications studies, the need of comparative studies, and the need of studies for novel tests such as Point-of-care testing (POCT). For example, different methods of identification of species in raw or processed meat products are increasingly accumulating in the literature ([11, 12, 13 14, 15, 16, 17, 18, 19, 20]). However, more studies for replication, comparison and metaanalysis are required. The utility of emerging and integrated methods for food authenticity such as “Foodomics” [21], DNA barcoding [22], has to be investigated in detail. In addition, the publicly available and continuously updated guidelines for standardized specific protocols for testing halal authenticity are missing. Database of food products brands that provide the systematic information for halal authenticity are required. For example, biological and chemical data for a given food sample should be available for comparison.

![Figure 1. A brief description of the units involved in the development, application and coordination of a sustainable action plan for the international assurance of halal authenticity.](image)

3. What is “lawful and good”?: The matter of scope

In the 68th verse of chapter 2 of Quran the importance of food with good quality is mentioned: “O mankind, Eat of what is on earth, Lawful and good; and do not follow the footsteps of the evil one, for he is to you an avowed enemy.” The term “lawful and good” and its assurance in today’s modern world may not be an easy task. One example is pesticide residue in food.
Pesticides are chemical agents used to protect crops against insects and other pests. Pesticides are well known for its toxicity to humans. According to World Health Organization (WHO) “Some of the older, cheaper pesticides can remain for years in soil and water. These chemicals have been banned from agricultural use in developed countries, but they are still used in many developing countries.”[23]. Another concern is the residues of hormones and antimicrobials in meat from animals treated with sex steroid hormones and/or antibiotics for growth promotion [24, 25]. Yet another problem is the exposure to the “endocrine disrupting chemicals (EDCs)” [26, 27], which are found in the foods canned or packaged by plastics made up of Bisphenol A (BPA) as well as other plastics such as phthalates. Thus, assuring halal authenticity in the modern world has become a very challenging issue. Are Muslim communities prepared for these issues? Let me take the services of Halal Products Research Institute in Malaysia as an example. Their services³ were listed as “determination of porcine DNA or alcohol”. Are the halal authentication tests restricted to porcine DNA and alcohol determination, only? Regarding this, European Union initiated the establishment of “scientific criteria for the determination of endocrine-disrupting properties” (Regulation (EU) No 528/2012 of the European Parliament and Council). These “endocrine-disrupting properties” are found in plastics such as phthalates or pesticides such as atrazine (which is banned in the EU but not in the USA) found in the food as residues appear as risk for human health [26, 27, 28, 29, 30]. Thus these issue have to be carefully considered in the context of halal.

4. Conclusion

In conclusion, food that can cause harm is forbidden in Islam and thus halal authenticity testing should widen its angles to screen for anything that could risk human health. This is especially critical in today’s world where food production and supply have become complex and industrialized. In this context the current spectrum of the halal authenticity testing should be questioned. Besides to detection of alcohol or DNA testing for species identification in meat products for example, other factors such as use of pesticides, antibiotics, endocrine disrupting chemicals (EDCs) have to be taken into account. Moreover, publicly available, standardized protocols for authenticity testing have to be developed. But this can only be achieved with the guidance of comparative data., which are missing in the scientific literature. In line with these, identification, prioritization and public funding of the research problems addressing these issues are required in order to stimulate scientific research in these directions.

References


Professor Ayla Arslan was born in Istanbul, Turkey in 1974. She studied biological sciences at the Middle East Technical University, Ankara, Turkey and graduated with MS degree in Biotechnology from the same university in 2001. Later, in 2002, she was awarded by the scholarship of German Research Foundation, DFG (Deutsche Forschungsgemeinschaft) to pursue her doctorate at Ruprecht-Karls-Universitaet Heidelberg (Heidelberg University) in Germany. Upon completion of her doctorate in the field of molecular neuroscience she was awarded a Dr. rer. nat. (Ph.D) in 2006 from Heidelberg University. Following this, she had several academic/research positions including the visiting postdoctoral position at the laboratory of Prof. Dr. David McCormick at Yale University School of Medicine, USA. Currently, Dr. Ayla Arslan is Associate Professor at International University of Sarajevo, Sarajevo, Bosnia and Herzegovina. Research interests of Dr. Arslan include imaging genetics for neuropsychiatric disorders besides to trafficking and localization of neurotransmitter receptors. She has numerous publications in reputable refereed journals, books or book chapters related to these fields of expertise.
Modification of The DNA Extraction from Ghee and Identification of Beef DNA Using Polymerase Chain Reaction (PCR) Assay

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ABSTRACT

A technique to isolate DNA from ghee was developed for the authentication of beef fat product. Beef genomic DNA was successfully extracted from ghee and the method was based on pre-mixed ghee with phosphate buffer solution (PBS) prior to DNA extraction using Epicentre extraction method. The recovery of beef DNA was then analysed by polymerase chain reaction (PCR) using beef species-species oligonucleotide primers which targeted the mitochondria DNA (mtDNA) of cytochrome b (cyt b) gene. The amplicon was 274 bp in size. The developed ghee extraction method offers a high yield of DNA providing 100 ng per μl and useful for validating beef fat product. Thus, this paper reported the recovery of beef genomic DNA from ghee which was useful in validating animal-based source in fat product.

1. Introduction

The DNA-based approaches of polymerase chain reaction (PCR) techniques are well known as a specific, reproducible, sensitive, rapid processing time and low costs. However, the successful of this approach is limited by the presence of inhibitors in food matrix. The recovery of good quality DNA is vital in the PCR process. Without DNA or poor quality of DNA, the oligonucleotide primers are not able to amplify the targeted gene in the PCR assay.

The mtDNA is commonly used for species identification in food analysis (Meyer et al., 1994; Matsunaga et al., 1999; Che Man et al., 2007; Sahilah et al., 2011) especially cytochrome b (cyt b) gene. High copy number of mtDNA is found in the cells, it remain intact during food processing thereby minimizing DNA degradation and does not contain any introns (Unseld et al., 1995). The inhibitors in food can be in the form of polysaccharides, protein, humic acids and others. Some of the inhibitors are difficult to remove during DNA extraction process and remain until the final DNA preparations (Di Pinto et al., 2007). Thus, DNA purity and reliability from DNA extraction technique is very crucial to yield as much DNA as possible from the sample which the technique must be improved in recovery of nucleic acid and removing inhibitors prior PCR analysis.

There are many commercial DNA kits available for DNA extraction and Epicentre extraction kit is chosen due to its DNA purity and eliminating the inhibitor presence in food samples. This kit includes rapid desalting process to remove contaminating macromolecules and avoiding toxic organic solvents (Miller et al., 1988; Shimizu and Burns, 1995).

2. Materials and Methods

2.1 Sampling

Ghee (1) and palm oil samples (3 brands) were purchased from supermarket in the area of Selangor in December 2012. The DNA samples were extracted from each sample in triplicates.

2.2 DNA extraction

Ghee fat was melted and 30 ml of ghee oil was added with 30 ml of phosphate buffer solution (PBS) (Sigma) (pH 7.0, 0.1 M). The mixture solution was centrifuged at 13,000 rpm for 20 min and the upper layer was discarded. The upper layer was centrifuged at the same speed for 20 min and pellet was formed. Repeat this step if necessary and pellet were transferred into 1.5 ml centrifuge tube and incubated overnight at 65°C. Similar treatment was also conducted on palm oil samples. The genomic DNA was then extracted using the Epicentre MasterPureTM DNA purification kit. The volume of proteinase K and RNase A were increased if necessary. The genomic DNA was analyzed by electrophoresis in a 1.5% (w/v) agarose 1X TBE (0.1 M Tris, 0.1 M boric acid, 0.2 mM EDTA) at 120 V for 60 minutes. Gels were stained with ethidium bromide. The amplicons were visualized with UV transilluminator (Alpha Imager TM2200). The 1 kb (Promega) was used as a DNA size marker.

2.3 PCR amplification

The extracted DNA was then subjected to PCR amplification. Amplification of genomic DNA was performed using the SIMB primers which targeted mtDNA of cyt b of beef species (Matsunaga et al., 1999). The assay was performed in a 25 μl containing 1 μl of 100 ng DNA, 12.5 ul of the universal PCR mastermix (Promega), 8.5 μl of sterile distilled water and 1 μl pM each of the forward and reverse primers (Helix Biotech). Amplification was performed in Thermal-cycler (BioRad) with a temperature program consisting of the initial denaturation at 95°C for 2 minutes followed by 35 cycles of denaturation at 95°C for 30 seconds and annealing at 55°C for 30 seconds and extension at 72°C for 40 seconds. The amplicons were analyzed by electrophoresis in a 1.5% (w/v) agarose 1X TBE (0.1 M Tris, 0.1 M boric acid, 0.2 mM EDTA) at 120 V for 60 minutes. Gels were stained with ethidium bromide. The amplified fragments...
were visualized with UV transilluminator (Alpha Imager TM2200). The 100 bp and 1 Kb DNA ladder (Promega) was used as a DNA size marker.

## 2.4 Result and Discussion

DNA is crucial in any polymerase chain reaction (PCR) analysis. Without DNA, PCR process lacks of results. The DNA quality is important prior PCR analysis. In the present study, using the above method the beef DNA was successfully extracted from ghee oil. As shown in Figure 1, the DNA showed very sharp band on 1.5% (w/v) agarose gel which explained the quality of extracted DNA was good. High volume of ghee oil was used due to its greater chances in extracting as much as possible of DNA from this fat product. The overnight incubation time at 65°C helped increase the recovery of DNA molecules using Epicentre Kit with final product of 100 ng of DNA per µl. Cooking oil of palm olein samples were also extracted using the above methods but no band was shown (Figure 1). The DNA extracted from ghee is possible since it also reported by other workers where they were successful in extracting olive DNA from oil (Fernando de la et al., 2004).

### Figure 1. Genomic DNA extracted from ghee oil. Lane M: 1 kb ladder; Lane 1-6: Beef DNA; Lane 7-9: palm oil (Brand A, B and C) and Lane 10: Negative control (palm olein).

The existence of beef DNA in ghee was confirmed by PCR analysis, the PCR mixed was amplified using SIMB oligonucleotide primers. The PCR analysis was also conducted for palm olein extracted sample to ensure there was no trace of beef DNA in the products. All ghee samples were positive with beef DNA, indicated a single band with a molecular weight of 274 bp. While, none for palm olein samples using the above method. Our finding confirmed that the DNA extracted from ghee was a beef DNA using the oligonucleotide primers as described by Matsunaga et al. (1999).

### Figure 2. Amplicon of beef DNA isolated from ghee product. Lane M: 100 bp ladder; Lane 1: No DNA was added; Lane 2: negative control; Lane 3-5: palm oil brand A; Lane 6-8: palm olein brand B; Lane 9-12: ghee oil; Lane 13-15: palm olein brand C; Lane 16: positive control (Beef DNA)

### 3. Conclusion

In conclusion, we have demonstrated the pre-mixed of ghee with PBS and extracted beef DNA using Epicentre kit is useful for validating the animal-based fat from beef source.

### References


Dr. Nooratiny Binti Ishak received a PhD in Science from University Sains Malaysia. She possess 13 years of working experiences includes in molecular biology R&D, government procurement, asset procurement and ISO documentation. She had been appointed as Technical Trainee Auditor in conducting molecular biology testing to meet ISO 17025 requirement.

She was the team leader of establishing method development for molecular biological testing for halal authenticity and meat speciation ID. She had successfully managed trained officer from government and private agency in molecular biological testing and procurement.

She had been involved in analytical molecular biologist, quality control, analytical equipment procurement. Analysis and interpretation of molecular data for laboratories, evaluation of the design and quality of analytical methods to meet the requirements for ISO 17025 and ISO 9001, assessment of equipment tendering and coordination of equipment delivery, installation and commissioning. She had been experienced in design and development of methodology for the molecular technique and analysis of molecular data. She engaged with Department of Standard, Malaysia to developed Malaysian Standard in developing test method for molecular Biological Testing. She had an excellent understanding and practical knowledge of a wide range of analytical methods and extensive experience working with methods from ISO, AOAC, and BAM.
Part VI

Halal Supply Chain, Feed for Halal Animals
and Leather Products
Sharia Principles for Modern Tanning Practices and Halal Leather Industry

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ABSTRACT

The term Halal is emerging and spreading day by day. Today it is not as simple as it was few decades ago. It started its journey from pork eating and wine drinking to slaughtering, coming through edible food products to pharmaceutical industry and passing through Halal tourism departments to Halal cosmetic industry. It seems that the future market would be a place for the term Halal only.

In this paper we will discuss one aspect of this vast industry. After the introduction of tanneries and leather industry, we will elaborate sharia principles for modern tanning processes being practiced in the modern tanneries and then will come up with sharia principles for different aspects of Halal leather industry. At the end some feasible recommendations would be given to Islamic countries for the availability of Halal and pure leather.

Introduction to Halal leather industry

Allah the Almighty created the human being to worship him and the rest of the universe for human to serve him. Allah says:

وَخَلَقَكُمْ لِتَعْبُرُوا بِهِ وَتَعْبِرُوا بِهِ لِتَدْفِنُوا عِنْدَ رَبِّكُمْ جَنَّاتٍ جَمِيعًا (1)

Allah is the one who created for you all what is present in the land.

The universe consists of different sorts of creatures but the human is given the rank of Ashraf ul Makhlookat (the most honored ones among the creatures). Due to the rationalism and logics conferred to him, he utilizes all the other living and non-living things to get benefit from them. Among these various creatures are the animals. Man uses various terrestrial and aquatic living things to get benefit from them. 

And Allah created the animals for you, as a protection from cold and some other benefits and from them you eat. Being Muslims we are not free to utilize animals at our own wills. We are bound to use their skins and flesh according to divine principle. 

According to scientific concept, hide or skin is a thin layer of flesh. According to this scientific concept, in Islam the hide of Halal animal is permitted to be used for intake like eating based on their flesh. That is why the skins of halal animals and birds like cow, goat, sheep, camel, hen, pigeon etc. are allowed to be eaten if they are slaughtered according to the Islamic way of slaughtering.

Allah The Most High says: “For he allows them as lawful what is pure and makes unlawful for them filthy things”

According to sharia principles except the below seven filthy organs of a Halal animal the rest is halal wholly. The seven things are as follows:

1) Flowing Blood

Allah says:

'Say, I do not find, in what has been revealed to me anything [out of the cattle under discussion] prohibited for anyone who eats it, unless it be carrion, or blood that pours forth, or flesh of swine ‘because it is impure “or there be an animal slaughtered sinfully by invoking on it the name of someone other than Allah’

2) Penis
3) Testicles
4) Vulva (external parts of the female genitalia)
5) Glands
6) Urinary bladder
7) Gall-bladder

These seven filthy parts are mentioned in a hadith:

عن مجاهد قال: كان رسول الله ﷺ يكره من القايلة ومعايدة والأنثى والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذن والأذn والأذn والأذن والأذن والأذن والأذn الأ

In the light of above hadith Islamic principles for eating skins are as follow:

If a Halal animal is slaughtered according to sharia rules, its skin is edible and can be eaten, for it is a part of meat and its meat is edible.

After the tanning process its nature changes from meat to leather. Now its intake becomes haram, for Islam allows us only to eat meat not a tanned skin. It is the viewpoint of Imam Abu Hanifa, Imam Malik and Imam Ahmed. Imam Shafia has two viewpoints about it, but according to his last opinion he agreed with the three Imams.
(2) External usage of skins
According to Islamic jurisprudence there is a difference between internal usage and external usage of a product. If a product is halal it can be used as internal usage not the haram ones. While the external usage of a product depends upon the pureness and filthiness of it. If a skin is pure and clean, no matter it is got from a halal animal or haram, it is permitted to use it for external usage, not vice versa. And it is a sharia principle that every filthy is haram but it is not necessary that every haram would be filthy too. For example, eating soil is not allowed in Islam but is not filthy.

The external usage of an animal skin can be classified into two categories:
1. Before the tanning process
2. After the tanning process

Before the tanning process:
Before the tanning process the skin is a part of meat. If meat of an animal is pure and clean, the skin will be pure and clean too. For example, eating soil is not allowed in Islam but is not filthy.

After the tanning process:
After the tanning process the skin is not part of meat and meat of such animal cannot be eaten.

Sharia principles for tanning process

(1) Before the tanning process:
- The skin of animal that is impure cannot be eaten in the first place, such as skin of pork, is not allowed to use, even if it is tanned.
- The skin of the animals without having flowing blood, is clean and pure, no matter the animal died itself or it was slaughtered according to sharia rules, its skin become permitted for external usage, it is the viewpoint of Imam Abu Hanifa.
- If an animal dies itself without slaughtering it according to Islamic rules. It became “maitha” and its skin, meat and lipid become filthy. Now only tanning can purify its skin.

(2) After the tanning process:
- The chemical used in the process of tanning is called “Tannin”.
- Tannin is an English word. Cambridge Advanced Dictionary describes it as: “Tan (leather), to change animal skin into leather”. It is used to purify the skin and remove smell and impurities. Shami wrote: “The skin of the animal, that is controversial according to Islam, can be purified by tanning it, like pig. But if the animal is nonedible in Islam and is slaughtered in according to Islamic rules, it became maitha, impure according to Imam Malik.”

Imam Malik view point

Imam Malik has classified the animals into three groups:
1. Those that are not permitted to eat without any controversies, its skin cannot be purified by tanning it, like pig.
2. Those that are controversial to various viewpoints of Scholars, its skin can be purified by tanning but is not allowed for internal usage.
3. Those that are nonedible in Islam and are slaughtered without the intention to eat, is impure and filthy, for slaughtering an animal without intention to eat become maitha and the skin of maitha is impure according to Imam Malik.

Whereas Imam Abu Hanifa says that tanning purifies the skin of maitha as well, as it is stated in a hadith: “Whosoever tans its skin, it becomes halal.”

After the tanning process:
Thistopic would be discussed after a couple of pages

Islamic Definition of tanning
In Islam tanning means to treat skin with things that purify it and remove smell and impurities. Shami wrote: “The modern way of tanning being practiced in tanneries is as follow: (1) Sorting (2) Trimming (3) Curing and storage.”
of 2 to 5 days then the skins are cooled by ice bars or cold stores.

**Beam house operations**

1. **Soaking**
   - It is the first stage of hides in Beam house. In this process the hides are soaked in the water through specific machines to soften and purify them. This process can be limited to some hours and can prolong to some days based upon the structure and nature of the hides.

2. **Unharing and liming**
   - In this process unwanted hairs, fat and flesh are removed from hides. In this process Sodium Hydrogen, Sodium Sulphide and lime is used.

3. **Painting and liming of sheepskins**
   - To get much undamaged wool, sheepskins are painted from the flesh side by a paint solution of sodium sulphide and hydrated lime. It is applied to the flesh side and left for some hours until it penetrates into the roots of wool. Then the wool is easily removed by wiping or light pulling.

4. **Fleshing**
   - In this process the shape and thickness is set through splitting machines and then fitted with a band knife.

5. **De liming**
   - After liming the skins it is necessary to lower the pH level of the skins by de liming them again by soaking them in fresh water or weak acidic solution.

**Tan yard operations**

In this part of a tannery the following operations are carried out.

1. **Degreasing**
   - Excessive amount of grease may cause difficulty in the finishing process and create dark and greasy patches on the finished leather. In this process, the skins are soaked in an aqueous medium with a non-ionic surfactant.

2. **Pickling**
   - In this process sulphuric Acid and salt is used to keep the pH level of the skin at around 3.5 in order to preserve it.

3. **Tanning**
   - To prevent the skin from rotting, it is necessary to stabilize the collagen fibre present in the skin by tanning agents. Various methods and materials are used in this process depending upon the properties required in the finished leather. The most commonly used tanning agent is basic chromium sulphate (Cr (OH) SO4). The process, it is used in, is called Chrome tanning.

**Islamic Principles for Tanning**

This topic can be discussed under three sub categories:

1. **Criteria for tanning in Islam**
2. **Sharia rules for tannin**
3. **Doubtful and unknown tannin in Islam**

### 1-Criteria for tanning in Islam

It is necessary for tanning to fulfill its criteria stated by Sharia scholars. There are two conditions for tanning to purify the skin:

1. It should remove its smell
2. It should prevent the skin from decaying

There are two types of tanning in Islam

**Basic tanning (Haqiqi)**

- In this type of tanning, chemicals and tannins are used to treat the skin

**Alternate tanning (Hukmi)**

- In this type of tanning, skin is dried in the sun or soiled to remove its smell and preserve it from decaying.

Imam Shafi does not allow this alternate tanning. According to his opinion it does not preserve the skin from decaying.

### 2-Sharia principles for tannin

Islam has set five rules for tannin:

- It can derive out the humidity of the skin
- It can eliminate its smell
- It can eradicate its filthiness
- It must have capability to take out all the waste materials from the skin that damage the skin and by the removal of which the skin can be saved from decaying, even by placing it in water it does not decay.

- Only pure and clean tannin can purify and clean the skin. If the tannin itself is not pure, the skin treated by it, is not treated by it.

### 3-Unknown and doubtful tannins in Islam

Rules for unknown and doubtful tannins can be discussed in the following points:

**Domestic tannins**

- If the leather is produced locally or imported from an Islamic country and it is known that tannins used in it were impure, it is necessary to wash the leather before using it.
- If tannins were unknown or doubtful then the leather can be used without washing, relying upon the faith of Muslims, for Muslims take care of purity of tannins.

**Imported tannins (from non-Muslim country)**

- If the leather is produced by imported tannins or the leather itself is imported from a Non-Muslim country and it was clear that the tannins used in it were impure then it can be used without washing.
- If the tannins were impure it is necessary to wash the leather before using it.
- If the tannins were doubtful then washing is better.

### Sharia principles for leather industry

Four schools of thought about tanned skins

There is controversy between the four schools of thought about the rules for tanned skins. Imam Abu Hanifa allows all the skin been tanned except the skin of pig, human and the one that does not accept tanning like snake or rat.

Imam Shafi is of the same opinion with two controversies.
1. He does not allow alternate tanning “tanning by sun or soil”.
2. He does not permit the skin of dog to use, after tanning as well.\(^7\)

Imam Malik allows tanned skin only in dry condition. It couldn’t be used to store water, oil or other liquids. Imam Ahmed has two views about tanning. According to his last opinion, it can be used after tanning.\(^7\)

Sheikh Wahba Al Zuhaily preferred the viewpoints of Imam Abu Hanifa and Imam Shafi.\(^7\)

The principles described there are also derived according to these two schools of thoughts except the skin of dog that is controversial among them.

**Sharia Principles for tanned skins**

- One way of purifying the skin is tanning, by which all the impurities of the skin are removed from the skin.\(^4\)
- Pig is Haram and unpermitted in the first place and its skin is not allowed at any cost, no matter it is treated or not\(^5\).
- If a skin is impossible to be treated, it is not allowed to be used after tanning as well. For example, the skin of snake or mouse.\(^6\)

ُأَرْتُحُلْلَوْلَا، وَلَا يَجْلَدَهُمَا، وَلَا يَجْلَدُونَهَا بِعَدْوَةٍ أَحْسَنَةٍ وَفَأْرَةٍ مَا َفَأْرَةٍ َفَعَاءٍ.

Note: Modern way of tanning the skin of snake or rat and its sharia status

- It should be noted that the snake or rat mentioned here is the one that has flowing blood. If a snake or rat does not have flowing blood then it is permitted to use without tanning as well.\(^4\)

وَبِنَاءٍ عَلَى مَا ذَكَرَ مِنْ أَنَّ مَا لَا يَجْلَدُ البَذْبَحَةِ لَا يَظِهرُ (فَوَلَهْ جَلْدَةَ حَيَّةٍ صَغِيَّةٍ وَفَأْرَةٍ)

- Human skin is not allowed to use for its respect and honor.\(^5\)

وَلَقَدْ كَرَمَتُ لَيْبَانَ أَمَّةٍ

- Except the skin of above three categories “Human, pig and impossible to treat” all the other skins can be purified by tanning. Imam Shafi exempts the skin of dog as well; this is unpermitted according to his opinion.\(^6\)

- After the tanning process if it gets any impurity, it can be washed which will remove its impurity again.

**Sharia rules for imported leather**

- If the leather is imported from a non-Islamic country and it is known that it is produced from the skin that is unpermitted to use after tanning as well like pig or impossible to be treated, then it is not allowed to use it.
- If the skin is unknown but often pig skin or other kind of forbidden skin is used to produce leather, it is better not to import leather from that country.
- If it is known that it is from the animal that accepts tanning and its skin is allowed after tanning then:
  - If the tannins used in the tanning process are pure, the leather is allowed to use
  - If the tannins used in tanning are impure, it is necessary to wash the leather before using it.
- If the tannins are doubtful, it is better to wash the leather before using it.\(^4\)

**Rules for imported leather from an Islamic country and domestic leather industry (of an Islamic country) are same and will be discussed under the coming subtitle.**

**Note: Scientific way to test pork’s skin in laboratory**

According to Allied Chemists Laboratory ACL

The coating of the skin is eliminated through chemical solutions

Then it is placed in Fume cupboard for drying. After drying the outer layer is examined by Microscope to search the properties of a pig’s skin in it. If the properties are not found, a certificate of halal leather is given to the producer.\(^8\)

**Sharia rules for domestic leather industry**

- If the leather is produced in domestic leather industry or imported from an Islamic country and it is clear that it is from the animal that’s skin is not allowed due to its filthiness like pig or honor like human or impossible to treat like snake, it is not allowed to use.
- It is from the skin of permitted animal and the tannins used in there are impure, it is necessary to wash before using.
- If the tanning process is doubtful or the tannins used in it are doubtful or unknown, it can be used without washing, depends upon the faith and honesty of Muslim.\(^9\)

يا قل في القتلة أن الحبلود التي تذيع في بلدة ولا يعلم منها، ولا تأتي النجاسات في دبها وليقوها على الأرض النجاسة ولا يسمعها بعد تمام الدبغ في طاهرة جوز انخاخ الخاف والمكابع، والمعلقات، والمكابع والدلاء رجاء وليحاس، وأحلazel:

- If a skin is doubtful, it is not allowed to be accepted for tanning.
- The skins that are allowed to use after tanning, can be accepted for tanning.
- The tannins used in the tanning process should be pure in order to purify the skin.
- If the tannin is impure, the tannery is obligated to wash the finished leather before supplying it to the market.
- The tanning process should have two basic properties to purify the skin
  1. It has removed the smell
  2. It has preserved the leather from decaying
- Before supplying it to market is must be certified from a halal certifying body so that the customer can buy it without any doubt.

**Recommendations to Muslim governments for the availability of Halal leather**

It is the responsibility of an Islamic government to take care of the Muslim public and their needs within the limits of Islam. Availability of Halal leather product is a core need of every Muslim. We use various products made from leather and skins of animals. In the light of the above conference paper, following points are recommended for Muslim governments for availability of Halal leather.

➢ If the leather is raw, it can be washed which will remove its impurity again.
➢ If the tannin is impure, the tannery is obligated to wash the finished leather before supplying it to the market.
➢ The tannins used in tanning are impure, it is necessary to wash the leather before using it.
There must be a ban on hides that cannot be purified by tanning and are not allowed after the tanning process as well. The tanneries should be regulated under a complete code of conduct drafted in the light of Islamic principles for leather industry. The purification of tannins used in the tanneries should be assured.

Leather imported from non-Muslim countries should be accepted after its laboratory test and halal certification. Awareness about halal leather and signs of pig’s skin and other unpermitted leather should be promoted through media channels.

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Halal Supply Chain: Assessing the Emerging Islamic Values of the Poultry Supply Chain

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ABSTRACT

Principles and behaviors are essential in creating positive values in a human’s daily life. Hence, in Islam, values are crucial in guiding Muslims to be good Muslims as well as forming better societies. Indeed, Islamic values could also lead to better corporate governance of the Muslim countries. The Islamic values are derived from the Syariah principles in the Holy Quran as one of the main references for Muslims and also as a basis for the hereafter. From time to time, the good deeds that Muslims do in their daily activities are considered as good values from the Islamic perspective i.e. Islamic values. As a result, the existing food supply chain businesses are focusing more into the poultry industry as the Malaysian’s highest consumptions are poultry and poultry-based products. Hence, this study chose halal poultry as a case study because the research assessing the Islamic values and halal supply chain has received relatively little attention in the literature. Therefore, this study attempted to fill this void by assessing the Islamic values in the halal supply chain of the poultry industry. This study focused on the existing poultry supply chain and underlying Islamic values that exist which may assist the implementation of halal supply chain to be resilient and sustainable in the future. In-depth interviews were carried out involving three slaughterhouses. The study determined the underlying Islamic values throughout the entire halal supply chain of the poultry industry. The study also highlighted the significant importance of the Islamic values in the halal supply chain. In conclusion, a model was developed based on eight dimensions which were found in the halal supply chain such as concern on animal welfare, spiritual well-being, commitment, kindness, sincerity, responsibility of the owner, need for halal poultry and proper management of poultry supply.

1. Introduction

This instruction gives you guidelines for preparing a full manuscript for the scientific and expert Conference of the World Halal Summit 2018 (WHS 2018). Please use this document as a template and adhere strictly to the following guidelines and format to assure high quality of conference proceedings material.

After the notification of full paper acceptance, the “camera-ready” manuscript will be required. The typography, layout and style are exactly the same as those used in this instruction. Papers which do not comply with it (especially in layout geometry and typesetting) will not be included in the proceedings. No final correction will be made by the organizer.

The Muslim population is close to 3 billion and is expected to be 30 per cent of the world’s population by 2025 [1, 2]. With the increase of the world Muslim population, the Halal products and services trade are also increasing yearly. This has led the growth of the halal consumer market internationally both in Muslim countries and non-Muslim countries. The halal market is not confined to Muslims, but it also includes the quality of the products itself [1]. Since the year of 2006, the importance and awareness of halal concept have been realized by all parties such as government agencies, regulatory bodies, industry players and others; this can be seen through the first World Halal Forum 2006. Malaysia has the potential to be a regional halal hub for production, the supply of halal products, services, and guidelines. In order to develop a global Halal market, we need to identify the challenges of the halal industry, the need of harmonized halal guidelines and form events which act as a platform to create networking in trade for various players in the halal markets [3].

With the global halal market size worth of USD 635 billion in the year 2009, followed by USD 662 billion in the year 2010, it shows that the global halal market is increasing annually. Whereas in non-Muslim countries, the halal food market in Europe reported about USD 67 billion. Hence, it is undeniable that the halal food market can also be catered not only for Muslim countries but also non-Muslim countries which offer a good prospect for halal food producers [4].

According to the Third Industrial Master Plan 2006-2010 (IMP3) [5] the halal industry covers food, non-food products including pharmaceuticals, health products, medical devices, cosmetics and toiletries; and services including logistics, packaging, branding, and marketing, printed and electronic media and travel and tourism. Towards achieving the success of the halal industry in Malaysia, the aim to become a global
hub regarding production and trade of Halal products and services has also been outlined in the IMP3.

This study also highlights the gaps in the literature and importance of the research will be discussed further as followings:

![Figure 1: Publication of the Journal and Conference Papers from the year 2003-2018 (adopted [6] and author (2016-2018)](image)

Based on study by [6] who reviewed literatures in the area of halal food research from 90 journal articles and 44 conference papers, the study has produced a chart as illustrated above (Error! Reference source not found.). As shown in Error! Reference source not found., it shows that the publication focusing on ‘halal food management’ in their research which had been published in the journal or conference papers during the year of 2003 until 2013. The above diagram (Error! Reference source not found.) depicts almost each year the research interest in the halal food management is increasing particularly after the year of 2010. Furthermore, a tremendous increase in the graph shows that between the years 2010 to 2013, there were more than 50 per cent of the articles and papers reviewed were published [6]. Furthermore, after the year of 2015, researcher found another 106 conference papers and 44 journal articles from the year of 2016 to 2018.

The classification of the above research themes can be seen in the literature, which is synthesised in Error! Reference source not found..

![Figure 2: Distribution of Reviewed Articles by Research Theme](image)

Source : Articles reviewed (adopted: [6] and author (2016-2018))

From the above research theme (Error! Reference source not found.), it shows that the areas of halal research involve various disciplines, which are the new areas of further research in the future. Furthermore, in this research, three areas of discipline namely halal, halal supply chain and Islamic values were reviewed. Based on the review, several gaps in the existing literature have been identified.

The current literature shows that the expansion of halal concept for a product is now expanding to include the movement of the halal products along the supply chain process [7-11]. In a review of halal studies, [10] also highlight that most studies are focusing on halal product, halal consumerism, halal market, halal product traceability, and halal certification. [9,13] have viewed halal supply chain as an innovation. [11] highlight that since halal is a new concept in the logistics and supply chain discipline, therefore it is important that the concept should be comprehensively elaborated to ensure understanding and standardisation of implementation. Moreover, studies focusing on halal logistics and halal supply chain are lacking [11]. Thus, this study expands the body of knowledge through a comprehensive exploratory nature of research trying to understand more phenomena of halal supply chain.

In relation to the above, it is important to note that halal implementation has always been related to halal certification that acts as a symbol of consumers’ trust on the halalness of the products. In the halal certifications’ application, the producers or consumers have to implement Islamic values which are well considered as acts of ibadah when it is accompanied by good intention or niyiyah [13], [14] in his book of Theory of Virtue, for example highlighted several Islamic values such as good appearance, justice, nobility, servitude, sincerity and trust [15]. Other scholars emphasise several Islamic values that are mentioned in the Al-Quran and Prophet’s tradition such as perfectionism, fairness, responsibility, accountability, trustworthiness, benevolence, competence, capability, honesty, transparent and cleanliness [13], [16]-[19]. However, despite numerous efforts that have been taken by various parties involved in the halal certification,[14,20] highlight several cases of fraud and falsification of halal certification with or without intention. For example, 95 percent of halal food exports are from the US (United States) are not really halal [20] and non-halal food being sold at halal food sections or shops [21]. This study therefore attempts to explore the Islamic values in the halal supply chain of the poultry industry in Malaysia as the case study.

Secondly, very little research has been done regarding Islamic values except for a study regarding green consciousness and consumption of the consumers in Malaysia [22] as well as in the area of supply chain particularly poultry industry. Therefore, this study which focuses on Islamic values is also lacking. Furthermore, study by [23] suggested for further research to focus on other growth factors in the business, such as Islamic values, financial capital and human capital. Besides, in general, the remarkable brand for instance the western brands are often built based on emotional values from the worldwide demand, however the developing of brand which is based on Islamic values represent an enormous opportunity [24].

1.1 Islamic values

Islamic values are defined as ‘the set of moral principles that differentiate what is right from what is wrong’[13]. Islamic values illustrate their universality and applicability in all situations and societies. Thus, every act should be accompanied by an honourable intention (niyiyah) [25] in order
to seek the pleasure of Allah which is considered as Ibadah in Islam. This has been narrated by Bukhari and Muslim;

"Actions are according to intentions, and everyone will get what was intended. Whoever migrates with an intention for Allah and His messenger, the migration will be for the sake of Allah and his Messenger. And whoever迁s for worldly gain or to marry a woman, then his migration will be for the sake of whatever he migrated for."

Related by Bukhari & Muslim

Islamic values play a crucial role and significantly impact all areas of society. In Arabia, in the early seventh century, God or Allah through the Prophet Muhammad (PBUH), revealed the religion of Islam, which means ‘to surrender’ or “submission to the will of God” [26, 27]. The in-depth understanding of knowledge and faith in Islamic matters and priorities existed in the Qur’ān forms Islamic values that need to be practised by Muslims [28]. It has been supported by [29] that the basic quality of work in Islam is based upon both slavery and caliph values where the values are harmoniously integrated. Furthermore, the aspect of religion is bringing people together to grasp a value and particular culture which has a significant impact [30]

Figure 3: The synthesis matrix of Islamic values (adopted [31])

The concept of bir (virtuous activity), khair (goodness), Sa’adah (happiness) and ihtim (vicious activity), and Shar’ (iniquity) are both religious and ethical issues which include the Islamic values. Figure 3 list the literature that studied the various dimensions in the Islamic values which can be used as a guide for Muslims.

In an Islamic framework, it is accepted that a firm’s behaviour must be guided by Islamic values and ethics, for that is what distinguishes it as Islamic [29]. In addition, the Islamic perspective takes the definition of organisational sustainability further to include aspects of Islamic values in conferring legitimacy to the organisation and integrating with the socially-constructed values [28].

In the Islamic framework, it is assumed that economic agents are guided by Islamic values. Thus, an Islamic producer accountable to Allah treats the resources at his command as a trust and the production of goods as a duty, and he will base his production decisions on the concept of maslahah. He can still be profit-driven but the Islamic producer’s valuation of economic costs will be modified as he is governed by the Syariah [29].

Accordingly, the Islamic value system is certain and fixed regardless of time, place and culture. If the things are considered bad, it will never be good in the future [31]. In particular, Islamic value system is the preferred set of values which come from the Syariah, it determines Iman (faith) and taqwa (piety) as the basis which direct Muslims towards the right path in a rightful manner [25].

1.2 Poultry

Figure 4: Malaysia Broiler Poultry consumption by year [32]

As seen in the poultry industry for the past twenty years, the consumption of poultry for Malaysia is increasing annually (refer to Figure 4). In the recent year, i.e. the year from 2015 to 2016, the growth rate of poultry consumption had also increased by 1.85 percent. Therefore, having considered the increasing significance of the poultry consumption in Malaysia, the study is vital to explore the extent of Islamic values existence in halal supply chain in this industry. This is to ensure that a purely Islamic value is practiced in the halal supply chain process in the poultry industry.

2. Methods

Case study is selected as the relevant behaviour which cannot be manipulated in examining the contemporary events. Thus, this study used case study to conduct an intensive study regarding the process of the poultry at the slaughterhouses. Furthermore, it helps the researchers to examine and describe
in-depth data relating to several variables from an intensive, systematic investigation of a single individual, group and community [33]. Therefore, halal supply chain case study needs to identify the phenomenon with the rich description of the contemporary events.

This study adopted qualitative method and interviews were carried out with individuals who are directly and indirectly involved with the poultry industry. The interviewees were selected based on purposive sampling. The criterion for purposive sampling was that the interviewees must have more than five years of experience in the industry. In line with [34], purposive sampling is an appropriate sampling strategy in a case-study research design, and it provides a researcher a degree of control [35]. Consequently, in this study, researcher had interviewed the manager and workers at the slaughterhouse who were involved with the poultry industry with more than 10 years of experience. The data was managed by using NVivo software and once the data had reached saturation point, no more interview was needed to carry out. Moreover, data saturation is reached when there is enough information to replicate the study [36].

3. Findings and Discussion

3.1 Case Study of the Slaughterhouses

This is a study of Islamic values in five slaughterhouses involving three slaughterhouses. Below are the values obtained from the slaughterhouses as drawn from the interviews;

3.1.1 Concern on Animal Welfare

The owner of the slaughterhouse would order the poultry on daily basis to ensure the chicken would not be kept in the slaughterhouse as the place was small. This action relates to animal welfare in which there was a need of a bigger place to keep the chicken in. Animal welfare such as the comfort of the animal was taken into consideration prior to the slaughtering process. Therefore, they would order live poultry according to the latest demand. Animal welfare is very important so as to ensure that the animals would not be stressed before the slaughter. Such pressure and tense may affect the quality of the animals. As claimed by the managers;

‘….I cannot buy too many chicken or they will die as I don’t have enough place to keep them. Extra place will incur cost, so I have to order every day.’

3.1.2 Spiritual Well-Being

Spiritual wellbeing is regarding our innermost life and its relationship with the surroundings, others and ourselves. It also covers the concept of cleanliness of the body and the soul (purely physical & spiritual) of a Muslim. A human being who believes in God must adhere to the commands in Islam in order to be a good Muslim. The requirement to follow the Islamic rulings was stressed by the managers;

‘Every day I’ll go the mosques, and I learned from one of the religious teacher, that anyone can slaughter the poultry or cow as according to syariah requirement. However, the most important factor to be a slaughterman is he must be pure physically & spiritually (bersih zahir batin). In addition, he must also be a practical Muslim in which he must pray 5 times a day and also obey the Islamic requirements.’

Indeed, religious belief in this concept will also focus on the impacts of our actions to the community. In this case, every element is crucial as we are dealing with food to sell to the customer. Therefore, we must not only provide halal food, but also clean food. Such particularity was stressed by the managers;

‘we want to give our customer halal poultry, so we must provide halal and clean poultry.’

1. Concern towards the quality of Halal poultry

Apart from halal and clean poultry, the slaughterhouse was also concerned on the quality of the poultry and the nearby area of the poultry processing site.

According to Managers;

‘in order to ensure the cleanliness of the slaughterhouse, we separate this area into few sections, slaughtering area, processing area and also including the packaging area. This place must always be clean.’

The statement indicates that the specific area has been dedicated for slaughtering, and the cleanliness of the area is an important factor in determining the halal quality of the supply chain.

2. Religious Practice or Power of Spiritual Volition

Religious belief is important as this will lead Muslims to become better Muslims. Therefore, the Managers have a strong religious belief towards the halal/toyyiban concept in which he stressed;

‘halalan toyyiban can be achieved whenever you follow on what has been stipulated under Islamic Syariah principles.’

In addition, religious practice is also important as it represents the inner and outer life of an individual’s appearance. This will affect the individual’s surroundings and generate a positive or negative impact, depending on the individual’s actions.

In Islam, strong religious belief which stresses that ‘rizq’ comes from the God. The belief is another factor which influences the concept of halalan/toyyiban supply chain. If we follow what has been stipulated in the Al-Quran and Hadith, and the Maqasid Syariah requirements, God will help us. If we do not follow God’s requirements, we will face difficulty in life.

According to the Managers;

‘…..there’s a man rented a land area to build a slaughter house and kept on saying that my business will be closed after this. I said rizq was in the hands of God. Suddenly, people reported that the man slaughtered the chicken during subuh prayer time, means that he did not perform his subuh prayer. After that, his slaughterhouse was closed. So, the important thing in your life is your belief to God.’

3. Training of the Slaughter man by the Religious Department

Training on slaughtering by the certified religious department can contribute to proper slaughtering procedures at the slaughterhouse. Therefore, the slaughterhouse will easily obtain the ‘halal’ certificate from the Religious Department (JAKIM).

According to the Managers;

‘There’s training by JAIS the religious department to train people to slaughter at the mosque.’

4. Beliefs in the Creator

The concept of religion in working will also give more return if we do the work properly and do not merely focus on the return from the people, but rather on the return from God
as our ‘rizq’. Henceforth, the poultry business has provided more income to the owner.

According to the Managers;

‘Because of this job ... I can bring my wife to Mecca 2 times, in fact, this year also I’ll bring her again to Mecca. Indeed, I also can build my own house and it’s bigger than before. All the rizq comes from Allah.’

5. Punishment from God for Cheating

Islam strictly prohibits cheating; and this concept is applied in the poultry slaughtering business as well. If cheating is allowed in the business, it will give bad impacts to the society. Therefore, if the Muslims have bad attitude, he or she will get punishment from Allah The Almighty.

According to the Managers;

‘... as a Muslim, we must follow Islamic rules and regulation. I have learned that our income which comes from cheating is not good. If we remember that every day, people also won’t be [in] doubt with us. I’m scared regarding all those cheating and its impact on our life.’

3.1.3 Commitment from the Slaughterhouse to the Supplier

In assessing the halal supply chain, a commitment between the slaughterhouse and supplier is another factor that will facilitate the halal supply chain to be a success.

According to the Managers;

‘I will order the poultry every day, and they (the supplier) will send according to my order.’

3.1.4 Goodness and Kindness to Others

In Islam, one of the criteria to be met is ‘ihsan’ or ‘goodness and kindness to others’. Therefore, the owner has offered assistance to guide in running a slaughterhouse.

As according to the Managers;

‘To those who [are] unemployed, I want to teach them how to help them to earn money through this job, but they don’t want, they are reluctant to take out the initial capital to start the business.’

3.1.5 Being Sincere to the Customers

‘Sincere to the customers’ is crucial in ensuring a successful halal supply chain. Likewise in this study, the owner did not keep too many poultry in the refrigerator to ensure customers get fresh poultry for their consumption.

According to the Managers;

‘I will slaughter the chicken based on the customers’ needs. I do not keep any stock as the customer will think that it is not fresh.’

3.1.6 Responsibility of the Slaughterhouse Owner

Slaughterhouse owners often share a few responsibilities in common with the other slaughterhouses. In this study, the owner mentioned that selling only halal poultry to the customer is a big responsibility. The owner deems handling halal slaughterhouse as a responsibility from God.

As according to Managers;

‘...this job is a big responsibility as you want to give the halal chicken to the customer.’

1. Cleanliness of the slaughterhouse

To ensure the cleanliness of the slaughterhouse, all waste products from the poultry process such as feathers will be thrown in the bin.

According to Managers;

‘I don’t keep the feathers and other waste, normally, the waste will be taken by the local council every morning.’

3.1.7 Need for Halal Poultry (Importance of Halal Poultry)

The demand for halal poultry is always high, especially during the Islamic festive seasons. Therefore, it is important to assess the halal supply chain as it will be able to sustain the increasing sales of halal poultry.

As noted by the Managers;

‘During weekdays the sales were just like normal. On weekend and festive seasons, the sales will be high.’

The slaughterhouse will slaughter the poultry based on the daily demand. The need for halal poultry arises every day. Hence, halal supply chain implementation can boost the supply for halal poultry in future to meet the ever-growing demand of the Muslim society.

Indeed, the managers also slaughtered poultry every day based on customers’ demand. This was also to ensure and maintain the poultry quality, besides ensuring fresh poultry for consumers’ consumption.

According to the Managers;

‘...every day they will slaughter approximately about 20 chicken based on customers’ demand.’

1. Buying Preference from the Slaughterhouse

The halal poultry concept has also influenced many customers from various races to buy halal poultry from the slaughterhouse. Furthermore, the implementation of the halalan toyyiban supply chain will become an added value for the slaughterhouse to be chosen as the customers’ choice.

As stated by the Managers;

‘my customers are from various races. But the Malay people are the majority among my customers.’

3.1.8 Proper Management of Poultry Supply

The halal supply chain also needs a proper poultry supply management in order to ensure the smooth delivery to customers. This study found that the owner of the slaughterhouse had changed from many suppliers into one supplier to ensure proper and systematic management process by dealing with a single supplier.

As mentioned by the Managers;

‘Before this many [companies] supply us. But now, only one .... My son changed to one company, it is easier to handle.’

1. Patience in Doing Business

‘Patience’ is also vital in running a business. For that reason, managing a business dealing with halal products requires patience as another key factor towards successful halal supply chain.

The Managers said;

‘Before this, there were seven slaughterhouses in this area, but now I’m the only one who sells chicken. They have a problem such as the owner died and nobody wants to take over the business and various other problems faced by them. So that’s the reason why I’m the only one who is still doing the businesses.’


Figure 5: Model of Emerging Islamic Values

As shown in

Figure 5, the final model depicts the model for three slaughterhouses. The finalised model comprises eight values that exists in the three slaughterhouses, consisting of concern for animal welfare, spiritual well-being, commitment from slaughterhouse, goodness and kindness, being sincere to the customers, responsibility to the slaughterhouse owner, need for halal poultry and proper management of poultry supply are the main themes in the establishment of halal supply chain at the slaughterhouse.

4. Conclusion

In conclusion, this research aimed to develop a model that ascertains the underlying emerging values along the activities in the halal poultry supply chain. The values consist of animal welfare, spiritual well-being, commitment from slaughterhouse, goodness and kindness, being sincere to the customers, responsibility to the slaughterhouse owner, need for halal poultry and proper management of poultry supply. In addition, the values found can influence the operations of the halal supply chain poultry industry to be a sustainable supply chain. However, the results of this study were limited to specific information and narrowed findings obtained from this case study, as the interviewees were the key person of the organisation.

Therefore, it is recommended that the future researchers conduct similar studies by choosing a different unit of analysis from an organisation that carries out halal research. In future, more studies can be carried out by identifying other types of industries such as meat and others. Moreover, the government can adopt the emerging values which have been found as a guideline for halal supply chain in the future.

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Abdelbasset Benzertiha has completed his veterinary medicine degree at National High School of Veterinary Medicine (ENSV)-Algiers Algeria. Then he got a Master degree in Animal Sciences from the Faculty of Veterinary Medicine, Department of Animal Nutrition at Poznani University of Life Sciences (UPP), Poland. He has started his Ph.D. in 2017 in the area of animal nutrition and microbiology and simultaneously is employed as Technical Manager at Polish Institute of Halal. He has started with Halal work since 2014.
The continuous growth in human population which is expected to reach 9 billion by 2050, requires a valuable source of protein. The global demand for high nutritional factors such as poultry and fish meat are increasing significantly. These animals require a high amount of protein source to cover the growth. Currently soybean meal, rapeseed meal are the main available vegetable protein sources for poultry production. However due to their insufficient content of amino acids, mainly methionine in comparison to animal’s protein and the genetic modification, fish meal is commonly used as a source of protein in poultry and fish production. However, the limited resource and the overfishing, increased the price in the market. Therefore, insects are proposed as a sufficient sustainable and alternative source of nutrients for livestock. Among various species of insects, black soldier fly (Hermetia illucens), yellow mealworm (Tenebrio molitor) and super mealworm larvae (Zophobas morio) have been predominantly studied as a source of protein and fats for different animal species due to their interesting qualitative and quantitative amino-acids and fatty-acids profile. According to the available literature the protein level varies between 40 and 60 % of DM and the fat level from 30 to 45 % of DM. However, in the European Union, according to Regulation (EC) No. 1069/2009 the application of insect protein in livestock nutrition is not allowed because these compounds are considered as a processed animal protein and only insects fat is allowed. Since July 2017 EU Regulation 2017/893 permit the use of insects use of insect proteins as fish feed. Poultry and fish consumption is relatively common, cheap, and no religious issues are connected with their consumption. On the other hand, according to Halal requirements, the consumption of insects is not allowed except locust. The life of an animal, from its birth until its ritual slaughter, is under control of Halal strategies. There has been controversy about animal feed composition and the application of animal by-products and their extracts into animal diet, including those from swine. It should be also emphasized that insects are a natural feeding habits for various species including poultry and fish. In addition, the term “Al-jalalah” is a term used to describe animals that consistently or rarely eat the waste of other animals, carrion, or pigs and its derivatives and a change in their appearance, odour, or taste. According to different Halal standards, most Muslims believe that the feed for an animal, whether this animal is raised for meat, milk or eggs, must be a plant origin diet. Some other Muslims believe that only pork and non-halal animal by-products are forbidden from animal nutrition. Furthermore, no Halal animal feed standards is available worldwide. Although, the review of the use of insects in animal nutrition as well as summarizing a clear role in regard to the Halal requirements is required.

Currently soybean meal, rapeseed meal are the main available vegetable protein sources for poultry production. However due to their insufficient content of amino acids, mainly methionine in comparison to animal’s protein and the consumer acceptancy of genetic modifications, fish meal is commonly used as a source of protein in poultry and fish production [2].

However, the limited resource and the overfishing, increased the price in the market. Therefore, according to different authors insects are proposed as sustainable protein source to replace other resources in livestock. According to Paoletti [3], one of the main reasons of interest in insects that they can be reared on other substrates than grains. Thus, saving the land for growing crops to human consumption. Insects can be
reared on biowaste and by-products. The European regulation on animal by-products (1069/2009) includes insects in its definition of “farmed animals” therefor the same feed rules which are applied to farmed animals are applied to insects. Annex III of the regulation 1069/2009 prohibits the use of certain materials as feed for insects and this includes: faeces and separated digestive tract content; catering waste; and former foodstuffs, if they contain meat or fish.

As reported by the international platform of insects as food and feed (IPIFF), several dozens of companies are established in Europe to produce insects in a high quantity. A list of seven insects’ species is mentioned on the EU commission regulation 2017/893, these insects are allowed for feed use: Mealworm (Tenebrio molitor), Black Soldier Fly (Hermetia illucens), Lesser Mealworm (Alphitobius diaperinus), House Cricket (Acheta domestica), Banded Crickets (Gryllodes sigillatus), Field Crickets (Gryllus assimilis), and Common Housefly (Musca domestica). Among these species of insects, black soldier fly and yellow mealworm have been predominantly studied as a source of protein and fats for different animal species due to their interesting qualitative and quantitative amino-acids and fatty-acids profile.

According to the available literature the protein level varies between 40 and 60 % of DM and the fat level from 30 to 45 % of DM [4, 2]. However, in the European Union, according to Regulation (EC) No. 1069/2009 the application of insect protein in livestock nutrition is not allowed because these compounds are considered as a processed animal protein and only insects fat is allowed.

Since July 2017 EU Regulation 2017/893 permit the use of insects use of insect proteins as fish feed. The effect of the insects’ addition in broiler chicken diet have been studied with various levels of inclusion i.e., 1%, up to full replacement of soybean meal [5, 6, 7, 8]. These authors showed that insects addition have effects on the performance of broiler chicken. Kierończyk et al. [9] reported that Tenebrio molitor oil can completely replace soybean oil without any adverse effect on the performance of broiler chicken and showed a positive effect on the fatty acids profile of the breast muscle which meets the consumer needs. Furthermore, Poultry and fish are relatively common, cheap, and no Islamic religious issues are connected with their consumption. On the other hand, according to Halal requirements, the consumption of insects is not allowed except locust.

The life of an animal, from its birth until its ritual slaughter, is under control of Halal strategies. There has been controversy about animal feed composition and the application of animal by-products and their extracts into animal diet, including those from swine. It should be also emphasized that insects are a natural feeding habits for various species including poultry and fish. In addition, the term “Al-jalalah” is a term used to describe animals that consistently or rarely eat the waste of other animals, carrion, or pigs and its derivatives and a change in their appearance, odour, or taste [10].

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References
Halal Aquaculture and Aquaculture Feed and Sustainability

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1. Introduction

As sea fishery resources dwindle, and become more and more endangered, due to human over-exploitation, a growing aquaculture is emerging worldwide. Aquaculture has the advantage of being renewable and sustainable, in a world that has more and more mouths to feed. In 7.6 billion World population, 1.8 billion are Muslims, therefore what is Halal in aquaculture is important.

Global population growth and increased human welfare levels have led to a fast increase in demand for high quality foods. The FAO estimates that “global meat demand in 2030 will stand at 72% above the 2000 value” (1) whilst the aquaculture market that includes fish farming is expected to grow 50% between 2010 and 2030 (2). Muslims are major consumers and Halal Certifying Bodies (HCBs) that ensure the food offered to Muslim is Halal have a major role to play in this new reality.

What the fish and other species are fed, it is a concern for all Muslims. Traditional, fisheries produce fish-meal in a process known as “reduction” or “industrial” with the fish caught at sea that is transformed into meal and oil. Because these reductions or industrial are heavily regulated, and supply has remained relatively constant, and demand is high with increased fish farming worldwide, there have been huge increases in fish-meal and oil. As a result, alternatives are increasingly used for use in aquaculture. (5)

Fish farming represents over 50% of global fish production for human food and significantly contributes to global food security. Surely fast-growing aquaculture sector can become even more sustainable by using fish feed made from a range of sustainable raw materials, from algae to insects. By moving away from fish feed predominantly from marine wildlife, the fish farming sector contributes to global food security, preserving the health of oceans and driving sustainable economic growth,” says François Simard, Deputy Director of IUCN’s Marine Programme. (6)

There is a need to look into aquaculture, and HCBs need to focus themselves on this. Fish, shrimp and other sea species are fed with animal and najs (impure) products mixed into feed, and in unhygienic and illness conducive environment in aquaculture to danger to human health are known, as recent May 2017 report by FAO shows on tilapia fish from China (7)

Recent development in EU (European Union) allowing the use of processed animal proteins (PAPs) derived from non-ruminant farmed animals (mainly from pigs and poultry) in fish feed (8) are worrying signs for Muslims residing in Europe, and Muslim countries that import farmed fish, shrimp and other sea species from Europe (and elsewhere). Muslims may be already eating farmed fish and shrimp and other sea species that have been fed with porcine and non-

Keywords:
Halal, Aquaculture, Feed, Sustainability, Fish, Plasma, Porcine, Protein, Algae, Istihala

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Halal chicken sources. In unregulated aquaculture in Asia, and elsewhere, the farmed sea species are fed with animal proteins. One of main cheap animal proteins is plasma, derived from pork’s blood.

3. Halal Issues in Aquaculture

In Halal industry it is a growing trend of certifying bodies as JAKIM to take precaution on the matter of offering Muslims healthy, safe and halal food, Malaysia provides certifying standards of halal food guidelines: MS1500: 200930. However, several Malaysian aquaculture fish were found to be fed with a resource from animal protein and animal by-products (blood, tissue or bone) that may be originated from pigs and waste. It is considered as haram to consume food that contribute pollution towards ecosystems. According to Malaysian Department of Food (DoF), most of the unethical feeding practised farm failed to register with the DoF but permitted to sell at the local market (9).

Istihala, from the Fiqh point of view, is defined as “changing the nature of the defiled or forbidden substance to produce a different substance in name, properties and characteristics. Istihala also can be defined as a complete transformation occurred physically and chemically (10). Feeding haram and naijis to animal species (fish and other species are animals) is becoming a worldwide trend

4. Alternative Feeds for Aquaculture

In aquaculture, traditionally, you must kill fish to grow fish. Historically, aquaculture has been tied to fish-meal and fish oil production, but alternative feed ingredients. A diet that most closely simulates the natural diet for most aquaculture species, fish-meal and fish oil contain an optimal mix of essential nutrients, easily digestible protein and vital nutrients such as omega-3 fatty acids.

5. Advanced Feed Products

Plant-based ingredients have long been included in many aquaculture feeds. Advances in digestibility, protein content, and omega-3 levels are driving plant-based products to be a leading alternative to fish-meal. A current leader in plant-based feed ingredients are advanced soy products like fermented soy and soy-bean protein concentrate (SPC). These products reduce anti-nutritional factors in soy, improving their digestibility. A large portion of fish-meal in aquaculture feeds can be replaced by advanced soy products. Moreover, some companies like start-up Midwest Ag Enterprises have seen positive results by entirely replacing fish-meal with advanced soy proteins in shrimp diets.

Other plant-based products show promise to replace fish oil in aquaculture feeds, like developing canola oil rich in omega-3s. Fish oil, the world’s least expensive source of omega-3 fatty acids, is challenged by a new class of plant-based oils. Agricultural giant Cargill is developing a canola oil high in EPA/DHA omega-3 fatty acids. In salmon feeding trials, Cargill reports they were able to completely replace fish oil in feed with oil from their EPA/DHA canola. (11) Another alternatives are algae at the bottom of the food chain for marine animals, making it a potential natural replacement for fish-meal and fish oil. Algae like seaweed and spirulina (a type of blue-green algae) are an excellent source of amino acids and omega-3 and omega-6 fatty acids. The inclusion of algae in aquaculture feeds has shown significant improvements to growth rates, overall animal health, improved color, and disease resistance in multiple species. Moreover, algae is an excellent feed for juvenile fish and crustaceans. While substituting a large portion of fish-meal by algae is possible and perhaps even beneficial to animal health and growth rates, algae remains only economically viable as a supplement to existing protein sources. (11)

6. Drugs and Chemicals Used in Feeds for Aquaculture

Aquaculture feeds rely on the input of agrochemicals, antibiotics and other aqua drugs. The chemicals and aqua drugs are important components. A variety of drugs and chemicals are used in aquaculture for fish health management apart from antibiotics. Most commonly used chemicals are sodium chloride, formalin, malachite green, methylene blue, potassium permanganate, hydrogen per oxide and glutaraldehyde. Chemical needs are minimal in extensive and semi-intensive culture methods, often being limited to addition of fertilizer (e.g., manure), soil or water treatments (e.g., lime), and perhaps a pesticide (e.g., use of teased as a pesticide). These minimal chemical needs would be typical in fin-fish culture systems utilizing low stocking densities of herbivorous or omnivorous fish, including carp and tilapia species. (12)

Conclusion

Commercial feeds for aquaculture have been based on fish meal and oils and offered many advantages that did not affect fish performance and fillet quality. The limited availability of such feed and increasing usage and deregulation of proteins based on animal products such as pig are challenging for Muslims and have to be looked into HCBs and Halal Authorities. There are potential alternative sources such as plant proteins, algae and insects which may be a solution in terms of sustainability and Halal compliance. Animal welfare that is applicable to aquaculture is a major issue from reports and need to be looked into. Further studies of different issues raised here need to be looked into specially istihala, if in fact occurs with aquaculture species when they are fed with nais and haram feed. The problem of usage of nais products and clearly haram products and drugs and chemicals in feeds need to be studied and taken seriously by Halal accreditation and certification entities.

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He is a founding member of Islamic publications “Al-Furqan” in Portugal Islamic Discussion Forums with Portal Introduced the translated into Portuguese of Holy Qur’an.

He joined the Halal field in 2015 when he established ABHAMO Halal Trading & Consulting LLC in Portugal – (EU Halal - Portugal).
Natural Feed Additive for Meat Quality and Green Ruminant Production

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A R T I C L E I N F O

Keywords:
- Natural feed additive
- Ruminant
- Animal product
- Lactic acid bacteria
- Herbal plants

A B S T R A C T

Animal welfare is an important part of the work of the European Food Safety Authority (EFSA). The safety of the food chain can be affected by the welfare of animals, particularly those farmed for food production. This is due to the close links between animal welfare, animal health and food-borne diseases. Antibiotics produced by fermentation as animal feed have been used some years ago, it is not only as an anti-microbial agent, but also as a growth-promoting agent and improvement in performance of animal include for ruminants that produce products animal origin. We understand that applying antibiotics as animal feed have benefit, include increasing efficiency and growth rate, treating clinically sick animals and preventing or reducing the incidence of infectious disease. However, there is disadvantages of utilization of antibiotics for over a period of time, they hold the strains of bacteria which are resistant to antibiotics. These bacteria multiply in the animal. Humans can become infected by eating animal products with resistant bacteria. The most common non-antibiotic feed additives already being used for ruminant production, animal product quality such as meat and milk and green environment are bacteriocin that be produced by lactic acid bacteria, herbal plants as antioxidants and agent that be lowering methane production as well as maintaining rumen pH.

Introduction

One obligation of Muslim be concern with quality of Food such as meat be consumed by Muslim must be halalan and toyiban. Muslims people are belief that they must be fixed to strict dietary laws and are allowed only to consume halal food. The Quran has mentioned seriously on the consumption of halal foods through a lot of verses. (The Holy Quran 2: 168). In this verse, there are two important Arabic word which is the word Halal (حلال) which literally means allowed, permitted or lawful and the word tayyib ,which means good and pure. This indicates that the concept of halal food also includes aspects of quality ( safety, hygiene and sanitation ensuing in the term ‘Halaalan Thayibban’ which means permissible and good (1).

Food that have concern with halalan and toyiban provide safety for human being. Recently while people all over the world are now more sensible about foods, health, and nutrition. They are interested in eating healthy foods that are low calories, cholesterol, fat, and sodium, in particular free from chemical and microbiological (2)

The meaning of Halal and Tayyib is not only for satisfying the Sari’ but must be Healthy and wholesome.

Besides fulfilling the Syariah law, which is a must for Muslims, the food safety factor plays a significant contributor in determining the toyibban i.e. wholesome (safe, clean, nutritious, quality) aspects of the food (3)

In this paper will raise to a meaning of animal original food chemical free that be related to residual chemical from feed containing antibiotic that was fed into animal.

The safety of the food chain can be affected by the welfare of animals, particularly those farmed for food production. This is due to the close links between animal welfare, animal health and food-borne diseases (4)

Farmers utilize antibiotic is not only as an anti-microbial agent, also as a growth-promoting agent. We understand that there is a benefit of utilization of antibiotic as animal feed, such as the antibiotic increase efficiency and growth rate, treated clinically sick animals for preventing or reducing the incidence of infectious disease. Unfortunately, utilization of antibiotics for over a period of time, it causes bacteria which are resistant to antibiotics and thy can multiply in the animal that receive those antibiotics. Humans can become infected by resistance bacteria. Currently, 80% of gonorrhoeal infections are now resistant to antibiotics, 440,000 new cases of drug-resistant tuberculosis annually. Antibiotic resistance should be added to the list of national emergencies (5) Because of the utilization of antibiotic as animal feed is
serious problems, therefore recently natural feed additive such as bacteriocin, herbs plants, buffer, hydrogen sink substances have been used to establish green farming.

**Feed additives in ruminant nutrition**

Feed additives are products used in animal nutrition to improve the quality of feed and the quality of food from animal origin, or to improve the animals’ performance and health. They are categorised as follows:

- Technological additives (e.g. preservatives, antioxidants, emulsifiers, stabilizing agents, acidity regulators, silage additives) Sensory additives (e.g. flavours, colorants)
- Nutritional additives (e.g. vitamins, minerals, amino acids, trace elements)
- Zoo technical additives (e.g. digestibility enhancers, gut flora stabilizers). Coccidiostats and histomonostats (additives)

**Manipulation natural feed additive for feed improvement and livestock performance**

The objective of this manipulation. Utilization of local herbs (curcumin) and vegetable as antioxidant. Herbal plants considered as good antioxidant since ancient times.

**Utilization Natural Protease for improvement feed quality**

Based on study Enzyme of protease as natural additive improve of digestibility of soy bean protein

**Study of Bacteriocin Produced by Lactic Acid Bacteria**

Bacteriocin addition as natural antibiotic can affect on *S. aureus* and *E. coli* growth

**Natural antibiotic like (Bacteriocin and Herbs) lowering Methane production in the ruminant**

Utilisation ionophores (monensin and lasalocid) for reducing CH4, have long been made (10). But ionophores may depress fibre digestion and protozoal growths (11) and resistant bacteria will appear in the rumen from the results of long-term use of the ionophores. An alternatives Feed additive to secure safety for animals, their products and environment. Possible control of indirect action of lactic acid bacteria as probiotics on rumen methanogenesis. Based on study natural additive addition on the feed, there were no significantly different on gas production, but herb and bacteriocin addition tend to decrease CH4 production.

**The Sodium nitrate addition in total mixture fermentation of tofu waste as ration on methane production of the rumen fluid**

Methane Gas (CH4) that be produced with two reasons: Disadvantages aspect, it will effect on Environmental and decrease the efficiency of feed utilization by livestock. However, there is advantages aspect, it maintains the system of energy production in the rumen anaerobically and it behave as Hydrogen sink

**Conclusions:**

Halalan and toyiban of food produced by livestock and green environment have been determined by Feed Security and Safety, Ruminant productivity, Ruminant Efficiency and Ruminant healthy

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He is an author and co-author of different books in his field e.g.:
1) "Green Livestock Development through the Utilization of Natural Products as an Alternative to Additional Feed Antibiotics";
2) "Effect of Addition of Lactic Acid Bacteria as a Starter on Total Silage, Probiotic and Natural Forage Mixtures (TCH) in Local Sheep Agribusiness" (2013 and underway);
3) "Building Green Livestock Development Pollutant-Free: Forage Mixed Silage Fermentation in the Lab Scale" (2012); "The Total Mixture Forage Silage Application on Sheep Livestock Performance at the Farmer Level" (2013 and ongoing)
Part VII
Halal Tourism
**Pioneering Islamic Tourism in Maldives: Toward Creation of First Shariah Compliant Resort to become Global Islamic Tourism Hub**

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**Abstract**

Maldives is a hundred percent Muslim country situated in the Indian Ocean which is famously known as the “sunny side of life”. It is a famous tourist destination which is often described as the paradise on earth. Tourism industry began in Maldives in 1972 with the development of 60 tourist beds in two islands. According to CrescentRating, Maldives received over 27,000 Muslim visitors in 2004 and in 2013 this number significantly swelled to 73,000 and it is increasingly becoming one of the most popular tourist destinations in the world. Inhabited countries of Maldives are “dry islands” where selling of alcohol is prohibited by law. But this is not the case in tourist resorts. So far the country does not have a single shariah compliant resort and the government has publicly expressed its aspiration to introduce Islamic tourism for which it has allocated a special island; but the concept of Islamic tourism that is to be implemented in the country is yet to be known. Maldives is a tourism driven economy, which contributes more than one fourth of the country’s Gross Domestic Product (GDP). While tourism sector supplies over 70% of the foreign exchange earnings to the country, one third of the government revenue is generated from this sector. Tourism is also known as the leading employment generator in the country. The objective of this paper is to formulate ways in which Maldives could pioneer Islamic tourism and to create the Islamic tourism strategies which the country will adopt. This is a qualitative research where primary data analyzed are tourism related laws and guidelines issued in Maldives and in different parts of the world and the secondary data analyzed are from newspapers, journals and books on the subject. It is anticipated that this paper will assist the government of Maldives to understand the strategies that could be adopted in implementing Islamic tourism.

1. Introduction

Maldives is a hundred percent Muslim country that is a famous honeymoon destination with a population of less than four hundred thousand people. The country was a British Protectorate and it gained its independence in 1968 (Henderson, 2008). The country includes an area of sea measuring 754 kilometres in length and 118 kilometres wide where there are 1192 islands, only a small proportion of which are inhabited, and almost 80% of land is a metre or less in height. Tourism is the main industry that derives foreign income to the country. The tourism industry of Maldives is mainly based on leisure tourism which began in early 1970’s (Ministry of Tourism, 2003). Maldivian tourism industry is developed by capitalizing on the environmental attributes of the islands and their environment and this is the main reason Maldives is famous for its isolation, pristine environment and exceptionally spectacular underwater world (Ministry of Tourism, 2003). According to CrescentRating, the beautiful island of Maldives received over 27,000 Muslim visitors in 2004 (Rasheed, 2014). By 2013, this number drastically increased to 73,000 and it is increasingly becoming one of the most popular tourist destinations in the world (Rasheed, 2014).

According to Pew Research center, by the year 2030, Muslim population is expected to increase to 2.2 billion from 1.6 billion in 2010 or an increase from 23.4 percent to 26.4 percent of total world population (Economist, 2011). It is reported that many Chinese out-bound tourists choose to visit Muslim-majority countries such as Malaysia, Indonesia, United Arab Emirates and Maldives. These countries market themselves in China for their beaches, shopping and other visitor attractions. However, visiting them does expose Chinese visitors to many aspects of Islamic culture and heritage. Malaysia, Indonesia and the Maldives are the leading Islamic destinations of Asia and the Pacific (UNWTO, N/A).
Tourism started in Maldives in 1972, with the development of 60 tourist beds in two islands. During that time there was no international airport and tourists arrived from Sri Lanka on small aircrafts and they used to stay as an extension of the Sri Lankan holiday package (Ministry of Tourism, 2003). Later on tourists sailed from ports around the region to the Maldives as there were no restriction to sail within Maldives where these foreign vessels cruised around the islands in the archipelago and many tourists stayed with local communities (Ministry of Tourism, 2003). In the 1970’s tourist accommodation consisted of boarding with local families: rooms in inhabited islands, where meals were provided by the host families; guest houses, resort islands and vessels which provided full board accommodation.

Resorts were most popular, although they were more expensive. At that time, in the resorts, there were very basic facilities like naturally ventilated rooms with common toilets, set menu meals, and power and water were provided only at certain times. The investments were also very small because of the limited facilities and temporary nature of construction: the total investment of a resort was as low as 30 thousand US dollars in many cases.

It was in 1982 only the airport of Maldives was developed and the tourists started directly coming to the country. This led to the expansion of the industry rapidly. The capacity of the industry which was 280 beds in 1972, expanded to 1034 beds by 1977: a growth of 269 percent over a five year period. And from 1977 to 1982, it expanded to 3,964 beds, which was another 283 percent increase over the previous five-year period. The rate of increase in beds then declined to 56 percent in the period 1982 to 1987 (Ministry of Tourism, 2003). A total of 1.6 million passengers from International carriers arrived in the Maldives in 2016, of which scheduled flights brought in 99.4% passengers and charter flights carried in 0.6% of the passengers. The number of passengers at both Velana International Airport and Gan International Airport in 2016 by scheduled and chartered flights saw an increase of 7.6% compared with that of 2015. While Scheduled carrier passengers saw a slight increase of 1.4% in 2016, the charter sector saw a major decline of 60% during the year compared to the previous year (Tourism Year Book, 2017).

Tourism is the largest contributor the GDP. In 1981, tourism contributed 10 percent to the GDP, progressively increasing to 18 percent in 1990 and in 2000, its contribution was 33.3 percent (Ministry of Tourism, 2003). The Maldives economy remains a tourism driven economy, which contributes more than one fourth of the country’s Gross Domestic Product (GDP). While tourism sector supplies over 70% of the foreign exchange earnings to the country, one third of the government revenue is generated from this sector. Tourism is also known as the leading employment generator in the country (Tourism Year Book, 2017).

Initially, tourists were permitted to stay with local families in inhabited islands, but later due to the negative social impacts of tourism, government intervened and enacted laws to prohibit tourists to stay in inhabited islands other than Male’, the capital of Maldives; and restricted safari operations for tourists to certain areas of the country. With this policy change, tourists began to get confined to the resorts, guesthouses, hotels and safari boats. With no comparable alternative accommodation to inhabited islands, tourists were compelled to stay in resorts. Consequently, the demand for resort accommodation increased.

Tourist arrival patterns in the Maldives over the last five years has been strong and resilient. Arrivals remained consistent and reached targets, attaining an impressive +10% as five year annual average growth rate from 2012 to 2016. Annual arrival numbers remained above one million since achieving and surpassing one million mark in 2013. The year 2016 was a good year for the Maldives with tourist arrival growth rate exceeding the global rate of 3.9% The Maldives received over 1.29 million tourists, attaining a growth rate of 4.2% in 2016, backed by the strong results recorded for the months of January (11.7%), October (11.4%) and November (15.9%). Above average results registered during the months of July (5.7%) and September (6.7%) further strengthened the annual outcome. Although the months of May and June registered negative growth rates of 2.3% and 3% respectively, February and December managed borderline growth rates of 0.1% and 0.2% respectively and the months of March, April and August recorded marginal rates of 2.4%, 1.2% and 1.9% respectively in 2016 compared with that of 2015 (Tourism Year Book, 2017).

Though Maldives is now considered as a famous tourist destination which has gained popularity in the world, up until now the country does not have a single resort which promotes Islamic tourism. Being a hundred percent Muslim country where the Constitution of the country states that to become a citizen one must be a Muslim and any law contradictory to Islamic law will be void has the potential to become the hub for global Islamic tourism. By law, inhabited islands are prohibited from selling alcohol and any non-halal food and beverages and as such by default food and beverages found in all inhabited islands are halal. Likewise azan is pronounced in all parts of the inhabited islands and shops are closed during jumua and prayer times. However, the uninhabited islands where the tourist resorts are developed and in safaris where tourist services are provided under a special licence haram food and beverages such as alcohol and pork.

The objective of this paper is to formulate ways in which Maldives could pioneer Islamic tourism and to create the Islamic tourism strategies which the country will adopt. This is a qualitative research where primary data analyzed are tourism related laws and guidelines issued in Maldives and in different parts of the world and the secondary data analyzed are from newspapers, journals and books on the subject. It is anticipated that this paper will assist the government of Maldives to understand the strategies that could be adopted in implementing Islamic tourism.

This research is divided into four parts. Followed by this introduction, the second part of the paper discusses the unique structure and features of tourism in
Maldives with special reference to accommodation types and attractions to provide an overview of the industry. The third part of the research deals with Islamic tourism and the features of Islamic tourism analysed from a global perspective and the fourth part of the research discusses Islamic tourism in the context of Maldives. The final part deals with conclusion.

2. The Unique Structure and Features of Tourism in Maldives

Maldives is a tourist destination that promotes “one island-one resort” concept. Tourist from different parts of the world visit Maldives every year to experience the “sunny side of life”. The white sandy beaches and the underwater beauty attracts millions of tourists every year. In the Tourism Year Book (2017) it is stated that Asia and the Pacific remained as the leading tourist generating region to the Maldives at the end of 2016, with a total share of 46.5%. During the past five years, from 2012 to 2016, the region has shown remarkable performances growing at an average annual average rate of 12.1%. However, the growth of the region slowed down considerably in 2015 and showed the same downward trend in 2016. In 2016, the market share of the region declined to 46.5% from, 48.9% in 2015. Maldives received over 598 thousand tourists from Asia Pacific region in 2016 with a growth of 12.1%.

Under Tourism Act (Law No. 2/99), all facilities providing accommodation to tourists visiting the Maldives are required to register at Ministry of Tourism under the respective category. Section 50 of the Act defines “tourist resort” means an island or a designated area of an island that has been developed to accommodate tourists and to provide board and lodging facilities for them; “tourist hotel” means an establishment, other than a tourist resort or tourist guesthouse, that has been developed to provide board and lodging or [only] lodging for tourists for a payment decide at a certain rate per day of stay; “tourist guesthouse” means an establishment, other than a tourist resort or a tourist hotel, that has been developed, in compliance with standards determined by the Ministry of Tourism, to provide board and lodging or [only] lodging for tourists for a payment decided at a certain rate per day of stay; “tourist vessel” means a seagoing vessel that has been developed, in compliance with standards determined by the Ministry of Tourism, to provide board and lodging for tourists for a payment decided at a certain rate per day of stay on board such vessel; “marina” means harbors developed for anchoring yachts and such vessels and to provide various services to those vessels; “diving centers” means diving schools, diving bases and all other parties that provide diving services for tourists; and “tourist” means every person that enters the Maldives who is not a Maldivian citizen and is not possession of a “resident permit”. A ‘resident permit’ here is a permit issued pursuant to regulations of the relevant authorities permitting an individual to be resident in the Maldives whilst not being a tourist.

Resorts, the most prominent and commonly used type of accommodation in the Maldives adopt a unique concept of “one-island-one-resort” and take up over 70% of the tourist bed capacity in the Maldives. With the eleven new resorts that came into operation in 2016, the total number of resorts increased to 126 with 27,031 beds in the Maldives, accounting for 72% of the total bed capacity at the end of the year (Tourism Year Book, 2017). Hotels are located in inhabited islands giving full board accommodation to visitors. This sector covered 5% of the total bed capacity in the Maldives in 2016 (Tourism Year Book, 2017). The Guest House sector is a rapidly growing sector, providing mostly only lodging facilities for the visitors. Guesthouses being located in inhabited islands make it an attractive type of accommodation amongst mid to low market segments. Accounting for 16% of the of the total bed capacity, there were a total of 393 guesthouses in 77 islands scattered across 19 atolls at the end of 2016 (Tourism Year Book, 2017). Safari Vessels, a popular and common form of accommodation preferred by divers, are live-aboard floating beds. These boats are equipped with professional diving equipment and qualified diving instructors, offering standard or luxury accommodation facilities on board with all amenities. These vessels cruise around Maldives stopping over at different dive locations and uninhabited islands. Safari vessels accounted for 7.2% of the total bed capacity of the Maldives in 2016. At the end of 2016, there were 144 safari vessels with 2,694 beds cruising around in the Maldives (Tourism Year Book, 2017). Cruising started in the 1970s, and initially the boats were modified fishing vessels with very basic services. The number of floating beds progressively increased and the general trend is similar to the capacity increase in resort beds. The safari boats developed from modified fishing vessels, which offered very basic services on board, to higher quality services provided on purposefully built cruising vessels. And they continuously improved and added facilities on board, as a result the new vessels started to get larger.

There are many recreational activities available for tourists in Maldives. The main recreational activities available in Maldives are driving and water sports, fishing, excursions and health related activities (Tourism Year Book, 2017).

3. Definition of Islamic Tourism and its Features: A Global Perspective

Full There is no precise definition of Islamic tourism as different people view it in different manner. The emergence of Islamic Tourism was highlighted in the meeting of the Organisation of Islamic Countries (OIC) in 2000. At the meeting, OIC proposed increase people movement and traveling within Islamic countries in order to generate income and increase the development of its member countries. This part of the research discussed the various definition made by the scholars on the term ‘Islamic tourism’.

Henderson (2010) defines Islamic tourism to all product development and marketing efforts designed for and directed at Muslims. Motivations are not always or entirely religious. Participants could be pursuing similar leisure experiences to non-Muslims, albeit within parameters set by Islam, and destinations
are not necessarily locations where Shariah or full Islamic law is enacted.

According to Shakiry (2006), the concept of Islamic Tourism is not limited to religious tourism, but it extends to all forms of tourism except those that go against Islamic values. Hassan (2004) states that Islamic Tourism means a new ethical dimension in tourism. It stands for values generally accepted as high standards of morally and decency. It also stands for the respect of local beliefs and traditions, as well as care for the environment. It represents a new outlook on life and society. It brings back values to the central stage in an age where consumerism is rife and everything is available for use and abuse in the most selfish way. It also encourages understanding and dialogue between different nations and civilisations and attempts to find out about the background different societies and heritages.

It is estimated that in 2010 there were 1.6 billion people who self-identify as Muslims, representing 23.2% of an estimated 2010 population of 6.9 billion (or one out of every five person in the world). More than 61% of Muslims live in the Asia-Pacific region and about 20% in the Middle East and North Africa (Pew Research Centre, 2012). The following verse of al-Quran states the basic reason for tourism:

“Travel through the earth and see how Allah did originate creation; so will Allah produce a later creation; for Allah has power over all things” (Surat Al-Ankabout, 20).

An Islamic Tourism blueprint was published by Islamic Tourism Centre (ITC) in 2012, called the Strategic Plan for Islamic Tourism Development. It outlines a comprehensive and implementable strategic plan for the future development of Islamic tourism within this country via Islamic tourism standards and quality control drafts in management, operations and implementation. Formulation of the Strategic Plan for Islamic Tourism Development takes into account the substance and objectives outlined by the 10th Malaysian Plan, Tourism National Key Economic Areas (NKEA) and Tourism Industry Policies that aim to achieve sustainable tourism growth and elevate the tourism industry to a higher level of achievement.

The objectives of this blueprint is to provide a detailed study on the background of Islamic tourism, to conduct a SWOT analysis of Islamic tourism in Malaysia vis-à-vis other Islamic countries and to propose a strategic direction to be taken with a detailed action plan to develop and promote Islamic tourism in Malaysia.

Islamic tourism is not just limited to the provision of Halal food, but also includes hospitality services that comply with the Islamic Law (Shariah). This encompasses hotels, resorts, restaurants and airlines that do not serve alcoholic beverages, offer food with halal certificates, and provide separate wellness facilities for women, prayer facilities and a generally Muslim-friendly environment.

The Muslim Friendly Hospitality Services (MFHS) standard is Malaysia’s first standard dedicated for the Islamic tourism sector. Initiated and led by International Institute for Halal Research & Training (INHART) of International Islamic University Malaysia (IIUM), the original submission to develop the standard was made in December 2012 to the Department of Standards Malaysia (DSM). This was followed by the appointment of SIRIM as the standard’s secretariat by DSM and the formation of draft committee by the Technical Committee (TC) on Management System from Islamic Perspectives.

The drafting committee of the standard comprises main representatives of tourism industry players including Islamic Tourism Centre (ITC), Tourism Malaysia, Malaysia Association of Hotel Owners (MAHO), Malaysia Association of Hotel (MAH), Malaysia Association of Tour and Travel Agents (MATTA), Bumiputera Travel and Tour Agents Association of Malaysia (Bumitra) and Malaysian Tourist Guides Council (MTGC).

After months of developing, drafting and revising the document was released as “Draft Malaysian Standard: Muslim Friendly Hospitality Services – Requirements” for a two-month public comment commencing 1 August 2014 until 30 September 2014.

In January 2015, the standard was officially published as “MS2610:2015 – Muslim Friendly Hospitality Services – Requirements”. It provides guidelines on three critical components of the Islamic tourism supply chain namely the accommodation premises, tour packages and tourist guides.

At the moment, there is no regulation in Malaysia that governs the Islamic tourism sector and the adoption of the standard is however solely on voluntary basis. On the part of ITC, the standard will be promoted to the tourism industry players especially those who are looking to make some operational changes in order capture the lucrative Muslim tourist markets.

This standard is not applicable for health and beauty facilities such as spa and massage or any facilities, products and services. Below are the general and specific requirements stated in this standard:

(a) General Requirements

i. Management has to ensure the establishment of the framework, the execution of all outlined MFHS practices and the commitment to improve MFHS on a continuous basis.

ii. Management should appoint a trained Muslim officer to ensure the implementation of MFHS.

iii. The Organization should hire competent and educated personnel and offer training to ensure competence.

iv. A list of all Muslim-friendly products and services offered should be provided as well as constantly updated to ensure that Muslim guests are able to make an informed decision.

(b) Specific Requirements

Management has following are the specific standards discussed in the standard:

i. Accommodation: The organisation shall ensure the accommodation premises in compliance with the requirements set in this standard. In the event of the establishment is experiencing a contamination with najis mughallazah, it shall perform ritual cleansing procedure in accordance to MS 1500:2009. The requirements for accommodation are as follows:

a. Rooms: The organisation shall ensure the room is
suitable for Muslim guests which include but not limited to:

i. The room shall be kept clean and well maintained.
ii. The organisation shall ensure the guest rooms have a clearly marked kiblat direction.
iii. The rooms shall have adequate floor space for a Muslim to perform prayer in the room.
iv. The washroom shall be equipped with bidet or hand shower or water hose.
v. The washroom floor shall be kept clean.
vi. The organisation shall ensure that personal care amenities products provided in the washroom are suitable for Muslim use.

Alcoholic beverages and intoxicants shall not be stored in the room’s refrigerator.

The following are recommended for Muslim guests which include but not limited to:

i. There should be sajjada available for use in the room or upon request by the guest.
ii. The room should provide female prayer garment or be made available upon request.
iii. Information on prayer times should be available in the room or upon request by the guest.
iv. A translated al-Quran should be made available upon request by the guest.

Food and beverages: The organisation’s kitchen shall be certified halal by competent authority. The organisation shall ensure that the information on services during Ramadan is available and communicated. The services shall include times and meals for sahur and iftar.

Public musalla: There shall be allocated public musalla for Muslims at the establishment. The requirement for public musalla shall be as follows:

a. located in suitable location;
b. well lit with adequate ventilation, kept clean and well maintained;
c. has a clearly marked kiblat direction verified by competent authority;
d. has segregated prayer areas for men and women;
e. has sufficient number of sajjada;
f. has current information on prayer time or upon request;
g. provide clean female prayer garment or upon request; and
h. has a segregated wudhu’ facility for men and women and adjacent to the musalla.

Recreational and wellness facilities: The requirements for recreational and wellness facilities shall be as follows:

a. recreational and wellness facilities shall be kept clean and well maintained;
b. the washroom at the facilities shall be equipped with bidet or hand shower; and
c. wherever appropriate, the organisation shall provide facilities that are Muslim friendly.

Tour package: The requirements for tour package are as follows:

a. Accommodation: The travel agent shall ensure that the package which includes accommodation is in adherence to the requirement stated above.
b. Ground transfers
i. Transportation used for ground transfers shall comply with applicable safety and regulatory requirement.
ii. Where an organisation chooses to outsource the transportation, the organisation shall ensure control over such activity i.e. ensuring that the suppliers, subcontractors and other interested parties involved comply with the relevant requirement of this standard.
iii. Upon request, the package shall be able to provide transportation for women guests exclusively.
c. Product selection
i. The selection of tourism products included in the package shall reflect the Islamic values experience.
ii. The product selection shall not include the premises with the following core activities:
1. manufacturer of non-halal products or related products, for example selling of liquor and pork;
2. gambling and gaming;
3. pornography;
4. entertainment activities that are non-permissible according to Shariah;
5. non Muslim worship places; and
6. other activities deemed non-permissible according to Shariah.
d. Itinerary: The itinerary shall have an allocated scheduled time for prayers, sahur and iftar during Ramadan.
e. Facilities: The travel agent shall ensure that the selected tourism products have the appropriate facilities i.e. musalla, washroom etc. or easy access to the facilities. The travel agent should ensure the facilities are generally clean and in good condition.
f. Food and beverages
i. The travel agent shall ensure that all food and beverages included in the package shall be certified halal by competent authority.
ii. If the package does not include food and beverages, upon request it should provide a list of halal certified restaurants within the vicinity.
g. Travel protection plan: The travel agent should ensure a Shariah compliance protection scheme is included in the package.
h. Tour guide: The requirements for tourist guide are as follows:

a. Credentials: Tour guides shall possess license, skills, language competence and shall meet all legal requirements to give tours in their area.
b. Code of conduct: Tour guide shall follow the code of conduct and ethics as imposed by relevant authority.
c. Appearance: Tour guide shall dress a modest and professional dress code as imposed by relevant authority. For female Muslim personnel, a headscarf is highly recommended. The tour guide shall act in courteous manner in accordance with Islamic values.
d. Muslim friendly services: The tour guide shall provide Muslim friendly services to the customers which include but not limited to:

i. have basic knowledge on the requirements for Muslim travellers;
ii. shall keep the guests informed on their prayer time;
iii. shall facilitate ample time for guests to perform their prayer;
iv. shall ensure all restaurants and eateries are certified halal by competent authority; and
v. in the absence of halal food, the tour guide shall
be able to provide the guests with a list of halal certified eateries.

Muslim Friendly Tourism (MFT) reports has been published by COMCEC (2016). It is stated in the report that: The tourism industry has been using a variety of terms to describe the products and services targeting Muslim travelers ranging from “Halal Travel,” “Muslim-friendly,” “Islamic tourism” to “Shariah compliant. In the literature, academically mostly use the terms “Halal Tourism” and “Islamic Tourism” in reference to tourism products and services addressing Muslim travelers’ needs. In a previous study, commissioned by COMCEC, Muslim-Friendly Tourism was equated with Halal Tourism and defined as “The activities of Muslim travelers who do not wish to compromise their faith-based needs while travelling for a purpose, which is permissible (COMCEC, 2016, p.2).

Following figure 1 shows the importance of various Muslim friendly service to be regulated by MFT accommodation standard, figure 2 shows selected list of current MFT standards and figure 3 shows the planned MFT standards:

4. Halal Tourism Concept for Maldives

As a one hundred percent Muslim country, the Maldives has the potential to be promoted as a halal tourist destination and a hub for all Shariah-compliant business activities in South Asia. There are numerous implicit strengths the country has in this regard, the most crucial of which is the fact that all goods imported to the country-in all shops and every restaurant - are halal. Mosques are found on every corner and azan is pronounced publicly. Shops are closed for prayers and on Fridays business activities are closed during jumuah time. The lifestyle of Maldivians are based on the tenets of Islam and throughout the country. The only worship places found are mosques. Gambling is prohibited in the country and there are no pubs, discos, and clubs to be found. The service industry of the country, including medical services are also essentially shariah-compliant in the sense that, for example, abortion cannot be made unless there is a shariah-accepted reason. safari boat tours are available without alcohol or other haram activities and even recreational activities such as fishing trips, snorkeling, diving, dolphin watching, island hopping and submarine trips are shariah-compliant.

The financial system of the country is not fully based on the principles of Islamic finance, but it is a developing option in the market. On beaches and other public areas on the inhabited islands, a modest dress-code needs to be followed and bathing suit and similar swimming suits are not considered acceptable attire in populated areas. The national airline of the country ‘Maldivian’, which operates domestic and international flights does not offer liquor or pork in any of their services. Alcohol consumption and purchase are forbidden by law and religion in the country except in the airport and islands-hotels (Auvray, 2010).

Taking these factors into account, it must be concluded that Maldives has great potential to be promoted as a halal tourist destination by promoting these strengths to potential Muslim travelers. This can only be possible by developing a unique marketing strategy to reflect the halal aspect of tourism in the Maldives. Furthermore, the opportunity to open halal tourist resorts needs to be made a key priority, and incentives offered to likely investors.
The existing trend is to give mere lip service to this types of venture without seriously considering their viability is a clear mistake, as the global halal tourism market looks set to become a $200 billion industry. This may be due to the misconception that banning alcohol means a loss of revenue to resorts, and this kind of theory can only be discredited by demonstrating the practicality of halal tourism in the Maldives.

Over the years tourism has imposed itself as the most important branch of the economy, but in order to keep it that way, it is very important to keep pace with the world’s trends and offer each guest what they need to feel in our country as relaxed as they would at home. Halal tourism is definitely among them.

Rosenberg & Choufany (2009), divided the Shariah Compliant Hotel (SCH) into three divisions specifically on operations, design & interior and financial. This was further buoyed by other scholars who added few other minimum requirements for the SCH. Rosenberg & Choufany (2009) explain that in order for a hotel to be fully Syariah-Compliant, it needs to have segregated facilities for male and female guests and the prohibition of immoral places of entertainment such as bars and night clubs. This has to be taken into consideration in the design and development stage of the hotel. Along with the provision of halalfood and beverages, the prohibition of alcohol and other non-halal food, other requirements include that beds and toilet bowls should not be placed in the direction facing the qibla. Based on these features and attributes, Figure 4 (below) illustrated the model for Islamic tourism in Maldives specifically for tourist resorts.

Maldives has the potential to cater Muslim tourists using Islamic tourism standards that can be formulated by Ministry of Tourism of Maldives. The standards of Islamic tourism in Maldives need to be regulated by the Ministry of Tourism and it is imperative to come with a customized regulation for this by considering the features stated in Figure 4 (above). Since Islamic tourism involves special halal food that cannot be mixed with other food, which means it is necessary to use special knives, pots, pans, boards, and other accessories for the preparation of food. Hotel rooms should have a prayer rug and the Quran, and minibars should not contain any alcoholic beverages, it is imperative to codify these in a standard.

Islamic tourism is definitely something which has potential in Maldives and government has allocated an island for this purpose to Maldives Centre for Islamic Finance in 2016 to develop the first shariah compliant resort in the country. However, the biggest challenge facing the development of this island is lack of funding.

The following SWOT analysis indicates points or areas of strengths, weaknesses, opportunities and threats which Maldives may find strategically useful in moving its international Islamic tourism forward (Figure 5):

Figure 5: SWOT analysis of Maldives positioning as the global Islamic tourism hub

5. Conclusion

The Islamic tourism can be defined in many ways. The simplest way it is to state that it refers to shariah-compliant traveling and leisure activities enjoyed by a traveler whether Muslim or non-Muslim when in a foreign country for a temporary period of less than a year. As such, to find out whether a country is offering halal tourism, it is imperative to check whether the country offers shariah-compliant products and services. Non-Muslim countries, such as Thailand, Japan and Korea are starting to target the Muslim travel segment and are developing products tailored to the needs of Muslim travelers. It is evident from foregoing parts of this research that Islamic tourism has potential in Maldives and there is need to codify the Maldives Halal Tourism Standards for certainty purpose. It is not wrong to state that some form of Islamic tourism is found in the inhabited islands of Maldives. The moment the first Islamic tourist resort is launched in Maldives it will prove the practical viability of Islamic tourism in uninhabited islands as well. It is hoped that soon this will be realised and Maldives will be known as the global hub for Islamic tourism. Islamic Tourism governance and policymaking is definitely required for this.
References


Associate Professor Dr Aishath Muneeza of INCEIF is one of the key founder of Islamic finance in Maldives. She is the first female Deputy Minister of Ministry of Islamic Affairs and the first chairperson of the Hajj Pilgrimage Fund of Maldives. Currently, she is the chairperson of Maldives Centre for Islamic Finance. She has published books and numerous articles on Islamic Finance and her research areas include legal studies & corporate governance applicable to Islamic Finance. She structured the first corporate sukuk, sovereign private sukuk and Islamic Treasury instruments for the government of Maldives and she has played the key role in offering of Islamic Finance products by more than eleven institutions. She also designed the first Islamic microfinance scheme offered in Maldives. She sits in Shariah advisory committees of financial institutions offering Islamic financial services such as Islamic hire purchase and takaful. She also holds the position of chairperson of three different in-house Shariah committees. She is the chairperson of Shariah Advisory Council of CMDA, the capital market regulatory authority of Maldives since 2011. She is the only registered Shariah Adviser for structuring capital market instruments in Maldives and she is a registered Shariah Advisor at the Securities Commission of Malaysia. The Islamic capital Market framework of Maldives was designed by her. She has won numerous national and international awards for her service in Islamic finance industry including the Rehendhi award, the highest award conferred to women by the government of Maldives. She is also a role model and a mentor for females who aspire to build their careers in Islamic finance industry and is the Vice President of Women on Boards, an NGO advocating women representation on boards of companies. She is an invited speaker in Islamic finance conferences and events held in different parts of the world. She is listed in 2017 as number seven among the 50 Influential Women in Business and Finance by ISFIRE which is an official publication of Islamic Bankers Association based in London and she is among the most influential 500 in Islamic Economy. She is a member of the Association of Shariah Advisors in Islamic Finance Malaysia (ASAS), Malaysia.
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Ibn Battuta
Responsible Traveller

ABSTRACT
To travel is to live, The joy of being a responsible traveller is experienced in the deep soul.

1. Introduction

Amidst the differences among every human and society, we strive to stand united which enhances our living in this world. Halal friendly tourism is for those who chose to follow ethical lifestyle even while exploring the world. This is also being highly accepted by people of diverse races and religious beliefs for its values.

I have travelled many countries across continents and have always felt a need for one system that takes care of the entire Halal travel industry. Believing in shared responsibilities help to achieve the motive o create an entity where Muslim families travelling to the place of different faith and races yet finds comfort and harmony;

Unlike any other industry, the World Halal Tourism uniquely brings together the industry’s most influential participants, ensuring that the valuable time of people and administrators is maximized in terms of experience & business returns. A platform that not only shapes the future of Halal tourism but also educates, demonstrates and delivers new market opportunities.

2. Non-Muslim Countries Go Halal to Attract Muslims

The Halal Tourism, as a new phenomenon in the tourism market, has many economic and social benefits especially in the regions such as South-East of Asia and the Middle East. It is expected that Halal Tourism as a modern trend that makes up a good portion of the spending in the global economy, and it is expected that global spending for Muslims to travel abroad to be $ 233 billion in 2020.

3. Eyes up for growth as a world leader in Halal Tourism

Online & offline travel company that specializes in the Hotel Booking, e-commerce sale of sightseeing tours, travel experiences and ground transportation worldwide.

Recreational Facilities and Services
➢ Halal Friendly Accommodation & Airlines
➢ Tours & Sightseeing
➢ Tour Activities
➢ City Tours & Sightseeing
➢ Day Trips activities
➢ Private Tour activities
➢ Hop on hop off tours
➢ Cruise Tours
➢ Cruise tours with dinners and so
➢ Adventure Tours
➢ Fun and Adventure tours
➢ Leisure activities

4. Competition Heating up in Online Travel

If a destinations or attraction wants to target the Muslim traveller – they have to focus on some essentials – primarily it is education which is of paramount importance. Tourism authorities have to continuously educate travel players on essentials of the Muslim market. This will also include workshops and training for staff.

The desire for “real” experiences has surged with consumers placing a much higher value on authentic experiences over tourist traps in recent years.

To capitalize on these changing expectations with speed and agility are more likely to capture their share of the billions of dollars in 2017 global travel growth.”
The report continues by describing four areas within the travel and hospitality industry that hosts will need to focus on to win the attention of the consumer: authenticity, personalized experiences, removal of friction (in terms of booking), and on-demand functionality.

5. Increased competition in the travel industry means more focus on consumers

The ministry compiled a list of strategies to further develop halal tourist attractions in the country. Indonesia aims to attract 3.8 million Muslim visitors in 2018, and five million by 2019, which will contribute towards its target of 20 million international visitors in the same year.

6. Market Research

Global tourism industry - A primary engine of growth for the nation

The travel and tourism industry is one of the world’s largest industries with a global economic contribution (direct, indirect and induced) of over 7.6 trillion U.S. dollars in 2016. The direct economic impact of the industry, including accommodation, transportation, entertainment and attractions, was approximately 2.3 trillion U.S. dollars that year.

As one of the world’s largest economic sectors, Travel & Tourism creates jobs, drives exports, and generates prosperity across the world. The International Year provides an enormous opportunity to further showcase the tremendous economic, social, cultural, environmental, and heritage value that the sector can bring.

7. GLOBAL ECONOMIC IMPACT

8. LONG-TERM OUTLOOK

- International tourist arrivals worldwide are expected to increase by 3.3% a year between 2010 and 2030 to reach 1.8 billion by 2030, according to UNWTO’s long-term forecast report Tourism Towards 2030.
- Between 2010 and 2030, arrivals in emerging destinations (+4.4% a year) are expected to increase at twice the rate of those in advanced economies (+2.2% a year).
- The market share of emerging economies increased from 30% in 1980 to 45% in 2016 and is expected to reach 57% by 2030, equivalent to over 1 billion international tourist arrivals.

“This is the sixth year in a row that Travel & Tourism has outpaced the global economy, showing the sector’s resilience, and the eagerness of people to continue to travel and discover new places, despite economic and political challenges across the world.”

9. CULTURE AND STRATEGY IN THE SECTOR

Over the decades, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. Modern tourism is closely linked to development and encompasses a growing number of new destinations. These dynamics have turned tourism into a key driver for socio-economic progress. The global tourism industry is gearing up for a projected boom in Muslim travel over the next decade, experts say.

10. Market Analysis

Halal Tourism is taking the world by storm. Halal tourism has gained a massive acceptance in recent times, and it is now becoming a new phenomenon in the global tourism industry. The halal tourism industry refers to the tourism products and hospitality services following the Islamic beliefs and practices.

Halal tourism has flourished to cater for the needs of Muslim travellers who want to enjoy full holiday services, which at the same time address their religious requirements as well as Islamic customs and culture. This rapidly growing Muslim tourist market is said to be worth billions.

The Rising Wave of Muslim Millennial Travelers

The research projects total expenditure from Muslim millennial travellers alone to surpass US$100 billion by 2025, while the overall Muslim travel segment is estimated to reach US$300 billion by 2026. Travel within this young generation of Muslims is booming as consumers with more disposable income seek more exotic experiences and far-flung destinations.

Halal tourism is a promising opportunity for the travel industry worldwide.
Non-Islamic countries are now "taking a serious look."

With that in mind, non-Muslim countries, worldwide are attempting to proceed with the steps and initiatives that will make them more Muslim-friendly, therefore ramping up the number of Muslim tourists.

- It aims to evaluate the potential within the Muslim millennial market for tourism destinations, tour operators, airlines and the tourism and hospitality industries.
- A number of countries have already adapted their tourism offers to include facilities and accommodations in accordance with the religious beliefs of Muslim tourists.
- Muslim holidaymakers offering Halal friendly travel and holiday packages with a wide range of destinations for family, winter, holiday, honeymoon and Islamic tours to choose from.
- To promote the initiative, several organisations and tourist operators have arranged summits or conferences concerning Halal tourism;

11. Customer Analysis

Muslims represent an estimated 23% of the global population or about 1.8 billion consumers with an average growth rate of 3% per annum. If this growth trend continues, Muslims are expected to make up about 26% of the world’s total projected population of 2.2 billion in 2030.

More and more Muslims around the world are now venturing out of their comfort zones and travelling to popular countries that tend to offer a small number of Halal-friendly facilities, or even to ones that offer none at all. With that in mind, non-Muslim countries, worldwide are attempting to proceed with the steps and initiatives that will make them more Muslim-friendly, therefore ramping up the number of Muslim tourists.

The study also sheds light on the travel motivations, habits, needs and preferences of the Muslim millennial segment:
- The majority of Muslim millennials are avid travellers – they travel between two to five times a year (46 percent) and for an average of four to six days per trip (41 percent).
- Muslim millennials are cost-conscious travellers with the majority spending on average between US$101 to US$500 per expenditure component (flights, accommodation, meals, shopping, miscellaneous) for each trip.
- The majority of Muslim millennials said they spend between one to six months to plan a trip (61 percent), researching extensively and reviewing a variety of traditional and online sources prior to travelling.
- The top 10 most visited destinations among Muslim millennials were Malaysia, Indonesia, Japan, Thailand, Australia, Singapore, United Arab Emirates, United Kingdom, United States of America and India.
- Cost of flight and accommodation, safety and terrorism concerns, and the availability of halal food were the top three influencing factors when Muslim millennials plan for their travels.

More than 60% of the Muslim population is under 30. We see these young and technologically savvy Muslim Millennials spend almost their entire pre-travel journey online, from trip planning research to bookings of flight and accommodation.

Muslim-friendly vacation platforms have begun to emerge

To cater to this growing segment of the tourism industry, travel agencies, hotels, airports, restaurants, and other destinations are seeing the financial benefits of providing for the strictest observers of Islamic Law.

It refers to tourism products that provide hospitality services in accordance with Islamic beliefs and practices. Offering needs to be 100 percent tailored to Muslim travellers’ needs and lifestyles.

This involves serving halal food, having separate swimming pools, spa and leisure activities for men and women, alcohol free dining areas, prayer facilities, and even women-only beach areas with Islamic swimming etiquette.

12. Technology Trends

OTA is Changing The Rule Of The Game

It is hardly surprising that the OTA market space is currently at its dynamic best! While the existing players are continuously expanding through strategic alliances and investments, there is a simultaneous influx of established names (known for their disruptive forces), into the online travel domain.

The online travel industry is primarily made up of travel e-commerce sites and review sites. Travel e-commerce sites specialize in the selling of travel products such as flights, hotels, and rental cars.

Online Channel Changing Consumer Behaviour

It’s very easy for the public to use the online travel agencies to compare prices, feature and services and then pick the one that suits them best.

The Internet has put pricing power in the hands of the consumer.

Many internet users appreciate the ability to create their own itineraries with the help of digital tools such
as travel planning websites, price comparison websites or review portals, which frequently provide visitors with the option to directly book accommodation at listed locations.

Some statistics on the travel industry

- Online Travel Market is Estimated to Generate $1,091 Billion, Globally, by 2022 - Allied Market Research.
- More than 10 million searches related to travel are carried out in Google Search per month.
- An estimated 3 million web traffic are going into top 10 OTAs alone.

Digital travel sales worldwide from 2014 to 2020 (in billion U.S. dollars)

TRENDS DEFINING THE GLOBAL TRAVEL INDUSTRY IN 2017

- RAPID CHANGE IN ONLINE TRAVEL CATEGORY

  Online travel is currently experiencing rapid change with mobile channel, personalisation and peer-to-peer travel services being the main disruptors. The app environment offers more convenience and less choice than web searches.

- SHARP RISE OF GLOBAL MOBILE TRAVEL SALES

  The mobile channel is growing rapidly in the travel industry. Global mobile travel sales accounted for US$96 billion in 2016 and are expected to reach US$260 billion in 2019, that is 25% of total online travel bookings.

- INCREASING CONSOLIDATION AMONG OTA

  Today’s always-connected travellers seek information and assistance during their trips. This results in a shift of focus for travel companies from the time of the booking to the travel experience, in order to become mobile travel assistants.

13. Competitive Analysis

  Competition Heating up in Online Travel

  The way people experience, consume and share information has changed drastically from previous decades. Shifts in customer expectations, new technologies and industry trends are compelling the industry to adapt their business and operating models in their quest for enhanced customer preferences and operational performance.

Travel's Tours & Activities Market to Reach $183 Billion by 2020

The Big Players

Expedia
Gross Bookings 2016 - 88.41 billion

Priceline
Gross Bookings 2017 - 81.2 billion

Halal Friendly OTA
HalalBooking.com
Offering truly great holiday experiences with an Islamic Ethos.

Halaltrip.com
The all-in-one Muslim app for right Halal travel experience right.

Mohamed Jinna is the Founding Chairman of United World Halal Development, Singapore, he has a Bachelor Degree in Computer Science from Baharatidasan University, India and done Masters in Telecommunication & Networking from Baharatidasan University, India. He has also pursued his Advanced Diploma in E-commerce from Singapore and Diploma in Islamic banking, Finance from United Kingdom and a Certified in Halal Auditing and Shari'ah Compliance from Malaysia. He has setup a consortium of business across various nations and holding various honourable positions in global Halal Industry.
International Sports Organization and Halal Food

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International Organization
Sports
Halal Food

ABSTRACT
The purpose of this study; in order to prevent the problems experienced by Muslim female, male athletes and technical delegation of halal food in international sports organizations.

Every year many sport organizations made it and Muslim male, female athlete and staff suffer from a lack of halal food product. We know that some of Muslim athlete brings their halal food to sport organization place. Some of athletes usually don’t eat anything in the organization. Athletes have to get calorie twice more than sedentary people. Usually some of combat sport athletes gets 4000 calories daily. This situation effect athlete body physically, psychologically, motivational and emotionally.

Material and Method; in this study; literature review and 12 social demographic question and concern of the halal food survey made it to Turkish National Wrestling team member. 13 old and new Turkish National Wrestling Team members participated to study. All survey data percentage distribution SPSS statistical program used. All the survey was taken from on the phone interview and all member of the team voluntarily answer the surveys questions.

Results; in this study, 100 % of the participants were given answer (No) Question of the: Can you easily consume the food at the accommodation place in the sports competitions held abroad? In the study 100 % percent of the participant paying attention to the halal food product and many of them has knowledge of the halal food. In this study 92 % of the participants were given answer (yes) Question of the: Does the presence of halal certified products affect the performance of the sport in competitions held abroad? Concern; in this study elite athletes have strong consideration of the lack of halal food product abroad. All the elite athletes mentioned that lack of halal food product affect their sport performance directly. After this moment whole the Muslim community and Muslim Country National Sport Federation and Muslim Country National Olympic committee member requests about halal food consideration and give information about the halal food. If we don’t mention and request how come, we expect some change. Also, halal food sectors have to improve their standard and quality and be able to serve to international sport organizations around the world.

1. Introduction
Because of the globalization millions of people travel and visit each country. Especially Muslim countries economic grow will affect the travel sector. Currently, we can see many Muslim people around the world. These activities also bring more attention to food sectors. In the Muslim majority, the concept of halal is an absolute key to consumption. Muslim consumers nowadays are faced with a broad selection of products and services.

Institutional religion formalizes these into a system which can be taught to each generation “Islam is more than a religion as it controls the ways of society and factors associated with family, dress, cleanliness and ethics” (Fam, 2004). Islamic lives bring to many regulations to our life. Muslim has to follow that regulations and follow Prophet Muhammed (S.A.V) life samples.

A religion may influence consumer behavior and behavior in general [10], especially in decisions to buy meals and in establishing food habits [3]. Muslim consumers are trying to very careful with the food product and many times look for the alternate food.

Burgmann, (2007) mentioned in article that halal food is owing to two reasons, the halal food market is the fastest growing in the world. First, it can be linked to religious fervor and beliefs that it is cleaner, healthier, and tastier (and second, for the tremendous acceptance of halal within the global population through the process of assimilation.

The degree to which an individual is religious, that is, their religiosity, is part of their self-identity as a Muslim, and to that extent they will have Muslim attitudes, subjective norms and perceived behavioral control that determines their intention to consume halal foods. However, the extent to which an individual consumes halal food will also depend on other related factors, such as availability of halal food, chance, knowledge, and sources including money [40].
The Muslim population in and around us is large and Islam is the fastest growing religion on earth. With Muslims now making up one quarter of the world’s population, the market opportunities are outstanding and the global halal marketplace is too lucrative a market for food manufacturers to ignore. There are altogether more than two billion Muslim populations in the world spreading across many countries, across diverse regions such as Organization of Islamic Conference Nations (1.4 billion), Asia (805 million), Africa (300 million), Middle East (210 million), Europe (18 million), and Malaysia (16 million) (www.mida.gov.my). With the global halal market estimated to be worth US$580 billion a year and the halal food industry pegged to grow at a rate of 7 percent annually [36].

The purpose of this research bring more attention to public and international sport federations, Muslim male, female athletes and technical staff, delegation getting problem lack of halal food product when they travel abroad. This problem will affect athlete’s sports performance, motivation and moral issues.

2.1. Halal Food

Probably everyone wonder that what is halal food? Halal (, hala¯l, and halaal ) is a Quranic word meaning lawful or permitted, which is the dietary standard prescribed in the Quran. In the Quran, it is mentioned that all foods are halal except those that are specifically mentioned as Haram, which is prohibited or unlawful. In the English language, it most frequently refers to food that is permissible according to Islamic law. In the Arabic language, it refers to anything that is permissible under Islam [1].

Religious control of food consumption patterns is in terms of restrictions on particular foods: Jews, for example, are prohibited from eating pig meat; and beef is prohibited for Hindus. Muslims are prohibited from eating pork, blood, and animals that have not been killed in the way prescribed by syari`ah law, and they may not drink alcoholic beverages. Muslims have a religious obligation to consume halal food [4].

Meanwhile, religiosity is the extent of a person’s commitment to his or her religion [22]. Religiosity is very important because it determines individual cognition and behavior [39]. It is highly likely that religiosity will govern an individual’s behavior, including behavior as a halal food consumer.

2.2. Sports and Nutrition

Athletes always need good nutrition, if athletes couldn’t get enough and right nutrition will affect their performance directly. Healthy and suitable nutrition plays an important role in the athletic performance providing the long-term needs of training and the short-term needs of competition [14].

The science of nutrition in relation to sports performance has progressed and we now have a better understanding of the relationship between diet and physical performance [14]. Many sport science researchers are trying to improve athlete’s performance and most of the time researching better nutritional item.

A review of the most recent studies [20,46], suggests that the protein needs of strength athletes are about 1.2g to 1.7g/kg /day. The mean protein intakes of athletes of all sports, in this study, were above these recommendations. Proteins are very rich in the meat product, for example cow, chicken, fish and other animal product. Studies have revealed athletes in negative energy balance [38], with low carbohydrate intakes [42] or athletes with low vitamin and mineral intakes [25,26]. Athletes have to get many nutritional items in balance intake.

Some sports categories have different weight groups and every weight groups competes each other, most of the times athletes are watching their weight. Eating problems, as it has been reported, cluster in sports, where low weight is thought to improve performance (e.g. distance running), where rating may be influenced by appearance (figure skating, gymnastics) or where athletes must compete in specific weight categories [43].

Existing studies generally find that athletes have problems more frequently than the general population and that sports characterized by specific weight requirements or appearance expectations (wrestling, gymnastics) have more problems than sports in which weight is less important [6].

Most people have heard the general recommendation that adults eat about 2,000 calories per day. For athletes, however, that may not be enough; athletes need extra calories to fuel their activities and to encourage muscles and bones to continue strengthening. Athletes typically need a minimum of 2,000 calories per day, with specific upper-range recommendations varying based on the person’s age, sex, weight, sport, activity level, goals and overall health [21]. Some sport athletes need more calories daily. For example, a very active six-foot-tall male who is 25 years old and weighs 175 pounds needs about 3,750 calories per day, according to the USDA’s recommendations [21].

An athlete’s calorie needs also vary based on the sport. According to Nanna Meyer, a senior sport dietitian for Olympic athletes, elite endurance athletes need the most calories because their activities and training last for the longest periods of time. She suggests a range of 3,000 to 8,000 calories per day for high-level endurance athletes. Those playing team sports need about 3,000 to 4,500 calories per day, and athletes participating in sports that need only short bursts of strength or performance, such as powerlifters and gymnasts, need somewhere in the range of 2,000 to 6,000 calories per day [21].

It is the position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine that physical activity, athletic performance, and recovery from exercise are enhanced by optimal nutrition. These organizations recommend appropriate selection of foods and fluids, timing of intake, and supplement choices for optimal health and exercise performance [35].

Energy and macronutrient needs, especially carbohydrate and protein, must be met during times of high physical activity to maintain body weight, replenish glycogen stores, and provide adequate protein to build and repair tissue [35].

Athletes need to consume enough energy to maintain appropriate weight and body composition while training for a sport [45]. Although athletes expend high amounts of energy in exercise, they may still need to monitor diet and lifestyle to maintain a competitive body weight [21].
In general, the protein needs of athletes are higher (1.4–1.7 g/protein/kg) [35], than that recommended by the RDA (0.8 g/protein/kg) for non-active individuals [15]. The amount of additional protein needed will depend on the volume and type of exercise and the level of energy restriction [9].

2.3. Sports and Motivations

In sport performance many internal and external factor will affect the athletes’ performances. Especially, the elite athletes motivational factor different than the amateur athletes. Motivation is the foundation all athletic effort and accomplishment. Without your desire and determination to improve your sports performances, all of the other mental factors, confidence, intensity, focus, and emotions, are meaningless. To become the best athlete, you can be, you must be motivated to do what it takes to maximize your ability and achieve your goals [44].

Motivation will impact everything that influences your sports performance: physical conditioning, technical and tactical training, mental preparation, and general lifestyle include sleep, diet, school or work, and relationships [44].

However, the majority of this research has examined imagery effects on performance and learning at the expense of motivational and self-confidence effects [24]. Elite performers have reported on the motivational effects of imagery [28]. Motivation represents “an internal factor that arouses, directs, and integrates a person’s behavior”’ [16].

Sport motivation, image of the host destination, travel motives and individual factors of gender and cultural background [2].

Motivation can be defined as “the investigation of the energization and direction of behavior” [34]. Thus, it comprises the reasons or forces that influence behavior. Motivation is a complex construct (or latent variable), rather than an observable entity, which contributes to the difficulty in accurately conceptualizing and measuring it [19].

2.4. International Sport Organization and Marketing

In current time many sports organization made it around the World. International sport organizations non-profit or professionals make it around the globe. Thousands of athletes, coach, team staff and organization committee member participation to the game and many of the participants also from Muslim countries. Last summer Olympic game made it in Brazil Rio 2016 and 207 nations and 11,238 athletes participated to the organization. Total of estimated 25 or 35 % participants from Muslim countries or participant lives in non-Muslim countries but they are Muslim involved to the summer Olympic game.

International Olympic Committee (IOC) placed top of the sport organization on the world. Currently, IOC has organized around the worlds 41 summer sports and 15 winter sport and 206 countries member of the International Olympic Committee [17]. Only Turkey has 63 sport federation and many of them member of the IOC and international sport federations [12]. All that sports federations have in different age categories Europe and world championships every year.

International sport marketing ventures occur worldwide as numerous companies and organizations involved in sport focus on the global market as a prelude to achieving economic and financial success. The worldwide appeal of sport is due to the sport industry being worth an estimated $141 billion [18].

Sport has become increasingly commercialized and has internationalized over the past decade [2], which has been a result of entrepreneurial marketing ventures created within sport.

Sports marketing are an important aspect of international sport ventures as it is necessary to the businesses growth and survival. Many sports teams collaborate with corporate sponsors worldwide through their international marketing campaigns [33]. The marketing of sports includes marketing sporting events and equipment to fans and participants [13].

Sport based entrepreneurship is any kind of sport activity that is innovative, opportunity driven and vision orientated. Entrepreneurship in sport can exist in a number of different international contexts including the individual, organization or team [33].

One of the most important assets of a sports organization is its brand [2]. Many brands particularly sports brands have transcended geography by focusing on the global appeal of the sport [23].

Internationalization of the global economy has meant that many sport marketers now look to the global market instead of one region in their marketing efforts. Innovative international marketing techniques provide a way to support sport and at the same time enhancing a company’s image [33].

Food brands lead in average deal value. In terms of average deal values, food is the leading sector mainly due to the deals from big sponsors such as Seara (FIFA) and McDonald’s (FIFA/IOC/UEFA). Likewise, Coca-Cola’s preference for major global deals has also pushed average deal values for soft drinks to a high position. Food sector with 12.4 average deal value (Sm) top of the list [41].

3. Material and Method

In this study; literature review and 12 social demographic question and concern of the halal food survey made it to Turkish National Wrestling team member. 13 old and new Turkish National Wrestling Team members participated to study. All survey data percentage distribution SPSS statistical program used.

All the survey was taken from on the phone interview and all member of the team voluntarily answer the surveys questions.

4. Result

In this section participation gender, age, education and some questions of the halal food asked to the old and new member of the Turkish National Wrestling Team. All information on showed below tables.
Table 1. Distributions of Gender, Age and Education Status of the participation

<table>
<thead>
<tr>
<th>Gender</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>Female</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Age</td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>15-20</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>21-25</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>26-30</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>31-35</td>
<td>5</td>
<td>39</td>
</tr>
<tr>
<td>36 and over</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>Education</td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>Elementary School</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Middle School</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High School</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>University</td>
<td>8</td>
<td>62</td>
</tr>
<tr>
<td>Graduate School</td>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 2. Answer of the Q: Can you easily consume the food at the accommodation place in the sports competitions held abroad?

Q: Can you easily consume the food at the accommodation place in the sports competitions held abroad?

<table>
<thead>
<tr>
<th>National wrestling team member answer</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3. Answer of the Q: Are you paying attention to the halal food when are you going on in sports competitions abroad?

Q: Are you paying attention to the halal food when going on in sports competitions abroad?

<table>
<thead>
<tr>
<th>National wrestling team member answer</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4. Answer of the Q: Does it affect the sport performance because there is no halal food abroad?

Q: Does it affect the sport performance because there is no halal food abroad?

<table>
<thead>
<tr>
<th>National wrestling team member answer</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>77</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Partially</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 5. Answer of the Q: Does the presence of halal certified products affect the performance of the sport in competitions held abroad?

Q: Does the presence of halal certified products affect the performance of the sport in competitions held abroad?

<table>
<thead>
<tr>
<th>National wrestling team member answer</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>92</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Partially</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 6. Multiple answer of the Q: What kind of food usually eats at the sport in competitions held abroad?

Q: What kind of food usually eats at the sport in competitions held abroad?

<table>
<thead>
<tr>
<th>Food Product</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>92</td>
</tr>
<tr>
<td>Pasta</td>
<td>85</td>
</tr>
<tr>
<td>Pilav (Rice)</td>
<td>85</td>
</tr>
<tr>
<td>Fruits</td>
<td>77</td>
</tr>
<tr>
<td>Chicken</td>
<td>46</td>
</tr>
<tr>
<td>Fish</td>
<td>23</td>
</tr>
<tr>
<td>Bread and similar product</td>
<td>15</td>
</tr>
<tr>
<td>Nuts</td>
<td>15</td>
</tr>
<tr>
<td>Meat</td>
<td>0</td>
</tr>
</tbody>
</table>

5. Discussion and Conclusion

In this study, 100 % of the participants were given answer (No) Question of the: Can you easily consume the food at the accommodation place in the sports competitions held abroad? In this result showed that elite wrestler cannot eat easily food abroad. Also elite wrestler was mentioned in the interview; many times they take halal food with them (Table 2).

In the study 100 % percent of the participant paying attention to the halal food product and many of them has knowledge of the halal food (Table 3). This result showed that participant follows Muslim food regulation and has knowledge about the halal foods.

In the study 77 % participant said that a lack of halal food in the sport organization will affect their sport performance. In elite sport nutrition is key factor of the athletes. Nutrition and sport performance has to be balance each other (Table 4). Especially Muslim athletes at the international sport organization usually couldn’t get enough nutrition because of the lack of halal food product or lack of halal food product preparation process.

The study showed that participant of the survey was given multiple answers Question of the: What kind of food usually eats at the sport in competitions held abroad? The participants were given answer the multiple answers questioned; 92 % answered as vegetables, 85 % pasta and 85 % was answered pilav (Rice pilav). The result showed that many elite wrestlers didn’t eat any meat product. The meat product keeps very high protein inside of the product. Energy and macronutrient needs, especially carbohydrate and protein, must be met during times of high physical activity to maintain body weight, replenish glycogen stores, and provide adequate protein to build and repair tissue [35]. After this result we can see that usually elite wrestlers consume carbohydrate food product.

Soesilowati, (2010) showed in the study result that between the degree of individual religiosity and halal food consumption shows that the higher the degree of a respondent’s religiosity, the greater their concern to consume halal food. In our study showed also that 100 % participant answered in the survey they have knowledge of the halal food product.

The most important criteria for the halal food product by the Muslim respondents that their food must be free of pig meat and alcohol [40]. Usually many Muslim communities are very carefully with pig meat and alcohol. But most importantly Muslim communities have to concern with the certificated halal food and halal food product.
cooking or preparation process. Recently, customers have not only requested for halal products but also for the halal process. As a result, customers choose to buy halal products particularly because of the halal process [4]. On the international level most of the hotel and other accommodation places are preparing food in the same kitchen and mixed up and cook. Especially the halal food preparation should be cook separate. Because if the cook red meat on the same spot, all the meat oil mixes up each other.

Sherry et al., (2010) showed that the study examines the experiences of international students at The University of Toledo, where international students comprise approximately 10% of the student population. This issue was also raised by other students in other parts of the research, for instance, by a Muslim student with regard to the absence of Halal food on campus. The missing halal food product most importantly concern of the many Muslim peoples in every corner of the life internationally.

The majority of athlete’s report following some type of dietary regime, with avoidance of red meat, vegetarian, Halal, and low lactose regimes reported most frequently [32]. Western style food meets most needs, however some athletes follow a culturally specific style of eating and therefore it is important to have a broad cultural representation on the menu [32]. Athletes report sufficient items to meet sports nutrition, cultural & special dietary requirements [29,30,32]. Especially in the big international sport organization as Olympics game (summer and winter), World championship, Mediterranean game, European Championships and similar organization president and committee member should be considerate for the halal food product and preparation of the halal food.

6. Conclusions

In this study elite athletes have strong consideration of the lack of halal food product abroad. All the elite athletes mentioned that lack of halal food product affect their sport performance directly. After this moment whole the Muslim community and Muslim Country National Sport Federation and Muslim Country National Olympic committee member requests about halal food consideration and give information about the halal food. If we don’t mention and request how come, we expect some change. Also halal food sectors have to improve their standard and quality and be able to serve to international sport organizations around the world.

Currently IOC does not have any study or work about halal food. Some of Olympic athletes mentioned that in the Olympic village has halal food section but athletes didn’t know the preparation process of the halal food product. Because of halal food cooking and preparation process problem many times athletes couldn’t eat halal product feel free to comfortable. Olympics game The IOC is the organization that advocates the equal opportunity of sport and manages world sports. We believe that IOC and International Sport Federation have to give opportunity to Muslim athlete for halal food. Muslim athlete and staff have to get service halal food. This movement also brings opportunity to halal food sector. This year summer Olympic game will be held in Tokyo, Japan. Before Olympic game Muslim country national Olympic committee and national sport federation and halal food companies give declaration to IOC and International Sport Federation concern of the halal food.

7. Reference


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The Significance of Shariah Compliant Hospital in Halal Medical Tourism: Potentials and Challenges in Non-Muslim Countries

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Today we are facing the positive trends that drive the rapid blossom of the need for Muslim Shariah-Friendly Healthcare Services: The amazing increase in the population of Muslims worldwide (Huda, 2017), the growth of Muslim population in non-Muslim countries (Pew Forum on Religion & Public Life, 2011), the efflorescent interest in Halal lifestyle, better awareness to apply Islamic Shariah as The Guidance of life (Khaleej Times, 2015), the fast-expanding Global Middle Class Society and the fast-growing number of Millennial Muslim population (Homi Kharas, 2017) also the rapid growth of Muslim International Travelers annually, which includes inside the Muslim International Medical Tourists (Sterling Wong, 2017).

Thailand, India, South Korea, Taiwan, Singapore, US, UK, Canada, Poland, Japan, Germany, Brazil and Philippines (Fmi, 2018), are some of the non-Muslim countries which are known with their Medical Tourism Centers across the Globe. These countries are visited by international Muslim tourists as their place for their medical treatments.

We are experiencing 2 factors causing patients mobility:
1. Some of them travel across countries with the reason for benefiting medical treatment at some form and quality which might not be accessible or not available in their country of residence (Orbis Research, 2017).
2. The others travel abroad for the reason of cost saving.
They want to get medical treatments/services which can fully accommodate their core needs as Muslim patients and their accompanying family members (Muslim patients usually travel with family members).

The presence of Shariah Compliant Hospital, an organization and a business institution which delivers Halal Healthcare Services in an all certified comprehensive system compliant to Shariah Principles (or simply means, implementing the Maqasid Shariah in the hospital governance) (Islamic Health Institution Network of Indonesia, 2017), is surely the right choice to well accommodate Muslim patients needs of having Shariah Healthcare Services. Beside that, Shariah Compliant Hospital is also the best solution to overcome the dilemmas encountering healthcare workers in conventional hospitals, when they serve Muslim patients and the hospital system cannot fulfill the needs of Muslim patients for having medical treatments that suit their religious teaching.

To ensure the compliance, it needs The Standard References and System to provide the reference in implementation of the Maqasid Shariah in healthcare service system in a hospital (MUKISI, 2010). The Standard of Shariah Hospital Certification consists of five chapters which is a break down of the Maqasid Shariah. Each chapter is divided into two groups: The Shariah Management Standard Group and The Shariah Service Standard Group (MUKISI, 2015).

In general, the Shariah Hospital Certification Standard combines the principles in Hospital Accreditation with the Shariah Principles, namely the Maqasid Shariah, Halal Assurance, Islamic Branding and Shariah Compliance.
The certification provides added value to the hospital. In the conventional healthcare services, value are perceived by monetary unit. But in Islam, the longevity of value extents beyond this worldly life (Islamic Health Institution Network of Indonesia, 2017). Some unique features of a shariah compliant hospital that made it different from other hospital are:

1. Understanding the basic principles of shariah
2. Understanding the principles of halal and haram
3. Understanding the principles of muamalat
4. Implementing the concept of quality in Islam
5. Establishing the Islamic core values within the hospital organization

Implementation of these components will truly reflect Islam as the comprehensive way of life (Shariff, 2016).

It has been mentioned above, there's an increasement of the growth of Muslim population around the world, including in Non - Muslim countries, where some of these, are famous for their Medical Tourism Centers. Countries like USA, UK, Europe ( Germany & French ) & India ; they have a very fast growing of Muslim population. Then Thailand, Singapore, Philippine, Canada, Brazil, Venezuela, Japan & South Korea ; they also show the growth of their Muslim population.

Being as Non - Muslim countries with a steady growth in the number of Muslim population and have been visited by many International Muslim Tourists, actually they already have a very good opportunity to increase their economic growth by harnessing the high potential market of the big spending power of the amazing growth of Muslim population. Therefore, they need to well prepare the Halal Tourism Industry, go along with Halal Medical Tourism, as its high potential segment.

As an emergent industry, Halal Medical Tourism can be defined as the process travelling outside the country of residence for the purpose of receiving medical treatment and care, where all the products and services provided are fully accommodate the core needs of Muslim patients or in accordance with the Shariah Principles / Islamic Teaching.

Halal Medical Tourism can not grow well without Shariah Compliant Hospital, which has great potentials as written below:

➢ Shariah Compliant Hospital is Halal Branded Hospital, which means : the wholesomeness and the quality.
➢ In Shariah Compliant Hospital, the hospital management and the delivery of healthcare services which are in accordance with the Shariah Principles, Values and Practice, upholds the universal values of Islam : The Principle of Justice, Peace, Freedom & Equality in its daily operation (Shariff, 2016).
➢ Shariah Compliant Hospital accommodates the core needs of Muslim patients ( Location based needs, Medical Product Needs & Financing Needs ) (Dinar Standard, Thomson Reuters, 2016).
➢ The presence of Shariah Compliant Hospital will increase the need and the demand of Halal Pharmaceutical, Halal Food & Beverages and Shariah Finance. It will increase as well the competitiveness and will spur the Halal Industry Players to advance their quality products.
➢ Shariah Compliant Hospital creates jobs and offers many business opportunities related with segments healthcare value chain.
➢ Together with Halal Medical Tourism, Shariah Compliant Hospital offer partnerships with travel companies, hotels & apartments to provide tourism packages and develop a unique Halal Medical Tourism Brand (Reem El Shafaki, 2016).
➢ Shariah Compliant Hospital can bring Foreign Exchange to Country.
➢ Shariah Compliant Hospital can help Islamic Finance grow more faster and more globally.

Beside the potentials, Shariah Compliant Hospital offers also challenges like:

➢ The competition which will become more tight
➢ Perception of inadequate quality (Tomislav Mstirovic, MD, PhD, 2018).
➢ The need of Proper Halal Medical Infrastructures (Technavio, 2014)
➢ The need of Relevant Laws, Regulations & Policies ( ex : until now there is no International Halal Standards on Shariah Compliant Hospital )
➢ The need to strengthen International Cooperation & Referral Networks.
➢ The need of healthy supports from Tourism Departments & Local Governments.
➢ The need of latest Halal Medical Technologies in Halal Medical Tourism Hub throughout the world, etc
➢ Lack of Investors
➢ Limited insurance coverage & lengthy partial reimbursement offered by insurances companies, languages barriers, connectivity, stringent documentation processes and issues related to visa approval (PRNewsWire, 2107)

The high cost of medical treatment in developed Non - Muslim countries like the US, Germany, UK, Japan, Canada & France which offers highly advanced treatments (Orbis Research, 2017), the amazing increasement of Muslim population worldwide, the fast – expanding Global Middle Class Society, the fast growing number of Millennial Muslim Population and Muslim International Travelers, also the dynamic growing of Medical Tourism, create an opportunity of an emerging Medical Tourism market in Halal Medical Tourism Industry : Shariah Compliant Hospitals, Premium Halal Medical Services at Notably "Friendly" prices.

As an organization and a business institution which delivers halal healthcare services in all certified system compliant to the Shariah principles, the very satisfying performance of Shariah Compliant Hospital, gives the important contribution in its success. Regarding on hospital performance, Robert (2002) in Getting Health Reform Right, wrote : "The success of an organization is based on its performance. Performance appraisal is a process of assessing the advancement of a work towards its designated targets and goals, which includes efficiency in utilizing resources, quality of the product and service delivered. The end product or service are compared to the predetermined target and the effectiveness of the process involved to achieve the target" (Roberts, 2002). The experts concludes that there are six dimensions in assessing
hospital performance: clinical effectiveness, efficiency, staff orientation and responsive governance, safety and patient centeredness. WHO in its strategic orientation encourages comprehensive approach in assessing hospital performance which are different from the performance dimension, i.e.: responsiveness, evidence based best practices and organization, continuity and integrated service, health promotion and focus on patients needs (WHO, 2009).

Hospital Performance represents quality improvement efforts in service delivery. It combines the concept of quality, efficiency and effectiveness in healthcare services. It also reflects the internal business process of a hospital and serves as an important indicator in measuring quality in healthcare services (Islamic Health Institution Network of Indonesia, 2017).

Projected to have a lovely growth, Halal Medical Tourism needs Shariah Compliant Hospital to strongly fuel its development. And at this point, the good capacity in implementing The Shariah Hospital Certification Standards has an important role, related with the satisfying Performance of Shariah Compliant Hospital and the satisfaction of Muslim Medical Tourists (Patients and Visitors).

Hence, Shariah Compliant Hospital and Halal Medical Tourism are embedded and naturally married. The excellent potentials of Shariah Compliant Hospital, the interesting challenges and many good opportunities offer by it, make Shariah Compliant Hospital and Halal Medical Tourism have a very good prospects of a wonderful future, whether in Muslim Countries or in Non - Muslim Countries. Together with other sectors in Halal Industry, they can well go along, play an important key role in the increase of economic growth. And for making it comes true, it needs the good cooperation and synergies of all related parts, especially with SMIIICS.

But the most important is, for us, as Muslim Ummah, the establishment & the development of Shariah Compliant Hospital, particularly in Non - Muslim Countries, are not just a strategy to boost the growth of Halal Medical Tourism and other sectors in Halal Industries, but as our concern, our responsibility and good deed for all, especially for us, Muslim Ummah, to have our right in receiving The Premium Halal Medical Treatments/ Services at notably "Friendly" prices.

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Halal Tourism in Istanbul

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1. PREFACE

It can be said that the concept of Halal Tourism emerged through the rapidly increasing number of Muslim tourist markets in the world, the realization of tourist needs and the development of products and services for these sensitivities. In this context, the halal tourism market, which is a market that can be developed for the tourism industry, attracts attention when considering that the number of holidaymaker Muslims will increase in the coming years. Especially in recent years, there has been a growing perception and demand for halal products, halal services and halal processes for Muslims with high religious sensitivity. The halal tourism, when considered from the high of Turkey’s halal tourism potential and Muslim population density, is examined in all aspects, giving importance and making arrangements to this sector is of great importance in terms of country tourism.

2. HALAL TOURISM

Expresses the type of tourism where tourist products and services are created according to Islamic teachings and principles in order to meet the needs of Muslim tourists. The aim of halal tourism is to present the beliefs and religious rules of Muslim tourists to the consumers who demand them as a whole. It would be wrong to mention only Islamic conservative or halal concept accommodation facilities in halal tourism.

It is expected that accommodation establishments providing services with halal concept are sensitive to the orders and prohibitions of Islamic religion, designed in accordance with these orders and prohibitions, to make food and beverage presentations considering the sensitivities, not to serve alcohol and prohibited products, the fields of activity of men and women are independent of each other and that they will be able to worshipping enterprises. Features of hotel enterprises offering halal accommodation;

- Halal food and beverage service,
- No alcohol in room mini-bars,
- Room design is in accordance with Islamic conditions and bed and toilet aspects are arranged in such a way that they do not come to Qibla,
- Prayer rugs and Quran in rooms,
- Qibla direction signs,
- Employees’ clothing conforms to Islamic rules,
- Facility financing is provided according to Islamic rules,
- There are separate prayer room for men and women,
- It is seen that there are no inanimate objects in the image of people in rooms or common areas.

3. HALAL TOURISM IN TURKEY

According to the Master Card Crescent Rating survey in 2017, the 4 most preferred countries of Muslim holidaymakers are Malaysia, United Arab Emirates, Indonesia and Turkey, Turkey is located at ranks 4th with 72.4 points. When we look at the data of 2016 Turkey was located at ranks 3rd with 73.9 points.

Turkey is the second country to host the most Muslim tourists after Saudi Arabia, the most important point of belief for all Muslims, despite the fact that there has not been comprehensive investments and studies on halal tourism yet. To provide visa and access facilities for many Muslim countries, ease of access to worship facilities in public places and tourist spots, wide range of accommodation establishments that can offer affordable accommodation for halal tourism tourists in all socio-economic segments, and opportunities to produce packages of different economic values, different food facilities (from fast-food to local cuisine), advanced technology, e-commerce and banking facilities can offer in-situ reservation and payment options to halal tourism tourists in different segments makes Turkey stand out in the halal tourism sector.
Primarily, although it is a leader in the field of tourism within the OIC countries, a comprehensive planning work on halal tourism has not been done and a vision to guide the whole sector in this area has not yet been determined as a very important deficiency. However, the lack of a "halal tourism guest profile and market analysis" study for the halal tourism market, the lack of a "halal tourism promotion and marketing strategy" for the halal tourism market, and the lack of a "halal tourism promotion and destination development strategy" for the halal tourism market, Turkey should give priority to the progress in the halal tourism sector.

4. WHY HALAL TOURISM IS IMPORTANT

Halal tourism has gained great importance in the world especially in recent years. The demand of Muslim tourists, combined with the increasing Muslim population (2.2 billion people in 2020 and 26% of the world's population), has revealed more importance of halal tourism in terms of the sector. In this context, the growing Muslim travel market (156 million Muslim tourists and 220 billion US dollars halal tourism market in 2020), the micro-level Muslim communities and macro-level developing economies of OIC countries in the world to increase tourism revenues in the countries have made halal tourism comprehensive studies.

From the point of view of Turkey, the competition with the IIT countries such as Malaysia, UAE and Azerbaijan, and the competition with the non-IIT developed countries such as Australia, Singapore, Japan, Taiwan and South Korea, trying to enter the halal tourism market by making significant investments.

5. HALAL TOURISM IN THE WORLD

According to the 2017 report, which covers 130 countries, including 48 member countries of the Islamic Cooperation conference of Mastercard and CrescentRating, and 82 non-member countries of the Islamic Cooperation conference, Malaysia is the most preferred country for Muslim tourists, as is the case in all reports published so far.

The majority of non-Muslim countries, such as Singapore, Thailand and the United Kingdom, come after the first nine countries in the list of Muslim tourists. Although countries that are members of the Islamic Cooperation Conference are primarily preferred by Muslim tourists, countries that are able to make arrangements according to Islamic needs, despite not being a member of the Islamic Cooperation Conference, have climbed to the top of the list of preferences.

6. RESULT

In terms of tourism, Turkey came to the fore among the countries of World tourism that meets the most tourists and earn the highest income from tourism, with its geo-strategic location, natural, historical, cultural and artificial tourist attractions, more than 40 years of tourism experience, world-class tourism enterprises with its infrastructure and professional service culture. Turkey which is one of the strongest members of the Organization of Islamic Cooperation, is a leader in the field of tourism in this global organization at the same time.

Halil İbrahim ŞAN was born in 1975 in İzmit. He completed his primary and secondary education in the same city. He graduated from Anadolu University, Faculty of Economics, Department of Public Administration. He studied political science at the Government College University in Lahore. He started his career at the Public Relations Department of Istanbul Metropolitan Municipality in 2005. He was the Project Coordinator of the European Cities Against Drugs (ECAD) at the Department of Health between 2007-2010. He also served as Project Coordinator of the Union of Municipalities of Turkey. Moreover, he was the administrator of IBB Taksim Republic Art Gallery (Maksem) between 2010 and 2013. During his tenure, he contributed to the actualise many international artistic projects. He was the team leader of the Istanbul Metropolitan Municipality Press Consultancy Social Media Unit for promotion and announcement of many services of Istanbul Metropolitan Municipality in 2013-2017. He received specialist education from a global digital platforms such as Google, Facebook, Twitter and Youtube. Şan, who completed the European Union Expertise program at Istanbul Bilgi University, is a member of the disciplinary board of the International Social Media Association (USMED).
Thailand Tourisms Policy: Moving Toward Muslim Friendly Destination in the Year 2020

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ABSTRACT

Thailand’s six-million-strong Muslim population and growing range of Muslim-friendly products and services are playing an important role in catering to the rising number of tourists and visitors from all around the world. Since 2015, The "Muslim-Friendly Destination" is a pilot project to welcome more Muslim visitors to Thailand. Tourism Authority of Thailand (TAT) realized the potential and readiness of Thailand to promote this market. Thailand was already the top destination in Asia for Muslim travelers.

In terms of popularity as a destination for Muslim visitors, Thailand is ranked just under Singapore amongst the non-member countries of the Organisation of Islamic Cooperation by the Global Muslim Travel Index (GMTI). But nevertheless, Thailand has enormous potential to overtake its ASEAN neighbour by undertaking proper marketing strategies and training programmes. As such, Thailand has great potential to serve this market, in which there is a whole new generation of young Thai Muslims emerging nationwide. They will seek promising opportunities in the tourism sector in the future.

This role will increase significantly in the future as the ASEAN integration process advances and Thailand seeks to better position itself as a hub for Halal food and cuisine. As of the April 2017 flight schedule, Thailand had more than 730 weekly flights from cities in 17 Muslim-majority countries, more than any other country in Asia. It also gives visa-free and/or visa-on-arrival facilities to citizens of 18 Muslim-majority countries. Visitors from the UAE, Saudi Arabia and Kuwait are the top average daily spenders, according to 2017 statistics published by the Tourism Authority of Thailand. The Muslim population in the ASEAN region is about 240 million, a significantly large and growing market, especially from Indonesia, Malaysia, and Brunei Darussalam.

In 2017, there were an estimated 131 million Muslim visitor arrivals globally - up from 121 million in 2016. This is forecasted to grow to 156 million visitors by 2020, representing 10 per cent of the travel segment. Muslim visitor arrivals in Thailand were estimated to be 3.6 million, approximately 10 per cent of the tourists to Thailand in 2017. In the GMTI 2018, Thailand improved its ranking by two spots to the 16th position among 130 destinations. The improvement can be attributed to the continued effort by Thailand's tourism stakeholders in broadening the availability of Halal restaurants and promoting the destination to Muslim travelers. Moreover, Thailand has been catching up to the leaders in attracting Muslim visitors as government initiatives such as the National e-Payment Plan and Standardised QR Code makes traveling safer and more convenient for more diverse international visitors.

Significant works have also been under way to finalise a common certification system for Thailand’s growing number of hotels, restaurants and other products and services seeking to cater to Muslim clientele. This has been organisng in cooperation between the Halal Standard Institute of Thailand (HSIT), the Halal Science Center, Chulalongkorn University (HSC-CU), and the Central Islamic Council of Thailand (CICOT) one of the world’s best certification bodies for Halal products. Most importantly, after Thailand was accepted to be and observer country of Standard and Metrology Institute for Islamic Countries (OIC/SMIIC), the development of Halal Tourism Standard has been improving and accelerating Thailand to be one of the best Muslim friendly destinations in the year 2020.
In August 2018, the Ministry of Tourism and Sports push further by launching the new grand strategy to serve Muslim travelers from Islamic countries directly. The strategic vision of this policy states clearly that Thailand will be “Top-Ranked Muslim-Friendly Travel Destination of Non OIC countries. There are altogether four strategic movements of this policy guidelines.

The first strategy is the enhancement of Muslim friendly products and services by (1) developing halal certified foods as well as halal restaurants in tourism spots, (2) supporting Muslim friendly accommodations, (3) improving halal facilities for Muslim religious daily practices for instance prayer facilities, water-friendly wash rooms, Ramadan services, etc. and, (4) upgrading cleanliness, sanitation and hygiene based on Islamic and ethical rules in all related products and services.

The second strategy is the improvement of management mechanisms on providing Muslim friendly hospitality services. The blueprint for actions includes (1) establish special taskforce to redirect and strengthen the effectiveness Halal tourism project management, (2) formulate investment incentives by promoting public private partnership flagship projects in some regions, (3) create tourism human capital capacity’s development and, (4) develop digital infrastructure and platform for Muslim tourism information system.

The third strategy is the creations of Halal tourism potential for the continual quality improvement on Muslim friendly hospitality services. Three important flagship projects will be implemented, namely, (1) develop new tourism locations for serving Muslim travelers, (2) create linkages between Muslim friendly hospitality services with other best practice public services in Thailand such as medical, cultural, as well as creative tourism, (3) create newer direct flight routes to countries that have large number of Muslim travelers.

The fourth move is the promotion of smart marketing strategy on Muslim hospitality services in Thailand. The major flagship projects are the followings; (1) proactive marketing on Muslim traveler awareness on the uniqueness of Thailand Diamond Halal based on basic principle of “Sharjah compliant certifies and Halal Science supports (2) increase more direct marketing channels among Muslim travelers in OIC countries on Thailand as Muslim friendly destination.

Evidently, one of the most important critical success factors in implementing this type of strategy are the positive supports from the Royal Thai Government as well as the private sector investment on “Muslim Friendly Hospitality services. Ministry of Tourism and Sports together with Tourism Authority of Thailand join hands in creating strategies on the development of Halal related service industry. Several types of government support so far have led to the creation of positive incentives to important movement on medical tourism, cultural tourism and eco-tourisms in the so-called Andaman provinces namely Phuket, Phang Nga, Krabi, Trang and Satun.

Significantly, in Andaman provinces of Phuket, Phang Nga, Krabi, have been getting stronger support as the first flagship project on “Muslim Friendly Hospitality Services” in Thailand. Important development has been going on and gain more participation from several Muslim communities throughout these provinces. Obviously, one of the core elements of tourism development is to encourage local communities’ participation as it is central to the sustainability of tourism industry. HSIT, HSC-CU, and CICOT support the Islamic Committee of Krabi by providing intensive training to local communities and the private sector in various aspects of development and management of tourism businesses, and hospitality skills to provide them with better opportunities to seek employment in the Halal tourism sector. The successful lesson learned from of such a pilot project will be encouraging other Muslim communities in Trang, and Satun to follow this footsteps with differentiation of tourism products and services.

With different local cultural background from other part of the country, Chiangmai is chosen to be a sort of “Pilot Province” of the northern Muslim communities. With far different cultural background from other regions, the province has been one of the most favorite locations for all tourists. Muslim communities here are very strong presence of the Chinese, Indian, Afghan and Turkish cultural backgrounds. But all of them are capable to integrate with the majority Buddhism cultural communities. With strong and positive movement of the Chinese Muslim in this area, Halal tourism has been on of the major development strategies of both provincial and local government for nearly two decades. The role of the Islamic committee of Chiangmai province in supporting Muslim friendly destination policy of the country has been spectacular. They work closely together with both public and private organizations in promoting the Halal tourism led to the growth of Halal hotels or other types of accommodations providing basic Muslim friendly services in accord with Halal tourism general guidelines.

References


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On Halal management affairs in Thailand, he is now the Director of Halal Standard Institute of Thailand (HSIT). HSIT was established by the Royal Thai Government since 2003 to be an academic institute under the Central Islamic Council of Thailand.
Factors Affecting Decision Making in Islamic Tourism: Selected Countries

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ABSTRACT

The increasing number of Muslim tourists creates the necessity to understand their needs and requirements when travelling. Halal tourism can be summarized by any object or action which is permissible to use or engage in tourism industry, according to Islamic teachings. Therefore, the success of developing and marketing Halal tourism destination must be guided by the adoption of Islamic teachings and principles in all aspects of tourism activities. This paper explores the concept of Halal tourism along with the components which constitute the industry that affect the decision of Muslim tourists. It provides worldwide examples of some of the current best practices including Malaysia which was named the most popular destination for Muslim travelers in the year 2017. The opportunities, challenges in developing and marketing Halal tourism as well as recommendations to further improve the Islamic tourism sector are also discussed.

1. Introduction

1.1 Islamic Tourism Definition

According to Duman (2011) "Islamic tourism" can be defined as “the activities of Muslims traveling to and staying in places outside their usual environment for not more than one consecutive year for participation of those activities that originate from Islamic motivations which are not related to the exercise of an activity remunerated from within the place visited. As a niche market “halal friendly” tourism includes; halal hotels, halal transport (halal airlines), halal food restaurants, halal tour packages and halal finance. Therefore, halal tourism consists of different sectors which are relation with each other. (Akyol and Kilinc -2014). Sureerat (2015) defines Halal tourism as offering tour packages and destinations that are particularly designed to cater for Muslim considerations and address Muslim needs. Halal tourism is a relatively new product in the tourism industry which is geared towards Muslim families who abide by the rules of Islam. Halal tourism is now in high demand in many countries around the world (N.K. Gabdrafhmanov, V.A. Ruhtsof., 2015).

There is now a growing interest in Halal tourism from the perspectives of both industry and academic research. Many stress the fact that any strategy to develop or market Halal tourism products and services must be guided by Islamic teachings and principles in all their aspects. Due to the multidisciplinary scope of the subject matter, there exist confusions regarding 'Halal tourism', 'Muslim-friendly' and 'Islamic tourism' terms. One challenge faced by academicians and practitioners is to identify the right terminologies as well as the proper clarifications of the concepts. As a result, 'Halal tourism' and 'Islamic tourism' ‘Muslim-friendly’ concepts are often used interchangeably by academicians and practitioners as if the concepts are similar. Most of these definitions are loosely defined and have not taken into consideration the Islamic law (Shariah), the target customers (i.e. Muslims or non-Muslims), the location of activity (i.e. Muslim vs non-Muslim country), the product and service offered (i.e. food, facilities), and the purpose of travel.

Halal term means ‘permissible’ according to Islamic teaching (Sharia law). However, the term ‘Islamic’ is precisely applied only to that which relates directly to the faith and its doctrines (such as Islamic law/Shariah, Islamic values, principles and beliefs, Islamic worship). It is therefore closer to the Arabic term ‘Mu’minoon. This is because Islam indicates the faith as an ideal based on the core Islamic sources which are the Qur'an and the Sunnah of the Prophet. Based on the above argument, using the terms 'Islamic' and 'Halal' as if they have similar meaning is inappropriate. It would be better to use ‘Halal’ as brand name rather ‘Islamic’ for any related product and service in tourism industry. The term ‘Islamic tourism’ is more appropriate. However, the place may not necessarily be located in a Muslim country or in religious locations. For example, if a man travels to London to visit the London museum in order to study the history of British colonization of the Muslim world for the sake of God, the travel can be classified for Muslims as ‘Ihada’ (a religious act) deserving rewards from God and therefore can be appropriately referred to as ‘Islamic tourism’.

For food therefore, the term to be used is NOT Islamic food but rather ‘Halal or not-Halal food’. The term ‘Muslim-friendly’ in tourism industry denotes an attempt to make the tourism experience enjoyable to observant Muslims. As such it is almost akin to the concept of ‘Halal Tourism’ but in a wider
context to include allowing Muslims to perform religious duties. In other words, Muslim-friendly destinations not only offer plenty of ‘Halal’ services (such as Halal food and beverages, sex-segregated swimming pools, etc.) but also comfortable places for Muslims to perform their daily prayers.

2.0 Literature Review

2.2 Global Muslim Travel Index 2017

The GMTI is the most comprehensive research available on one of the fastest growing tourism sectors in the world, which represents 10 percent of the entire travel economy. It helps destinations, travel services, travelers and investors to track the health and growth of this travel segment while benchmarking their individual progress in reaching out to this growing travel segment. This year, the report also introduces a strategic tool to help destinations and businesses translate GMTI criteria to actionable plans to improve the Muslim-friendliness of a destination. This takes into account both the destination’s macro policies and ways to improve market outreach, build capacity and capability. All 130 destinations in the GMTI were scored against a backdrop of four key strategic criteria - access, communications, environment and services – which are further divided into 11 sub-sections. These include Muslim arrivals, air connectivity, visa restrictions, suitability as a family holiday destination, ease of communication, the level of services and facilities it provides, accommodation options and marketing initiatives. Each criteria was then weighted to make up the overall index score.

Malaysia has strengthened its position as the top performing destination of a sector expected to be worth $220 billion by 2020 according to the most comprehensive research released on the global Muslim travel market. The Mastercard-CrescentRating Global Muslim Travel Index (GMTI) 2017, which was officially launched in Jakarta, saw Malaysia keep the top spot while Indonesia moved up to third place in the overall rankings. The Index, which covers 130 destinations, showed a number of non-Organization of Islamic Cooperation (OIC) destinations in Asia move up the rankings, a result of the concerted effort to adapt their services to cater to and attract the Muslim travel market. Singapore retained its pole position for the non-OIC destinations, with Thailand, the UK, South Africa and Hong Kong rounding up the top five. The research showed that the Muslim travel market will continue to grow at a fast pace with the sector estimated to grow to US$220 billion in 2020. It is expected to grow a further US$80 billion to reach US$300 billion by 2026. It was also revealed that in 2016, there were an estimated 121 million Muslim visitor arrivals globally – up from 117 million in 2015 and this is forecasted to grow to 156 million visitors by 2020 representing 10 percent of the travel segment. Asia has remained the leading region in the world in terms of attractiveness to Muslim tourists with an average GMTI score of 57.6, with Africa coming in second place at 47.0, followed by Oceania (43.8), Europe (39.9) and the Americas (33.7).

![Figure 1: Global Muslim Travel Index 2017](Source: MasterCard’s Global Muslim Travel Index (GMTI) 2017)
<table>
<thead>
<tr>
<th>Source</th>
<th>Title</th>
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<td>(Som, Masutani, &amp; Ahmad, 2016)</td>
<td>The Growth of Muslim Friendly and Halal Tourism in Inbound and Outbound Travel Market</td>
<td>Study on growth of the Muslim travel market, many different terminology and definitions have been used to refer to Muslim friendly and halal tourism market segment by academics, media and other organizations.</td>
<td>Exploratory study and Semi-structured interviews</td>
<td>In Islamic intellectual tradition, the Islamicity of things is judged in the light of two principles: tawhid-compliance at the level of ideas and beliefs and shariah-compliance at the level of practices and ethical values. These two principles determine the scope of Islamic tourism.</td>
<td>Muslim tourists to Japan has been increasing considerably in recent years, and while the country has only a very small percentage of Muslim population, tourist associations and businesses have ramped up efforts to upgrade facilities and services to cater to Muslim’s tourist market.</td>
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<td>(Fahim &amp; Dooty, 2014)</td>
<td>Islamic Tourism: In the Perspective of Bangladesh</td>
<td>Identifies problems in developing Islamic tourism in Bangladesh. And herewith we have provided some measures to develop this new trend of tourism to accelerate economic growth in our country.</td>
<td>Descriptive study</td>
<td>Travel in Islam also includes travelling to ponder the wonders of Allah’s creation and to enjoy the beauty of this great universe, so that it will make the human soul develop strong faith in the oneness of Allah and will help one to fulfill the obligations of life.</td>
<td>Tourism is one of the emerging industries in Bangladesh. It is a purposeful activity in Islam that aims to achieve physical, social and spiritual goals. The physical goal leads to a healthy and stress-free life, which subsequently lets Muslims to serve Allah better. Islam encourages visiting Muslim families, to strengthen Muslim community.</td>
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<td>(Dincer, Dincer, &amp; Yilmaz, 2015)</td>
<td>The Economic Contribution of Turkish Tourism Entrepreneurship on the Development of Tourism Movements in Islamic Countries</td>
<td>To figure out whether Islamic Countries take a sufficient share from that ambitious economic growth trend and structural change process of the world tourism sector, as well as questioning how to expand the amount of this share through the leadership of Turkish tourism entrepreneurship.</td>
<td>Exploratory Study</td>
<td>SWOT was used to list the strengths and weaknesses, and the opportunities and threats to be confronted in the process of Turkish tourism entrepreneurship’s contribution to the development of Muslim Countries’ tourism sectors.</td>
<td>The member countries of Islamic Conference Organization should collaborate with Islamic countries in the area of tourism in order to develop and reinforce the regional tourism within their own zones. The most important factors which play significant roles in gaining an economic competitive advantage can be summarized as lower-costs in production process, higher quality, more profitable customers, and a faster service provided to the customers.</td>
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<td>Battour &amp; Ismail, 2016</td>
<td>Halal tourism: Concepts, practices, challenges and future</td>
<td>To recognize the growing interest in Halal tourism from both the perspectives of practitioners and researchers. Discusses the opportunities and challenges in developing and marketing Halal tourism.</td>
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<td>Zamani-Farahani &amp; Henderson, 2010</td>
<td>Islamic Tourism and Managing Tourism Development in Islamic Societies: The Cases of Iran and Saudi Arabia</td>
<td>The effects of state religion on tourism development in Muslim countries with particular reference to Iran and Saudi Arabia.</td>
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<td>Kessler, 2015</td>
<td>Conceptualizing Mosque Tourism: A Central Feature of Islamic and Religious Tourism</td>
<td>To define the concept of Mosque Tourism, a term which is in existence in the current academic literature as well as to propose a justificiation of its importance as a tourist activity and a central element of Islamic tourism.</td>
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The knowledge of Halal tourism concept and components are pertinent to industry players in developing Halal tourism infrastructure and facilities, Halal travel packages, and Halal travel activities. It will also help them design specific messages for marketing communication in order to attract Muslim tourists. One of effective means of accessing the market is to make Halal food widely available in the destination initially which is considered the high priority for Muslim tourists. Furthermore, Muslim friendly hotels should be available in the destination or at least separate sections in hotels where no alcohol beverages, no pork, Halal food are provided. Finally, a starting point that could be used in promotion tools to market the destination as Muslim friendly is the availability of Halal food in the destination.

Mosques are an important feature of Islamic tourism as they bring together all the components defining Islamic and Arab destinations. Mosques serve Muslim communities as symbols offering emotional support to a Muslim minority in non-Muslim countries. They are key to rigorous Islamic practice and pride-building. Consequently, the term ‘Mosque Tourism’ finds its legitimacy in Islamic Tourism and should be adopted to define religious and non-religious visits to mosques in the context of Islamic Tourism.
3.0 Findings And Analysis

In the findings section, few countries from different continents are selected for reviewing their Islamic tourism sector. The selected countries are United Kingdom, Japan, South Africa, Australia, and the United States.

3.1 Islamic Tourism in Malaysia

Malaysia was named as one of the world’s favorite destinations among Muslim travelers, alongside Turkey and the United Arab Emirates (UAE), in the latest survey conducted by DinarcStandard, a leading US-based survey institute for the Muslim travel market. Malaysia was also rated the world’s top Muslim-friendly destination for three consecutive years with bigger Muslim countries, namely Saudi Arabia, United Arab Emirates, Egypt and Turkey, trailing behind in another survey released by CrescentRating, a Singapore-based Muslim travel consultancy.

Among the 50 countries listed in this study, Malaysia came out on top with a score of 8.3 over 10. Malaysia has an extensive and comprehensive range of facilities for Muslims which are easily available including prayer facilities, halal food and Muslim-friendly accommodation. Mosques and Musollas can easily be found in every district, as well as ample prayer rooms at almost every public place. Most eateries serve JAKIM-certified halal food and many accommodation provide Qibla direction and prayer mats in their guest rooms. Malaysia also offers Islamic tour packages.

Malaysia boasts a well-developed halal industry and an extensive network of halal eateries around the country – two of its biggest strengths when it comes to Islamic tourism. The success of Malaysia’s halal industry is largely attributed to the development of halal standards and a systematic halal assurance system which are implemented nationwide. Malaysia is a pioneer in the development of halal standards and to-date has published no less than ten Malaysian Standards (MS) which are used as a guideline not only nationwide but also globally. These standards include the MS 1500:2009 (Halal Food – Production, Preparation, Handling and Storage – General Guidelines) and the MS 2424 (2012 Halal Pharmaceuticals – General Guidelines), which is the world’s first halal guidelines for medicine. The development of Malaysia’s standards for the Halal industry is spearheaded by the Department of Standards Malaysia under the Ministry of Science, Technology and Innovation (MOSTI), in collaboration with SIRIM and JAKIM as the enforcement authorities. In addition to meeting halal requirements, food producers in Malaysia are encouraged to adopt and maintain standards that meet global benchmarks such as ISO 9000, Codex Alimentarius, the Quality Assurance Programme, Hazard Analysis and Critical Control Point (HACCP), Good Hygienic Practice (GHP), and Sanitation Standard Operating procedures (SOPs).

The average global halal food trade is estimated at more than USD 600 billion each year. Halal certifications such as the one issued by JAKIM is a powerful marketing tool for both food outlets and manufacturers of food products. The correlation between halal food products and food safety and cleanliness make them universally acceptable and approved not just by Muslims but also non-Muslims. The standards and certifications ensure that producers act responsibly to maintain the halal status of their products during all phases of the production, from the raw materials and ingredients used to the processing and distribution of the products. Malaysia’s Islamic tourism sector is also taking the same route as its halal sector with its own set of standards and guidelines. These standards play a crucial role in establishing Malaysia’s credibility in the global Islamic trade and tourism industry through streamlining best practices, creating systematic development and avoiding misuse and abuse by irresponsible, profit-motivated operators. The existence of – and compliance to – standards and guidelines in a country is important and non-negotiable if it were to attract Muslim visitors as it enhances the visitors’ confidence in the country’s products and services, thus increasing the country’s attractiveness and value as a tourist destination in the eyes of Muslim visitors.

3.2 Islamic Tourism in United Kingdom

In April 2017, UK ranked 20th in the overall GMTI but amazingly 3rd in the Non-OIC destinations beating Spain despite its past Islamic heritage. Part of the success was due to it Air Connectivity, ease of communication, family friendly destination and ease of prayers spaces which may stem from its domestic population of Muslims. In 2014, 2.08 million international Muslim visitors, or 6.6 percent of total visitors, arrived in the UK, according to a recently published report by CrescentRating. Muslim visitors spent an estimated $3.3 billion in 2014 and this is projected to reach $4.1 billion by 2020 at a 3.4 percent CAGR between 2014 and 2020.

The UK’s travel and tourism ecosystem is ranked highly on key global studies. On the Anholt-GfK Roper Nation Brands Index the UK ranks third in 2015 behind Germany and the U.S. The country is fifth on the World Economic Forum Travel and Tourism Competitiveness Index Ranking 2015, which takes into account infrastructure, tourism policy, business environment, and cultural resources. There is a coordinated national effort to market the UK abroad. VisitBritain works with public and private organizations to encourage inbound tourism after developing a long term growth strategy in 2012 to attract 40 million international visitors a year by 2020. The GREAT Britain marketing campaign has been coordinated by government organizations, including VisitBritain and VisitEngland, to attract more visitors from overseas.

A key player in Halal tourism within UK is Muslim History Tours who have given speeches about Halal tourism in UK to the National Tourist Office Visit Britain and local authorities and offers consultation to shopping destinations to make services user-friendly to Arab and Muslim tourist. In 2015, they were World's Runners Up in the Best Halal Tour Operator narrowly missing out to Etihad Halal. Their niche market provides Halal friendly hotels, professionally qualified guided tours, Halal meals on River Thames Cruises, a Muslim History sightseeing tour bus of London was launched in April 2017 and the most recent introduction appears to have been black taxi tours. They were selected in Sept 2017 to be 1 of 7 of the best halal holidays by The National, UAE. They were featured in The Londonist with its founder AbdulMaalik Tailor discovering London's first Mosque in 1895. There was further coverage on London Live and The Muslim Vibe.
3.3 Islamic Tourism in Japan

The Japanese government wants to attract more Muslim tourists from the Middle East and last year eased visa restrictions for citizens of several regional countries, including the UAE and Jordan. While Emiratis can apply for a multiple-entry visa to Japan that is valid for three years, Jordanians are exempted from visa fees. Apart from the Middle East, there are an increasing number of tourists from Muslim countries in East Asia, such as Indonesia and Malaysia, to Japan. The number of Indonesians visiting jumped from 63,617 in 2009 to 136,797 in 2013, and the number of Malaysian tourists to Japan doubled from 89,509 in 2009 to 176,521 in 2014, according to the Japan National Tourism Organisation (JNTO). However, just 59,909 tourists from the Middle East, including 14,816 tourists from the GCC countries, visited Japan in 2014, according to JNTO.

Japan has focused on boosting tourism figures, and aims to capitalize on the 2020 Olympic Games to attract one million Muslim visitors a year. This is about 4 per cent of total tourist numbers today, with annual growth forecast at 18.7 per cent to 2020, according to Crescent Rating. To boost the figures, Japan also started offering visa-free entry to Indonesians, Malaysians and Thais, to cater better to the 65 per cent of Muslim visitors who come from South East Asia. As the number of Muslim tourists has risen, so have halal facilities and services, evident in CrescentRating’s Muslim Friendly Travel Index score for Japan, which rose from 3.9 (out of 10) in 2013 to 4.5 in 2014. Indicative of this trend is TFK Corporation, an airline caterer in Tokyo, which recently invested about US$530,000 to upgrade its facilities at Narita International Airport to be halal-certified for in-flight meals.

A mobile phone app – Halalminds – has also been launched, by an Indonesian, to help Muslims locate halal products in Japan. For those who do make the trip, there are some dedicated operators offering holidays and tours expressly designed for Muslim visitors. One such is Miyako International Tourist Company, based in the city of Hiranoku in Osaka Prefecture, which has been offering halal tours since 2012. In the past two years, the tours have attracted 400 to 500 guests, making up 30 per cent of the company’s business. Eighty per cent of participants are from Malaysia, 15 per cent are from Singapore and 5 per cent from Indonesia in which sixty per cent of halal tour participants come in groups, and the remainder are families.

Japan Oriental Tours, meanwhile, offers its “Tokyo Osaka Muslim Tour 6 Days”, with prices starting from $1,200 for two that includes five nights’ accommodation, mosque visits for prayer and halal food. Another operator, Hatobus, offers day trips twice a week, on Mondays and Fridays, catering to Muslim visitors. Its Aladdin Tour leaves the guests’ hotel in the Japanese capital at 9am. The bus takes the tourists past the Imperial Palace, the residence of Japan’s imperial family, to Nakanish Street, a shopping arcade founded in the 17th century and lined with 90 shops selling traditional fare. It runs from Kaminarimon Gate to the Buddhist temple Senso-ji.

The tour then goes for a halal lunch at the Malay Asian Cuisine restaurant. After lunch, the tourists go up Tokyo Tower, a 333-metre self-supporting tower from the observation deck of which, on a clear day, one can enjoy the view of Tokyo and even see Mount Fuji. Next, tour members visit the Tokyo Camii, a large Ottoman Turkish style mosque, with the Turkish Culture Centre on the first floor and a prayer hall on the second. Finally, they go to the twenty-fifth floor of the Shibuya Excel Hotel to watch people crossing Shibuya Crossing, the most crowded crossing in the country, and finish the tour at 6pm. As well as halal food, the tour includes locations and time for prayers.

3.4 Islamic Tourism in South Africa

South Africa in like fashion has positioned itself to be a halal tourism hub and attraction despite having about 2% of Muslims constituting its total population. Local platforms like StayHalal as well as the ever thriving halal market and halal certified restaurants has made South Africa a major spot for Muslim travelers worldwide. New economic opportunities emerged during the post-apartheid period in South Africa. Tourism was one sector that presented untapped potential to its citizens and the global community. This sector became one of the key generators of economic activity, and “halal tourism,” also referred to as Islamic tourism, developed as part of this emerging market. Islamic culture has always been regarded as an integral part of the South African cultural heritage. Evidence that Islamic tourism is an emerging sector is the recently convened conference on “halal tourism” in South Africa.

Islamic tourism cannot be understood without an appreciation of the history of Muslims in South Africa. Since their arrival as political exiles and slaves beginning in 1652, Muslims struggled against colonialism and oppression, and today, their vibrancy is visible in the cultural, social, and economic landscape of South African society. Through a theoretical lens, tourism is viewed from a postmodern perspective that critiques the dominant homogenous views of Islam and Muslims. While Muslim culture evolved over time, it changed into a hybrid of cultural and religious confluences shaped by internal and external forces. Muslim culture consequently forms a significant component of the national heritage and is an integral part of the tourism industry. A study by Davids (2014) locates the manifestation of Islam in the context of tourism, arguing for South Africa to be viable as a significant component of an emerging global Islamic tourism market.

Islamic Travels and Tours is a boutique agency tailored to attend to the complete needs of the Muslim traveler in South Africa. In addition to organizing shark cage dives, whale watches, and bungee jumps, it will plan honeymoons for Muslim couples, arrange visits to a Muslim-owned predator park in Johannesburg, and schedule tours of South Africa’s first mosque, built in Cape Town in 1794. It will arrange tours of Soweto and trips on safari, and leave room on its clients’ itineraries for ritual prayer and dinners adhering to religious dietary laws. It will even
match clients with local host families who share their religious background, giving tourists a chance to solidify their experience of South Africa and see what life is like for an average Muslim working family.

What you won’t find advertised on Islamic Travels’ website: excursions to vineyards, casinos, and nightclubs—staples of typical South African tour operators, but not activities that many Muslims would care to be associated with. Vawda, a practicing Muslim from Johannesburg and an intrepid traveler himself, started his business in 2015 after realizing that traditional travel firms were overlooking a big opportunity. “Halal tourism,” as the growing niche is known, is being driven by a rising Muslim middle-class population that is well-educated, with disposable income and access to travel information. An estimated 117 million Muslims traveled internationally in 2015, according to the 2016 MasterCard-Crescent Rating Global Muslim Travel Index. That number is expected to grow to 168 million by 2020, with travel expenditures exceeding $200 billion.

3.5 Islamic Tourism in Australia

Australia is a popular travel destination amongst Muslim tourists and the destination has allured travelers for years with its uniqueness and diversity. It is renowned for its vibrant mix of cultures from all over the world as well as its fantastic wildlife, varied landscapes and fascinating attractions. The destination attracts a large number of tourists annually – including a significant percentage of Muslim travelers from Malaysia, Indonesia and Singapore.

There is a wide range of halal and Muslim-friendly food options in the country from simple kebab joints to upscale places, and halal Australia food products in supermarkets. Muslim-friendly restaurants in Australia are plenty and prominently display the halal sign – although be mindful that they are self-certified; currently there is no official restaurant certification body in Australia. At the same time, Australia has a strong system of halal certification for produced food and a number of certification bodies, 7 of which are recognized by Jabatan Kemajuan Islam Malaysia (JAKIM). The Halal Certification Authority (HCA) was set up in 1993 and is a founding member of the World Halal Council and World Halal Food Council; and Australia’s largest internationally accredited halal certification agency ICCV Halal Certification operates across six continents.

Over the years, one of the biggest issues that the Muslim traveler has faced has been finding suitable facilities on their trips abroad. Research by CrescentRating has established how Muslims tourists love travelling and exploring the world in a segment worth $145 billion. The tourism industry is starting to recognize the need to create a strategy to target the Muslim consumer who are quickly establishing themselves as the number one target audience. Tourism Australia has taken a lead on this front by launching a new visitor guide for Muslim tourists in Australia, reaching out to the Muslim travel market. The launch of the visitor guide marks a significant milestone for Australia in promoting itself as a Muslim-friendly destination.

The 68 page guide has been compiled by Tourism Australia and HalalTrip with an aim to enhance the travel experience of Muslim tourists, by placing a focus on several key aspects of Muslim-friendly travel. In addition to showcasing the destination’s various attractions and sight-seeing options, the guide provides detailed information on where Muslim travelers can find facilities such as Halal food and prayer facilities in Australia. The comprehensive guide covers each of the eight major states and territories of Australia and includes the five “must-do experiences” of every region as well as the best places to shop, the best Halal restaurants and mosques of each state. Contact information and directions are also provided so that travelers can locate each site with ease.

Using the guide, Muslim travelers can now easily discover the best places to head to for sight-seeing, shopping, dining and praying across every region of the country. The guide features a separate section for each major state – Australian Capital Territory, New South Wales, Northern Territory, Queensland, Tasmania, Victoria, Western Australia and South Australia – so that important information is available at-a-glance. A number of interesting facts about Australia have also been listed in each section of the guide, highlighting the uniqueness of each region and why visiting it would be a rewarding experience.

3.6 Islamic Tourism in United States

According to report by Salam Standard, US share of global Muslim tourism spend was 24 percent in 2015, or almost $35 billion of the total Muslim travel market of $145 billion in the same year. Muslim tourism also contributed $16 billion to U.S. GDP in 2015, said the report, driving businesses across the travel value chain, including restaurants, hotels, cultural venues, travel agents, airlines, local transport and retailers. The total impact of inbound Muslim tourism spend on US GDP is a staggering $50.8 billion, accounting for more than 10 percent of total inbound tourism spend in the U.S. This represents a huge opportunity for the country’s travel industry, particularly given the global Muslim tourism market is expected to grow by 50 percent in volume and 35 percent in value over the next five years.

Muslim travel also supports more than 600,000 jobs in the U.S. in terms of total employment, according to the economic impact report. The report makes a number of recommendations to the US travel industry for it to boost its Muslim-friendly tourism offering, including increasing accessibility to information on Muslim-friendly or halal facilities and services via websites and apps, and increasing airline connections between key source markets in the Middle East and Asia. The US's Muslim-friendly travel sector also ranks highly in the MasterCard-CrescentRating Global Muslim Travel Index 2016, which measures the Muslim-friendliness of 48 Organization of Islamic Cooperation (OIC) and 82 non-OIC countries on criteria including Muslim traveler and general safety, Muslim visitor arrivals, access to prayer places,
and dining options and halal assurance. The country was the 10th top non-OIC destination and 36th overall on the GMTI 2016.

The Muslim travel to the United States of America has become a hot topic currently. Muslim visitor arrivals to USA stood at 1.68 Million in 2000. This figure declined to 1.44 Million by 2005. Since then it has steadily increased. Muslim visitor arrivals to USA in 2014 was around 2.57 million and the expenditure was USD 7.7 billion. By 2020 Muslim visitor arrivals to USA is projected to reach 4.45 million with an expenditure of USD 12.8 billion. The top 10 source markets are Canada, Saudi Arabia, UK, Turkey, France, India, Germany, Egypt, UAE and Indonesia. They accounted for more than 70% of the total arrivals in 2014. MasterCard-CrescentRating Global Muslim Travel Index 2015 ranks USA at No. 8 among non-OIC destinations with a score of 47.3. MasterCard-CrescentRating Muslim Travel Shopping Index 2015 ranks New York at no. 5 among non-OIC shopping destinations with a score of 49.9.

In 2015, 1.3 million visitors from the Middle East went to the United States and spent north of $8.5 billion. That roughly translates to $6,700 per visitor. In contrast, European tourists spent $3,600 per visitor. Middle East tourists to the US are outspending Europeans by 84%. However, a survey of 1 million Middle Eastern tourists by Iral.com – an Arabic/English travel website and app – shows that travelers from the Middle East are now wary of going to the United States for a holiday. With threats of banning Muslims and increased hate crimes against minorities, Arab travelers are now looking at alternative destinations for their winter vacation. If 15,000 tourists from the Middle East decide against traveling to the US this winter there will be a drop of $100 million in tourism revenue for the United States. This will affect not only hotels and restaurants but will also have an impact on theme parks, taxis and even bellhops. The UN World Tourism Organization statistics reveal that one out of 11 jobs in the world depend on tourism.

4. Conclusion

Muslim travelers have several unique features. Their distinctiveness creates challenges for suppliers of services as well as destination marketers in ensuring proper provision while balancing the needs of Muslim and non-Muslim customers. At the same time, there is diversity within the overall market, based on factors such as age and nationality alongside religiosity.

One of the most significant elements of Islamic tourism is halal food, access to which is a concern for Muslim travelers. However, specific consumer protection legislation is not always present outside the Islamic world and there is evidence of improper attribution, which is hard to detect. The situation has arisen partly from the absence of agreed standards and the reluctance of many governments to get involved in contentious religious affairs. Several countries do have accreditation schemes run by Islamic associations, and HalalFocus (a specialist business consultancy that has a dedicated focus on the global halal market) reports there are over 400 certification agencies, both official and unofficial, operating worldwide. Some suppliers engage in self-certification, which adds to the confusion.

The accommodation sector is a provider of food and other services essential to the tourist experience. Greater attention is now being given to the notion of halal hotels, characterized by prayer facilities, halal food, a ban on alcohol and gender segregation for certain amenities. The term "Shariah-compliant" is sometimes applied and is accurate for properties in conservative Muslim countries such as Saudi Arabia, which are already bound by Shariah law, whereas Dubai in the United Arab Emirates is less restrictive. Hotels in popular tourist regions of predominantly Muslim countries, such as those of North Africa and parts of Indonesia and Malaysia, which rely heavily on non-Muslim foreign guests, are also more relaxed.

Muslims travelling for purposes of business must also be taken into account. Hoteliers should therefore be familiar with Muslim needs and address concerns about food and prayers as far as possible. This can be achieved by ensuring that menus are suitable, copies of the Quran are placed in hotel rooms and information about places of worship is readily available.

The importance of Islamic tourism is appreciated by many national tourism organizations around the world. Promotional websites such as those of Japan, Korea and Hong Kong offer guides to halal dining and the Tourism Authority of Thailand launched a special app last year. Malaysia is positioning itself as a global hub for the production of halal goods and services, incorporating tourism, with an official Islamic Tourism Centre responsible for market development. However, the Malaysian and other authorities must also advertise and cater to non-Muslim tourists and there are possibilities of friction between the expectations and desired experiences of the two groups which have to be managed.

Islamic tourism, of which halal food is a critical component, is a striking phenomenon yielding valuable opportunities for the tourism industry worldwide and not least in Islamic countries. To realize these opportunities, tourism businesses must understand the requirements of Muslim tourists and take the necessary measures to satisfy them without inconveniencing non-Muslim customers. It is also necessary to communicate effectively with Muslim markets.

The ever growing and booming Islamic tourism only means that more and more Muslims are embracing tourism and are looking to explore new destination if of course it has a warm and welcoming halal culture. However Muslim travelers are influenced by their religion, therefore the tourism industry should improve by accommodating to their needs by taking into account religious beliefs. The emergence of Islamic tourism concepts in global tourism business required practitioners to have clear understanding on the practices of Shariah compliance as a prerequisite for high value tourism experiences among Muslims travelers.
5. Recommendation

Muslim-countries should improve their Islamic tourism sector which can help to increase the economy. More promotions and campaigns should be held to attract Muslim tourists. Touristic places in non-Muslim countries should assess their viability of being Muslim-friendly based on their ability to accommodate Muslim religious beliefs and safety concerns. Governments and the general public everywhere should do their utmost to curb violence and terrorist activities, which are damaging to the tourism industry.

The emergence of Islamic tourism concepts in global tourism business required practitioners to have clear understanding on the practices of Sharia compliance as a prerequisite for high value tourism experiences among Muslims travelers. Thus, the consideration of Sharia compliance should be expanded to other related tourism businesses and facilities such as attractions, airports, visitor information centers and events. The assembling of related tourism components to fulfill the Muslim tourist requirement is a duty of service provider in constructing the appropriate tourism products and services. On the other hand, literatures show there are relationship between tourism and religion. Therefore, the research area of Islamic in the tourism industry can be considered as valid and important as it may influence tourist satisfaction and revisit at particular destination.

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[10] https://www.straitstimes.com/opinion/islamic-tourism-the-next-big-thing

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Halal Tourism on Social Media: What Does It Reveal?

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Halal travel
Social media analytics for halal tourism

ABSTRACT

Since social media has become one of the important aspects of lives for many, this paper aims to discuss about halal tourism based on big data analytics. Drawing upon social media analytics compass, the focus is on discovering the hidden pattern of information and communication attributes between the business and the customers (followers), establishing correlations between social network strategy and virtual community reach and engagement, analyzing the social media posts for market trends and making sense of customers’ preference and confidence in halal tourism. Using data from Facebook, we use mixed methods of analysis including content, sentiment and trend analysis as dealing with huge amount of data involve variety and veracity, which deals with uncertainty of data quality. The findings could help organizations and related agencies to make more-informed halal business decisions and evaluate how social media is revolutionizing the halal tourism industry.

1. Introduction

Halal tourism is growing. With an increase in the number of Muslim population, acceptance of halal tourism among non-Muslim countries and utilization of technologies for promoting halal tourism, there is definitely a greater opportunity for halal tourism to grow. A study by [1] estimated for USD244bil halal tourism market size in the year 2021. With the advent of social media as a connecting channel for the cyber community, many destination marketing organization (DMO), travel agencies, bloggers and government agencies have taken the advantages in using social media for halal tourism. While [2] and [3] have investigated the link between social media use for halal tourism, the focus was on the marketing role. In addition [4] discussed on the current trend of halal tourism in Asia. However, the main theme was on the issue of halal tourism concept and comparison across countries. Hence, there is a missing link to what extent social media was used among the cyber community. Therefore, the study aims to discover the hidden pattern of communication between the business and the customers (followers of the social media page). Using Facebook as the platform of investigation, the research objectives are to examine the correlation between network strategy and community reach and engagement, analyze the social media posts for market trends and make sense of customers’ preference and confidence in halal tourism

2. Halal Tourism

Halal tourism provides emerging opportunities [5]. These include demand for Muslim friendly beach resorts, new travel themes, convergence of halal food, fashion and culture, and new halal destinations. Reviewing the literature on halal tourism, most studies focus on the concept discussion (for example [4] and [6]) and a specific halal destination [7] and [8]. Although there seem to be many people who are unclear about the prospects of halal tourism due to the fear of Islamaphobia, there are actually a clear evidence on the relationship between Islamic attractions and attributes, and destination loyalty. Worship facilities, halal food, gender segregation at swimming pools, alcohol and gambling free and Islamic morality are the important values that Muslim tourists are expecting when they travel abroad for leisure [8].

In examining what makes halal tourism, there are diversities in the explanations. As tourism encompasses everyday needs and lifestyle, the needs of the Muslims explain what to be evaluated against halal tourism. These include the minimum requirements of halal food, halal accommodation, halal transport, halal fashion, halal medical and health. Similarly, when one goes for a travel, the attractions and fun and entertainment activities are the choices. Therefore, halal attractions must also be include in evaluating for halal tourism. Related studies on the halal tourism components include halal food [9] and [10], halal medical [11] and halal accommodation and hospitality [12]. A general conclusion could be made for the above studies; marketing is essential in promoting for halal tourism.

Yet, very few studies emphasized on the current practices of social media utilization for halal tourism. With the advent of technologies, social media helps to boost halal tourism. A a result, social media analytics
has great potential to analyse the trend of tourism [13].

3. Research Method

This is an exploratory study and adopts an inductive approach to explore the nature and degree of the social media usage that captures halal tourism. The main focus of the study is the analysis and interpretation of data collected from social media. In selecting the most appropriate social media platform for the study, a decision was made based on the platform intensification of suitability. Thus, Facebook was selected as the media of investigation.

Based on Cooper and Hedges [14], there are six stages that govern the research method; 1) define the problem, 2) collect the evidence, 3) evaluate of the evidences for inclusion and exclusion (selection criteria), 4) analyze or integrate the evidences, 5) interpret the cumulative evidence and 6) present the synthesis methods and results. The page retrieval started by searching for the evidences from Facebook. Using the key words of “halal tourism”, a total of 92 pages were presented. As suggested by [15], the raw evidences require further evaluations for inclusion and exclusion criteria. Therefore, selection of the final Facebook pages was performed by examining the posts in ensuring they meet the goals of the evaluation. As a results, a total of 50 Facebook pages from 26 countries on halal tourism were eligible to be used in the research evaluation. Figure 1 shows the distribution of the halal tourism on Facebook across countries. Based on the profile, 2 general conclusion could be made. One, at a glance, Japan is the champion in dominating halal tourism on Facebook. Two, most of the halal tourism participants are from non-Muslim countries. However, who is behind the organization and their usage intensification are to be further examined in detail in the next section.

![Figure 1. Distribution of halal tourism Facebook participation across countries](image)

4. Results and Findings

Each of the halal tourism Facebook page was retrieved and the contents were analyzed for understanding the common pattern and determining the future direction. The results and findings are explained in this section.

4.1 Organizational Background and In-bound Out-bound Travel

The organizations who created the halal tourism page was grouped as 1) Travel agency 2) Government organization 3) Community 4) Blogger. They were grouped based on the profile information they provided about them. Accordingly, it is the aim of the study to examine who are the active participants of halal tourism on social media. As the main purpose of the Facebook page on halal tourism is for promoting the destination and its special halal components, further elements of travel promotion could be grouped as in-bound and out-bound travel. The in-bound travel is when a host is promoting their country as a tourism destination. On the other hand, the out-bound travel is when a host is promoting other countries other than theirs. The in-bound and out-bound travel services are depicted in Figure 2 and Figure 3.

Based on the results in Figure 2, it could be interpreted travel agencies are the major player for in-bound travel services. This could be understood as most travel agencies are promoting their host countries for both local and foreign travellers. However, it is interesting to note the role that Japanese, the Philippines and the Thais communities play in promoting for halal tourism for their countries. These communities are considered as very serious in boosting the national tourism industry. On another note, the Indonesian, Malaysia and South Korean government organizations are also taking part in the in-bound travel promotion.
On the other hand, the number of out-bound travel services as shown in Figure 3 is not as many as the in-bound travel promotion services. As predicted, no government organization is involved in any out-bound travel promotion, and the services are still dominated by travel agencies. On the contrary, bloggers and community are the independent parties that take the initiatives in promoting not only their country but also global halal tourism as the agenda. Examining their page contents for understanding the pattern, it was found the main aims of these two groups are 1) to disseminate halal tourism awareness to the cyber communities, regardless of their religion and spiritual beliefs, 2) to share global halal information especially on halal food and halal accommodation to the Muslim cyber community for their references.
4.2 Year of Facebook Page Establishment and the Number of Likes

The next analysis aims to understand the pattern of social media establishment, and to analyze whether more matured pages are associated with a higher number of likes. It is also to aim to examine from which country the higher likes are placed on. Based on the results in Figure 4, it could be concluded there is an increase of page creation from the year 2009. Started with only one page in 2009 from Malaysia, the number keeps increasing to 12 new pages in 2017. However, there was only one page on halal tourism created in 2018. Nevertheless, this one single page has been able to attract more than 80,000 likes within a very short period of establishment. Looking at the maturity and the number of likes, there is actually an odd pattern. The higher number is indicated by darker shades, and these shades are scattered without any clear pattern. Thus, it could be concluded the higher number of likes is not associated with the maturity of the halal tourism page. In addition, ironically, the higher number of likes is not placed on Muslim countries as the halal tourism destination. Excluding the 2018 page, which was established by a Singapore-based community for promoting global halal tourism, the higher number of likes is placed on Japan and South Korea as the preferred choice of halal tourism. What makes these two countries as the favorite halal tourism Facebook page? The analysis is provided in the next section.

![Figure 4. Year of Facebook page establishment and the number of likes](image)

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In relating the number of newsfeeds and followers, an analysis was conducted to examine the link between halal tourism coverage, active feed and the number of followers. As shown in Figure 4, it was found there are only seven Facebook pages that have more than 20,000 likes.

4.3 Country and Their Halal Tourism Focus

In identifying the halal tourism components in each page, each post was reviewed and assigned a coding based on the halal tourism components. In this study, the halal tourism components are halal food, halal accommodation, halal attractions and entertainment, halal transport, halal medical and health, halal fashion, culture and tradition. Similarly, the information about mosque and prayer place information, and support services are considered as important. Therefore, they are also included in the halal tourism assessment.

Comparing the halal tourism components across all countries as depicted in Figure 5, halal food seem to be the most favorite information to be shared by all page hosts, followed by halal accommodation and culture and traditional attractions. Being the non-Muslim countries, both Japan and Thailand are actively promoting their traditional cuisine while making sure the halalness from farm to table is not violated. Another favorite activity of the hosts is to provide support services to their page followers and also to share any community activities which they feel are worth to be shared.
In addition, comparing all countries in their posting activities, again Japan is the champion in making sure all aspects of halal tourism are in their radar of services. While fashion seems to be the least favourite topic of halal tourism for many hosts, surprisingly, Japan is very creative in promoting their house brand of Hana Tajima to the cyber community. Hence it indicates their determination in becoming the world champion of halal that covers not only from farm to table, but also from head to toe.

4.4 Facebook Status and Their Active Participation

Next, an analysis was conducted to examine who are the active halal tourism participants. The results as displayed in Figure 6 show the active participants consist of Facebook pages developed by community. The active participation is also indicated by the high number of recent posts, examined for the month of August 2018. Furthermore, those who are active seem to respond to questions and give feedback within minutes, or an hour, or within day.

Examining further, these pages are developed by Japanese media for promoting Japan and Singaporean media for promoting global halal tourism. One reason may be because the number of people behind the structure, they are more resourceful and it is the aim of the group to be the champion of halal tourism. Besides, the results also indicate the correlation between active page status and the high number of likes and followers. What this finding suggests is the cyber community are more attracted to proactive hosts who frequently post new and updated news and halal related information, who are responsive to their needs, and who are able to provide the best reach and engagement. These are the important factors to create the cyber community preference, trust and confidence.

In addition, there is also a relation between halal component fulfillment and page active status, as shown in Figure 7. The results suggest active pages coverage seems to comprise the entire halal tourism components, as compared to non-active pages. The non-active pages are those who no longer posting any new updates or reply to any messages for the last six months. Ironically, during their active period, these hosts seemed to be active in sharing about almost the entire aspects of halal tourism. On the other hand, fairly active pages are those who posted very minimum number of status for the last six month, but have not posted any new updates for the last two months.
5. Discussion and Conclusion

This study attempts to examine the meaning behind halal tourism on social media. Drawing upon halal tourism on Facebook, the results offer the following findings:

1. The use of social media for promoting halal tourism is growing and able to draw attention of the cyber community. Promotions for in-bound travel seem to be more than the out-bound travel services.

2. The active participants, though come largely from independent travel agencies, do not signify for the higher number of cyber community participation to their page. Rather, those pages who are able to attract the higher number of audience are developed by a national community who have better access to information, more creative in engaging the community and more resourceful.

3. The most active halal tourism on social media is not from the Muslim country, but is being dominated by Japan, who is creative in making sure all the halal tourism components are within their radar of control.

4. The higher number of likes and followers are not indicated by the maturity of the page, or the older year of establishment. But the cyber community is more attracted to pages that are able to connect with them, talk to them, being responsive and offer a wider coverage of halal tourism. Preference, confidence and trust of the cyber community are influenced by the ability for the hosts to engage them.

Therefore, these findings offer some lessons and suggestions for Muslims, which are:

1. Muslim countries must be more proactive in engaging the cyber community for understanding what halal tourism is, offering for possibilities of halal beyond travel and staying abroad.

2. Muslim countries must fully utilize the resources in the government agencies and media community to be more creative in promoting halal. They must leap forward and deploy the power of the Internet and cyber space in positioning the Muslim countries as the global halal champion.

3. Promoting halal tourism is about inclusiveness and life style. The old fashion focus of halal food and accommodation is no longer appropriate to meet the needs of the younger generation. The Muslim countries as the social media hosts must be able to connect with these generations and bring the services to them, rather than the other way around.

4. An excellent competency on latest technology in promoting and making inclusiveness of halal tourism is not an option. Business analytics, data science and digital transformation are some of the recent development that halal tourism hosts must pay attention to for business sustainability.

As a conclusion, although many research and industry reports claim halal tourism is emerging and the acceptance is beyond expectation, this study offers some insights for Muslim countries and hosts to position themselves as the global halal tourism champion. There is an urgent call for ensuring we are not shadowed by those who are more creative and more hardworking in fully utilising technologies for getting closer to the cyber community. It is suggested future research to examine further the success of Japan, South Korea and Singapore communities in placing themselves as halal tourism champion, and identify immediate plans for Muslims countries as the preferred halal tourism destinations with unique brands and identities. Each of the halal tourism Facebook page was retrieved and the contents were analyzed for understanding the common pattern and determining the future direction. The results and findings are explained in this section.

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References


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The Contribution of Halal in the Development of Tourism in The Republic of Croatia

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profit.

ABSTRACT

Halal tourism is defined as the provision of services (during travel) to persons living by halal standards, based on two basic conditions: providing halal food and facility for performing prayer. Halal tourism market is developing globally and it is anticipated that by 2020, the value of this market will be $200 billion. Halal tourism development in the Republic of Croatia started in 2010, when the Center for Halal Quality Certification started halal certification of hospitality services. Since the tourism industry in Croatia does not want to exclude the prospects and the development of halal tourism, it is globally adapting to the demands of halal standards. In this way, together with the coordinated activity of tourism stakeholders and the promotion of the halal tourist market, it can earn substantial profit. The aim of this paper is to present the development of halal tourism and its contribution in the development of tourism in the Republic of Croatia.

1. Introduction

Although the Halal market is developing intensively and the term halal is defined by the revelation of the Qur'an, very little research has been done in this field, especially, in the countries of the South East Europe. According to available information there are only theological researches while scientific research has not been conducted.

According to the Croatian National Bank (HNB) data, foreign visitors' tourism revenues amounted to EUR 8 billion and EUR 635 million in 2016, representing an increase of 8,5 percent compared to 2015 (EUR 7 billion and EUR 962 million), or 673 million euros. This year, according to the Ministry of Tourism, more than EUR 800 million is expected to be invested in tourism, through which many new attractions and facilities are to be realized, to increase the quality of accommodation capacities and to improve the tourist infrastructure. Taking into account the importance of tourism for the total economy of the Republic of Croatia, the aim to make this paper work was to consider halal tourism opportunities especially the contribution of Halal in the development of tourism in the Republic of Croatia.

Halal tourism has been recognized in Croatia tourism industry as well having in mind that tourism, as an activity, in the entire Croatian economy, has a very important role, often referred to as the backbone of development. Thus, Centre for Halal Quality Certification as a specialized institution of the Islamic community in Croatia saw the possibility and need for the development of Halal tourism in Croatia. With regards to that in 2010 it conducted special research with the hotels Baska stock company from Island of Krk. It finally resulted with the Rulebook of Certifying and Categorization of Hotels and Restaurants Facilities according to requirements of Halal quality which recently have been expanded to Hospitality Services, Travel Agencies and Health services. By making these Regulations Center for Halal Quality Certification has created a base for development of Halal tourism in Croatia.

The Rulebook provides three categories:

1. HALAL LABEL PACKAGE A it means for example: Have an accommodation license from Ministry of Tourism, must have submitted requests for HACCP system and ISO 22000, provide halal food from approved providers, staff have been educated on Halal...

2. HALAL LABEL PACKAGE B - Not serve any haram in the facility.

3. HALAL LABEL PACKAGE C- Meet all requirements of Halal package B, provide a separate pool for women, provide a separate beach for women. [1]

Currently in the Republic of Croatia there are 13 halal certified hotels, 5 restaurants, 1 catering service and 1 travel agency. All hotels and restaurants are certified and categorized under Halal package A. Having a standard that includes different levels of compliance encourages accommodation facilities to adopt it since the first level usually covers minimum basic requirements. Global hotel brands are halal certified like Sheraton, Rixos and Hilton. [2]

2. Research

In order to respond to the aim of research in the paper, secondary sources of data are used: scientific and professional research, books, expert articles with exploratory research and content analysis for the theoretical and professional framework. Primary data were collected by a test method, a questionnaire survey in which the questions were structured...
to give answers to research questions. Targeted research groups are hotels, restaurants and travel agencies holding halal certificate in the Republic of Croatia. The survey was conducted by sending e-mail questionnaires to certified hotels, restaurants and tourist agencies in the Republic of Croatia. The survey was sent to 20 hospitality service providers and received a response from 16. The parameters that measure the success of tourism and compare each year are the number of guests arriving and the number of overnight stays. Also, the most important parameter for each service provider is the profit realized during its business activity. Therefore, the research was directed towards the above parameters. The first survey question gives a general answer to the halal certificate holders who participated in the research. The largest number of halal certificate holders in the hospitality services sector belonged to hotels 37.5%, then restaurants 31.3%, and travel agencies 18.8%.

The following question asked whether the halal certificate affects the service provider’s profit, 62.5% of the respondents answered that the halal certificate affects profits from 1% to 5%, with 18.8% of respondents responding from 5% to 15% at 6.3% from 35% to 50%. 12.5% of surveyed did not affect profit. Based on the results obtained we can conclude that the halal certificate affects the profits of the service provider.

Figure 3. Whether the halal certificate affects the service provider’s profit?

Figure 4. Whether the halal certificate affects the competitiveness of the Republic of Croatia on tourism market?

3.Conclusion

After the results of the survey we can conclude:
1. that the most common holders of halal certificate are hotels and restaurants;
2. that halal certificate affects the increase in the number of nights and arrivals of guests;
3. that halal certificate affects profit increase;
4. that halal certification affects the competitiveness of the Republic of Croatia on the tourist market.

According to the data of the Ministry of Tourism in the Republic of Croatia, there are currently 731 hotels, [3] so there is surely a great place to work on strengthening tourist infrastructure tailored to guests seeking halal. It is also noteworthy that all hotels and restaurants are certified according to the Halal package A, which is an additional space for extending services to categories B and C, which certainly opens the door to new markets. If we look to some of reviews on Trip Advisor for hotels which have halal certificate in Croatia we can see how halal is important for guests and also for the hotel.

Hotel Esplande Zagreb, Reviewed August 4, 2017, First class hotel, offering halal meals too
I was heer on a business trip, and enjoyed it's old world...
A first class hotel, offering halal meals too - and that is very important feature for me. I will certainly enjoy every new stay there. [4]

Hotel Sheraton Zagreb, Reviewed February 24, 2016,
Lovely stay indeed
Stayed one night on a business trip in Zagreb. The biggest plus for me and fellow Muslims on the board, this is a halal friendly hotel. They have a halal menu for restaurants and for room service. [5]

At the end we can conclude that halal is contributing to the increase in the number of nights and arrivals of guests and profit to the hospitality services which means that halal is contributing to development of tourism in the Republic of Croatia.

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Aldin Dugonjic graduated on the University of applied health sciences, Zagreb, Department of Sanitary Engineering on the topic: "Halal standards and links with other standards." From 2011 to 2013 he did his master thesis on (Implemantation of Halal Standard HRN BAS 1049:2010 in Herds' Slaughterhouses).

From the beginning Mr Dugonjic was involved in the process of establishing of a systematic way of halal certification in the Republic of Croatia. Since 2007. He became certified auditor for halal quality, and in 2009. the consultant for halal quality. Since 2009. he is employed at the Center for Halal Quality Certification on the job CEO, trainer and the auditor of the Center.

Mr Dugonjic is author of more than twelve papers in the area of halal and halal certification, which he had presented at national and international conferences. He is a member of the Croatian Standards Institute, Technical Committee Agricultural and food products; management system for food safety and he was a Member of the CEN/BT Working Group 212 Halal Food.

Also, Mr Dugonjic is Lead Auditor for ISO 9001:2008. Mr. Dugonjic was included in the 2017 edition of the ISLAMICA 500: 500 Global Leaders of the Islamic Economy. He was a member of the governance panel for World Halal Tourism Awards 2016 and president of World Halal Day Croatia organizational committee.
Emulating the Success of Ertuğrul: Does This Television Series Signal A New Opportunity in Halal Tourism?

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1. Introduction
The Muslim travel market is predicted to reach 156 million travellers and be worth $200bn by 2020, according to industry specialist CrescentRating. Over the last ten years, the leaders in this market have primarily been Muslim-majority countries that are already able to service the basic needs of Muslim travellers. This market-dominance has however started to shift, with more non-OIC destinations beginning to provide competition. Countries such as Japan and South Korea are becoming increasingly well-equipped to service the basic needs of Muslim travellers (i.e. halal food and prayer facilities). Non-traditional halal travel destinations such as these have seized upon the opportunities presented by this market and have blunted the competitive edge of traditional players. Such a market shift can only lead to one conclusion; in order to maintain relevance, greater value must be added to the consumer experience.

2. Findings and Argument
The halal travel market has so far been driven primarily by needs as opposed to options. Initially, the focus was on the provision of halal food and prayer facilities, with a shift in recent years to provide more hijab-friendly activities and leisure facilities. In other words, the emphasis was less on the authenticity of the experience and more about providing basic access to Muslims.

There exists however another dynamic that has not been exploited enough but that shows significant potential; the Islamic heritage experience. Sharing stories of Islamic heritage and identity has the ability to personalise an otherwise foreign destination. Our research has shown that Muslims find discovering Islamic heritage through travel inspiring. Figure 1 shows that 95% respondents agreed with the statement “Discovering Islamic heritage through travel is inspiring and strengthens my identity as a Muslim”.

This is particularly important for a growing population of young and educated Muslims all over the world, whether in the UK and Europe or Malaysia and Indonesia, who want to mould an identity that bridges the gap between their heritage and their present-day life experiences. Making Muslim travellers feel a sense of connection to a destination that they otherwise have no connection with, through conveying a shared narrative of a proud Islamic identity and history, could prove to be a powerful tool for service providers in the halal travel market. A great example of where this has been successfully achieved is in the worldwide success of the Turkish television series, Diriliş: Ertuğrul. British Muslim publications have hailed the series as providing a much-
needed positive representation of Muslims, Islam and Islamic history in the media. What is key to note is that the ‘Turkishness’ of the series has been transcended through the portrayal of a shared Islamic identity. This is relevant because where previously Muslims have been attracted to visiting Turkey due primarily to the availability of halal food, prayer facilities and hijab-friendly environments, the country’s rich Islamic heritage is now really coming to the fore. Indeed, our research revealed that a staggering 71% of those who have watched Diriliş: Ertugrul said that they were more likely to visit Turkey as a direct result of this television series.

The series’ success presents a golden opportunity for the halal travel industry to harness a growing interest amongst Muslims about their Islamic heritage, and one of the best ways that this can be achieved is through travel. This phenomenon is not just limited to Turkey and Ottoman history. Figure 2 shows that there is an appetite amongst Muslims to explore Islam in even less traditional destinations, with respondents to this question voting an average of 84 on a scale of 0-100.

3. Recommendations

Key to the success of using Islamic heritage and identity in halal travel marketing will be the quality and accessibility of the content that is produced. Some of the most impactful advertising is that which shares a powerful story of being proud of your heritage and identity, and social media has become a powerful platform from which to do this. Through social media, the notion of a digital ummah is coming to life, making it one of the most influential ways to perpetuate the notion of a shared Islamic identity.

A prime example of how this can be achieved is by sourcing high quality, well-researched content that shares stories or facts that will appeal universally amongst Muslims. Figure 3 provides an example of this type of marketing. The images – combined with informative captions - receive the highest number of interactions from Muslims on the Halal Travel Guide Instagram page. This advertising technique is not limited to Instagram or photos; it can also be applied to articles, blogs, videos and practically any form of creative content production.

4. Conclusion

Sharing Islamic heritage through travel-based storytelling is a tool that, if marketed correctly, can potentially be harnessed in other destinations such as Kazan, Indonesia, China and beyond. Our research shows that a significant proportion of the Muslim community considers travel as a means to connect with their Islamic heritage (Figure 1), which provides destinations and Muslim travel operators the opportunity to develop a competitive advantage. Although this study was limited to British Muslims living in the UK, it is possible to draw parallels with the experience of Muslims who are well-educated and have their own income all over the world. With destinations becoming more adept at servicing the basic needs of Muslim travellers, it is necessary to look deeper into the Muslim traveller experience. Halal travel players should now focus their efforts on creating authentic travel experiences, and marketing these through powerful storytelling that resonates with the 21st Century Muslim who is critical, informed and digitally-adept.

References
Soumaya Hamdi is a British Muslim travel writer and founder of the Halal Travel Guide, a free online resource for planning Muslim-friendly holidays. She began travel writing back in 2015, when she took a road trip through Malaysia with her husband and 4-month-old baby. Since then she has travelled from east to west looking for Muslim-friendly travel experiences – in South Korea, Tokyo, Barbados, Tatarstan and more – and crafts authentic Muslim-friendly travel itineraries that you cannot find on search engines.
Part VIII

The Importance of Halal Finance in Production and Investment
(Finance, Marketing and Country profiles)
The Role of Halal (Islamic) Finance in Production and Investment of Halal Industry: An Innovative Platform for Investment and Production of Halal Industry

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ABSTRACT

The global halal market has emerged as a new growth sector in the global economy. With a growing consumer base in many parts of the world, the halal industry is envisaged to become a competitive force and creating a strong presence in the international trade, and this would definitely deliver a great impact to the development of halal industry in the economy. Thus, to match with the upward trend of this industry, the paper attempts to highlight the needs of Halal Fintech to stimulate the uptake of halal growth. In addition, it is hoped that the results from the paper would provide another avenue for government and policy makers to improve their policy decisions and mechanisms of making Muslims to be more aware of halal commodities.

Keyword: Halal industry, Fintech, economic impact.

1. Introduction

According to World Bank and the United Nations, there won’t be enough food to feed the global population when it jumps from the current seven billion people to nine billion by 2050 and the food scarcity problem is serious that the next world wars could be fought over food.

Muslim population is expected to increase by 73% from 1.6 billion in 2010, to 2.1 billion in 2027 and to 2.8 billion in 2050 representing 25.2 percent of the global population. While the Millennial consumers, totalling 0.7 billion in 2027 across OIC countries, represent an increasingly important segment in the Islamic Economy. One third of Muslims today under 15 years old and nearly two-thirds under 30 and often referred to as Generation Y, and their combined spending power is of $2.45 trillion.

Muslim populations globally spent an estimated $1.24 trillion on food and beverage (F&B) in 2016, a growth of 6.2 percent from the previous year, and is expected to reach $1.93 trillion by 2022, a CAGR of 7.6 percent from 2016. With 1.7 billion Muslims worldwide, and sizable, as well as increasingly affluent Muslim communities in Muslim-minority countries, companies have responded to the demand for Halal Food and beverage (F&B). At the same time, there has been convergence with the demand for quality food by non-Muslim consumers wanting organic and sustainably sourced food. This has led to Halal Food being increasingly popular among non-Muslims, such as in China and Europe, while Halal Food manufacturers are catering to the trend for both religiously-permissible food and organic food. This has been a recipe for success in many markets, particularly in the U.S. and the U.K.

While on the other hand, the total assets of Islamic (Halal) finance estimated at over $2 trillion in 2016, and expected to surge to $3.8 trillion by 2022 (Thomson Reuters, 2017/2018). This shows that Islamic finance is developing at a remarkable pace and the consumption of Halal-certified products and services has become a powerful market force across global markets. Taking into consideration the Muslims population and demand from non-Muslim customers for Halal industry, there is greater need to supply and produce Halal products to meet the demand of both types of customers. Therefore, Halal (Islamic) finance

Figure 1. Global Halal Products and Services Ecosystem
can play an important role in Halal industry not only to make sure the respective demand is meet but also to offer products like sukuk, where Muslim and non-Muslim both can invest in Halal industry.

2. Full Role of Halal finance in Halal production (to meet demand for Halal products)

Halal is big business in today’s world. The growing Muslim population worldwide as mentioned earlier, combined with the increasing demand for halal products from non-Muslims, has fuelled the rapid development of the halal industry. But as we know to develop establish halal industry, one need to have enough capital to meet such excessive demand from both types of customers. But it should be noted that just like Muslim are cautious about the halal products at the same time there is need to be cautious about the financing which is it coming from halal source or haram. Therefore, financing is the main source of fuelling and vehicle to achieve growth of halal industry and to meet the current and potential demand for Halal products.

3. The Proposed Platform

An intermediary platform for financiers and supply chain players to reach out Halal industry

3.1 Objective of the Platform

- Subsubsection. Provides an avenue for Halal minded investors to channel their investment fund to potential Halal industry projects
- Foster Halal industry growth by scaling up production through greater access for business financing
- Nurture and develop competitive Halal industry by connecting Halal companies to the best offering suppliers to achieve an effective and efficient production
- Promote and facilitate participation of Malaysian companies in the global Halal market

3.2. Target players

- Halal products and services companies
- Institutional and retail investors
- Halal industry supply chain players

4. Role of Halal finance in Halal Investment

According to World Bank and the United Nations, there won’t be enough food to feed the global population when it jumps from the current seven billion people to nine billion by 2050 and the food scarcity problem is serious that the next world wars could be fought over food.

Availability of long-term financing is the backbone of any business, therefore in order to complement halal industry better, Islamic finance has ready made products like Sukuk which could open the door of having long term financing which in one hand will open new portfolios of asset for halal money but at the same the halal industry would be free to finance their long-term projects. Similarly, halal investment also has the products like tawaruq (as an example) which could be used to finance short- and medium-term projects by providing short and medium-term financing facilities. Investors decisions to invest in Halal industry are closely influenced by access to financial instruments. If appropriate risk mitigation products are limited or not available, or if available financial instruments do not match their needs, they might be discouraged to invest. Therefore, to adopt better technologies, to purchase halal industry inputs, or to make other decisions that could improve the efficiency of halal businesses it is crucial to improve access to finance which would increase investors’ investment choices and provide them with more effective option not only to have halal investment option but at the same time to get competitive return. One of the main obstacles for the growth of halal industry is the lack of consistent
availability of financing. This obstacle could be tackled through Halal financing.

There are many shariah compliant contracts like Ijarah, Musharakah, Mudarabah, Salam, Istijjar and Tawaruq, which could be utilized to finance projects of Halal industry even non-Muslim money could be channelled to Halal industry as long as these shariah compliant contracts are used. For example, halal meat is coming from Brazil to the Muslims world. But if we see there are a lot of Halal money staying outside the current financial system because of religious reason. For example, in Turkey 50 billion dollars are staying outside the financial system, these should be channelled to halal industry through Islamic finance. This money could be channelled to the Halal industry by producing halal goods and the production of these halal goods could take place in a Islamic country. Adding Halal money with Halal industry would boost the Halal industry further, and by having enough fund available, it could drive the halal industry and finance potential projects and help those facing funds constraints.

5. Conclusion

To summarize, we can conclude that taking into consideration the current Muslim population and potential future growth, it would pave the way for Halal industry to develop and grow which justify the potential good return for those who invest in Halal Industry. Similarly, Muslims spending on F&B slated to reach $1.93 billion by 2022, and the Muslim population exceptionally young and growing, Halal Food will remain a core driver of growth in the Islamic Economy and if halal financing is brought into the picture then the growth rate of halal industry would be multi-fold. Halal industry is open for both Muslim and non-Muslim population which justify the potential demand for Halal Products in the world. If halal finance is emerged with halal industry then the day is not far where the Muslims will become exports of halal goods to the rest of the world.

Channelling halal financing to halal industry for halal production will not only help in producing halal goods but at the same time will birth to the new class of halal investment for halal money, where halal money will come in halal way to finance halal production and benefit from the halal return on investment without the broader objectives of proving not only halal goods and services to the Ummah but at the same time creating whole new Halal eco-system. Whereby money is coming through a halal way, investment in a halal industry, producing halal goods and services and generating halal profit for investors. Therefore, if all these halals are converged with each other it would definitely create positive synergy for the Muslim world in specific and the rest of the world in general. Therefore, the integration of Halal industry with Halal finance could tremendously enhance the huge developmental potential for growth and expansion of Halal industry in specific and Islamic economies in general. This amalgamation of Halal finance will not only boost Halal industry but at the same time will develop new Halal market economic paradigm i.e. the Halal ecosystem.

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Assoc. Prof. Dr. Baharom Abdul Hamid is the Director of Research Management Department in INCEIF (International Centre for Education in Islamic Finance) – Malaysia. Dr. Baharom holds a PhD in International Economics from University Putra Malaysia. His areas of interests are in Applied Macroeconomics, with strong interest in Economics of Crime, Natural Disaster and Military Expenditure. His doctoral thesis was on the "Economics of Crime", more specifically "Determinants and Convergence of Crime". His paper explored the relationship between crime and economic variables, and examined how societies could reduce the incident of crime by controlling there variables. He has different articles connect between halal, Islamic finance and microeconomies.
Beyond the Muslim Consumer: Creating Iconic Brands with a Global Reach

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ABSTRACT

Muslim majority and Muslim minority countries have different set of social, cultural, economic, and political dynamics that significantly influence the way halal economy operates. While due to its cultural embeddedness, halal finds itself more at home in Muslim majority countries, Muslim minority countries’ general lack of familiarity with or hostility toward the cultural code of halal as a manifestation of Islamic values can make it difficult for businesses to reach a larger audience beyond the Muslim consumer. Focusing on this key difference between the two contexts, this paper argues that discourse on halal economy should take into account the power of creating iconic brands and capitalizing on country of origin in order to push the boundaries of halal economy beyond the Muslim consumer. Providing an overview of the extant marketing research on halal, the paper argues that ethnocentric and ideological approaches to halal economy can render halal as a logo with a value proposition to a limited target audience. Given the global rise of rightist populism and the escalation of Islamophobia in Muslim minority societies, it is particularly important for businesses to be able to effectively frame halal’s distinct value proposition through iconic branding. The paper offers a series of recommendations for different stakeholders interested in halal economy.

1. Introduction

Imagine yourself standing in a supermarket aisle scratching your head over an exhibition of numerous dark chocolate bars sitting on the shelf in front of you. There are several brands and different countries of origin. Due to the supermarket’s own promotional offer, there is no price difference between the chocolate bars. What do you say would determine your choice? When answering these questions, bear in mind that you have never tried some of the brands before, even though you have heard of them. If your answer depends on other factors not listed above, again imagine that all products have the same nutritional value, do not contain nuts, have no alcohol, are suitable for vegetarians, and carry the same certification logo(s) (e.g., fair trade, organic, sugar free, gluten free, kosher, halal, and/or whatever else that is important to you). This list of similarities can be furthered to include as many factors as you want, but, for the sake of argument, let’s imagine that the only two demarcation criteria in the big range of dark chocolate bars are the brand name and country of origin. What would determine your choice? Is it the brand name or country of origin? Your answer to this question would show how a brand can possibly gain competitive advantage over others by its reputation or country of origin impetus.

As a marketing academician and ex-practitioner, I keep sharing this scenario or other similar extreme cases with my audiences in different academic and industry settings in order to draw attention to the complexities of decision making when it comes to consumer choice. In doing so, I am particularly keen to highlight the importance of branding and country of origin to business success. In my view, extreme cases have the power to make us think beyond what we already know; they can question our taken-for-granted assumptions about the status quo; and, they can help us focus on the more fundamental issues in our social life.

My key objective in this paper is to highlight why branding and country of origin should be treated more seriously in discussions on halal economy. I set the opening scenario of this paper to eventually argue that in the world’s increasingly competitive environment – where diversification and economies of scale continuously contribute to the proliferation of consumer choice (albeit, mainly, in economically more developed contexts) – creating iconic brands can play a significant role in gaining sustainable competitive advantage for businesses. I will use the above-mentioned scenario throughout the paper to stress that in situations wherein fierce competition drives companies to be market-oriented (e.g., adopt multiple certifications or offer more or less similar products), it will be hard to sustainably differentiate market offerings mainly based on their price or attributes as the power of brand or country of origin effect have more influence on consumers’ decision making.

I will present my argument in five sections. First, I will briefly discuss discourse on halal economy. I will specifically show how different strands of research in marketing have contributed to problematizing and gaining a better understanding of halal economy and market phenomena in relation to Muslim consumers. Building on this literature overview, in the second section, I will briefly explain my ongoing longitudinal research on the food and beverage (F&B) sector in the West and discuss why, compared to conventional mass market economies, halal economy has more challenges to overcome in Muslim minority societies. In the third section, I will discuss why creating iconic brands should be pivotal to thinking about halal economy in general. In doing so, I will outline the key
features of iconic brands and use a series of examples to show why iconic brands are more enduring than others (e.g., mediocre brands). Finally, and before conclusion, I will outline a number of key recommendations to different stakeholders involved in the halal economy landscape.

2. Discourse on Halal Economy: some perspectives from marketing

Debate on halal economy has rapidly evolved over the past two decades. Once primarily a matter of food safety (e.g., avoiding alcohol and haram animal derivatives) in imports from Muslim minority countries into Muslim majority countries, halal has now turned into a holistic phenomenon to encompass a wide range of industries such as F&B, fashion, finance, entertainment, tourism, and so forth (Bergeaud-Blackler, Fischer, and Lever, 2016; Jafari and Sandikci, 2016b). Published work – including academic research, industry reports, and government documents – collectively highlight that halal economy is on the rise (e.g., Bergeaud-Blackler, Fischer, and Lever, 2016a; El-Bassiouny, 2014; Thompson Reuters, 2017). What is unanimously recurrent in these literatures are the sheer size of the market population (i.e., the 1.6 billion population of Muslims that will exceed 2 billion in the near future) and economic value of this market (e.g., estimated around 3 trillion dollars). Based on such growth and opportunity indicators, different stakeholders such as governments, investors, producers, halal certifiers, distributors, marketers, and the like have been increasingly interested in capturing myriad opportunities in the global halal economy (Jafari and Sandikci, 2016a).

To date, substantial steps have been taken to push the boundaries of halal economy. For example, as documented by research (Bergeaud-Blackler, Fischer, and Lever, 2016; Fischer 2016a, 2016b; Lever, and Fischer, 2018), rapid technological advancements have brought invaluable insights into developing and implementing high quality standards in the production and distribution of a variety of industries such as F&B and health and beauty. These advancements have strengthened the institutional foundations of halal economy by minimizing fraud, increasing trust, and enhancing the quality of different market offerings. Likewise, annual local and global conferences and summits have accelerated brainstorming among a wide variety of stakeholders in identifying the key opportunities and challenges of halal economy. Along with such precious developments, as the extant research reports (e.g., Bergeaud-Blackler, Fischer, and Lever, 2016; Elsrag, 2016; Jafari, 2012; Jafari and Sandikci, 2015a, 2016a, 2016b; Shafie and Othman, 2015; Thompson Reuters, 2017), country level competitions over the ownership of the global halal economy, duplication of halal practices, standards, and operations, insufficient attention to organic marketing and branding strategies, competition between halal certification institutions, and an ideological push toward halalization of multiple industries have continued to remain among the major challenges of halal economy.

In line with other disciplines (e.g., business management, operations research, supply chain management, economics, and finance), several strands of research in marketing have also emerged to shed light on halal economy and offer a number of solutions to resolve some of its major obstacles. For example, adopting a ‘transcendental value systems’ to the theorization of Islamic Marketing has been proposed by El-Bassiouny (2014, 2016) to encourage companies to frame their value propositions in ways that would appeal to the marginalized large Muslim populations in mainstream global markets. Izberk-Bilgin and Nakata (2016) also reason that the sheer size of Muslim populations should be seen as a great trigger for Western companies to start understanding Muslim consumers’ needs. Alserhan (2010, 2011) argues for the incorporation of Islamic values in brands and marketing practices that would eventually establish Islamic marketing as a distinct discipline in its own right. Wilson and Liu (2010, 2011) stress that halal branding is a challenging but rewarding approach to be adopted by businesses as it will help convey the true values of halal products to consumers. Sandikci (2011) critiques the essentialist depiction of Muslim consumers as a homogenous segment and highlights the need for understanding a wide range of motivations that drive Muslim consumers’ engagement with different consumption phenomena including halal. Kadirov (2014) calls for theorizing Islamic marketing in such a way that would help different stakeholders use marketing as a facilitator of value proposition to all members of society.

Jafari (2012) warns against overlooking the ideological and political drivers that shape market practices in diverse Muslim geographies and emphasizes that discourse on halal economy should take into consideration the historical trajectories that have shaped contemporary consumption practices and markets in such contexts. Jafari and Süerdem (2012) argue for a hermeneutic reading of consumers’ interpretation of their religious beliefs and subsequently lifestyle narratives in relation to halal. They emphasize that discourse on halal should go beyond what a majority of the extant literature views predominantly as ‘sharia compliance’. By the same token, Jafari and Sandikci (2015a, 2016a, 2016b) call for adopting a critical approach to analyzing Muslim consumers and suggest that narrowing halal to ‘sharia compliance’ would only deprive marketers from understanding a wide range of historical, cultural, social, economic, and political factors that influence people’s interaction with the market. The core of this latter stream of research is that marketers interested in halal economy should learn from established theories and best practices in the non-halal world and start thinking about what added value the halal discourse can bring to society’s everyday life engagement with the market.

The latter argument also draws attention to another topic that has been less articulated in the extant literature; that is, discussions on halal should be geared towards enhancing human life on earth in general and avoid discriminating between Muslims and non-Muslims. For example, Jafari and Sandikci (2015b) and Saatçioğlu, Sandıkçı, and Jafari (2016) forcefully reason that enhancing market systems in order to cater for the less privileged strata of society should be a top agenda for research on Muslim consumers. In other words, focus on market attractiveness in terms of consumers’ disposal income and countries’ PCI (i.e., per capita income) would only deter marketers from understanding and resolving the bottom of pyramid populations’ daily life problems (e.g., access to the market resources and fair distribution of wealth). Therefore, along with offering value to society at large, halal economy should also prioritize enhancing the quality of life for the vulnerable people around the world.
From this overview of the literature, I conclude that, thanks to ongoing debate among scholars, there is growing consensus that thoughts on halal economy should abandon an ethnocentric approach to the market and society and think more about what truly differentiates halal market offerings from their non-halal counterparts. For example, in a situation wherein consumers (either Muslim or non-Muslim) have the option to buy either a halal certified or a non-halal certified product, what should motivate them to go for the former? To elaborate further, if hypothetically (as put forward in the chocolate bar scenario in the beginning of the paper) all brands in a particular product category adopt halal certification, then what would really determine consumers’ choice?

Taken altogether, the above discussion and its subsequent questions allude to the fact that an ideological and ethnocentric approach to halal economy (see Jafari and Sandikci’s 2015a, 2015b, 2016a, 2016b critique of ideological and ethnocentric approaches to halal economy) would render halal as a logo communicating with a specific market segment, namely the Muslim consumer to whom the halal logo means something. The immediate downside of this segmentation would be excluding others, that is, non-Muslim consumers. Understanding this inevitable tradeoff in halal economy has a significant strategic implication for the sustainable global expansion of halal economy. To elaborate further, and as mentioned in the beginning of this literature section, the institutionalization of halal began in the meat industry to ensure that imported meat and meat products from Muslim minority countries were halal. Competition over gaining more market share drove many non-Muslim business entities to voluntarily adopt halal certification to be able to export to Muslim majority countries (Bergeaud-Blackler, Fischer, and Lever, 2016). Half a century later, serving Muslim consumers in Muslim minority geographies also became an indispensable mission hard to ignore. As I will discuss in the next section, Muslim majority and Muslim minority contexts have different dynamics that warrant meticulous considerations when it comes to framing and value proposition of halal.

3. Halal in the F&B Sector in the West: insights from a longitudinal research

As part of a large-scale longitudinal research project, I have been studying the dynamics of the halal market in the Western F&B sector. The multi-type data encompass valuable insights into the evolution of halal market in relation to certified F&B products over a timespan of almost four decades. Findings from a distinct part of the study show that halal-certified products struggle with gaining popularity among non-Muslim consumers to an extent that certain consumer groups and organizations call for boycotting them. As also documented by other research (Johnson, Thomas, and Grier, 2017; Ruiz-Bejarano, 2017), such adverse behaviors are fueled by Islamophobic sentiments that basically criminalize halal products (especially meat) on the grounds of animal cruelty, lack of hygiene, and stealing jobs from non-Muslims in a Muslim minority country. As the findings reveal, the project of demonization of halal is increasingly recruiting from the less informed groups of society and those who have strong nationalistic beliefs. This movement is steadily supported by right and far right political camps who view Islam as an entity alien to the West. Although apparently small in numbers, the anti-halal groups in different countries (e.g., France, Belgium, Holland, UK, Spain, Australia, etc.) are quite vocal and seem to have a strong lobbying power. No wonder why the religious slaughter of animals has already been banned in certain European territories in Denmark and Belgium.

Such anti-Islam groups extensively call for a global boycott of halal products in Muslim minority countries and extensively use fearmongering as a technique to warn others that Islam is invading their lives through halal economy. They boycott not only Muslim businesses but also Western brands that adopt halal certification or offer halal certified products:

“Islam is introducing shariah into our society via halal products & services... this is a Stealth Jihad in the West and in many Non-Islamic countries worldwide...The 5 Key Halal Sectors Across the Entire Halal Supply Chain are: Agriculture; Manufacturing; Services; Tourism; Finance.

Halal food, food prepared according to Islamic shariah law, is becoming an increasing part of the Western diet – and most of this food is being sold to us, unlabelled as such.

The right to know what you are buying is basic. Triply so with food.

Ask where you shop if the meat is Halal, and refuse it if it is.

Boycott all companies and organisations that promote or use Halal products and services to reduce demand and slow production.

We cannot allow this shyster like Pascal’s wager to be played on us, where producers figure, that if all meat is Halal then they do not lose any of their market share. These halal compliant businesses have to know, that the cost of Islamification of the West... as well as abandoning all civilised rules for agriculture & animal husbandry; is the loss of business from any civilised society.”

(https://boycotthalal.com/boycott-halal-how-why-we-boycott-halal/)

Such anti-Islam groups proactively demote halal through systematic activities such as publically protesting brands that adopt halal certification, creating doppelganger images of such brands, lobbying with right wing politicians who would then take action to confront halal at a policy level, spread provocative contents via populist media platforms and the like. The research findings show that such activities have tremendously accelerated over the past few years and have caused some companies to withdraw from the halal market. Fear of bad publicity has deterred companies from adopting or dropping halal. In a recent telephone conversation, one of the top managers (whose identity is withheld) of a multinational corporation (MNC) in Europe told me that they prefer to keep their head down and distance themselves from public debate on halal.

On the other hand, non-Muslim consumers who are not hostile toward halal seem to be reluctant to believe that halal products are more valuable (in terms of their benefits) than non-halal products. It is not difficult to understand the reason
why such reluctance exists. Historically, halal has not been a part of the dominant culture in the West. Non-Muslims’ general familiarity with halal has been confined to a dietary requirement; that is, Muslims are not allowed to consume pork or alcohol. Beyond this understanding, they have no/little knowledge about halal as a philosophy governing the Muslim lifestyle, as it has been a cultural value system for Muslims. My longitudinal ethnographic observation of non-Muslims in the West confirms that, at best, they view the halal logo simply as an endorsement of the Muslim friendliness of a given product; that is, no alcohol or pork derivatives. Simply said, they find halal irrelevant to their everyday life norms and values and subsequently purchasing decisions.

Taking these two issues – i.e., hostility and insignificance – into consideration, one would wonder how halal economy can grow in Muslim minority contexts!

My analysis of the dominant discourse on halal economy shows that currently there is a general lack of appreciation of the significant contextual differences between Muslim majority and Muslim minority countries. Oftentimes, these two contexts are treated in the same way by halal policy institutions of Muslim majority countries as instating the halal mechanism effectively within their countries would enable them to gain competitive advantage over other countries (both Muslim majority and minority) in terms of increasing export and incoming investment and tourism or even gaining global leadership in the governance of halal beyond their own borders. Again, one example, I believe, would help clarify my point here. In one of my visits to a halal standards institution in one of the Arab countries in the Persian Gulf, the person in charge of the institution explicitly said to me that their concern is only their own country’s success. This statement put an end to our conversation, which was supposed to bring more stakeholders around a table to better understand the increasing anti-Muslim sentiments in the West. However, such an approach, in the long term, would have knock-on-effect on the growth of halal economy worldwide. Given that my focus in this paper is on Muslim minority contexts, I will only briefly discuss two key points as the negative consequences for overlooking the dynamics of such societies.

First, markets in Muslim minority countries (particularly in the West) are dominated by powerful conglomerates and MNCs, especially in the fast moving consumer goods (FMCGs) industries. These MNCs are highly resourceful; therefore, diversification and economies of scale enable them to outweigh less resourceful companies on several grounds such as price variance, distribution reach, product proliferation, and umbrella branding (e.g., Unilever and P&G). Retailers such as Walmart, Carrefour, and Tesco also have the same advantages. Extending the rationale of halal certification to such MNCs would basically mean two things: 1) a producer MNC selectively halal-certifies one or more of its products/brands (e.g., Unilever’s Ben and Jerry’s); and 2) a retailer MNC selectively offers halal-certified products/brands (e.g., Tesco offering halal meat in selective stores). In both cases, from a resource perspective, MNCs gain more competitive advantage over small and medium sized enterprises (SMEs), especially if they are entirely halal businesses. From a production perspective, halal businesses, particularly if they are new to the market, are doomed to remain in the periphery if not forced to divest. From a distribution standpoint, halal retailers have to be cornered as local groceries, selling either imported halal products or local halal produce. In both cases, halal SMEs are less likely to be able to compete with MNCs and, hence, halal economy faces structural constraints in growth.

Second, and following on from the above point, export of halal products from Muslim majority to Muslim minority countries becomes limited to ethnic identity. If fortunate enough to be able to find their way to retailer MNCs, such products will be merchandized in ethnic food sections. Retailing in the West follows a particular segmentation program and this inevitably frames halal as an ethnic phenomenon designed for Muslim consumers. As mentioned earlier, it is the default function of segmentation that simultaneously includes (the target audience) and excludes (the non-target audience). If not fortunate enough, export products from Muslim majority countries oftentimes land in local halal groceries, which again are perceived to be ethnic stores. In both cases, the association of halal with ethnicity constrains the growth opportunities for halal economy beyond the Muslim consumer population. This is precisely what anti-Islam groups want to happen: that is, halal is for Muslims only and should therefore remain in Muslim ethnic stores. Again, at best, non-hostile consumers would also view halal as an ethnic phenomenon.

In summary, given the two major attitudes from non-Muslim consumers toward halal, the focus of halal economy will remain to be largely on Muslim consumers. Yet, a key question that needs to be answered is whether or not halal economy wants to go beyond the Muslim consumer because at some point competition and market saturation would impose market development as a vital strategy for survival. My main proposition in this paper is that creating iconic brands and capitalizing on country of origin can play a significant role in extending the boundaries of halal economy beyond the Muslim consumer. In the next section, I will explain why and how iconic brands are different from ordinary brands and how country of origin can help develop iconic brands in halal economy. I will use a series of examples to clarify my point.

4. Iconic Brands: How They Can Create Sustainable Competitive Advantage

In their analysis of the fifty most successful brands, Yu and Birss (2018), summarize the key characteristics of iconic brands as follows: they are distinctive, highly relevant, and recognizable. To elaborate, they are distinctive because they create such a unique personality around themselves that offers a distinct value proposition to the audience. They are relevant to their audience as they offer certain benefits and values that consumers can clearly relate to. They are also globally recognizable from other brands because of their unique value proposition and signature. These three characteristics make iconic brands possess staying, noticing, and scaling powers. Staying means that they focus on not only becoming iconic but also remaining so. To achieve this status, they need to remain timelessly relevant to the audience in such a way that consumers can connect their own lifestyle, beliefs, benefits, and values to
the brand both now and in the future. The staying power then enables brands to be noticed when in the crowd. Noticing does not mean trying hard to shout and create a buzz by tactical promotional activities such as advertising, corporate social responsibility, sponsorship, or sales promotions. Rather, it means that the brand has strategically created such as enduring and distinct personality that is noticed by the crowd. These, therefore, make the brand have a scaling power; that is, the brand creates a great resonance with its target audience. Otherwise said, the brand is recognized by the audience the brand intends to be connected.

These characteristics make iconic brands remain focused on their distinction and avoid short termism. Iconic brands view iconicism as a strategy to gain sustainable competitive advantage over their competitors. They focus on effectively translating their features into meaningful benefits around a core promise and longevity becomes their key concern. They do not get distracted from their vision even though they may sporadically face challenges such as the need for more financial investment. In order to demonstrate how such iconicism can be achieved, Yu and Birss (2018) propose the iconic brand pyramid (Figure 1).

The pyramid basically visualizes the journey iconic brands take in order to differentiate themselves from the rest (the top of the pyramid). This differentiation, however, is based on how a brand sets its values and purpose for existence in the first place. Then, efforts will be geared toward developing a brand personality that would embody those values and the purpose of the brand. These would then inform the promise that the brand makes in relation to its audience. Central to these stages is the accurate materialization mechanism that would help the brand translate its values and purpose into tangible, relevant, and enduring benefits to the audience. Apple, Google, Amazon, DHL, BMW, Coca Cola, Häagen-Dazs, and many others are among such brands that constantly monitor their translation process.

![Iconic Brand Pyramid](Image 1)

Graphic: Iconic Brand Pyramid (Yu and Birss, 2018)

Iconicism is also highly related to powerful storytelling. Iconic brands are capable of creating a culture around them and employ what Holt (2004, 2005, 2006) refers to as a ‘cultural branding’ strategy. Cultural branding in simple words means that cultural codes can be used to develop a narrative around a brand in such a way that society can highly relate to it and the brand becomes a leader in their

product category. Starbucks, Nike, and Ben and Jerry’s, Holt argues are among such top brands that could fuse the cultural codes that highly related to their society in their branding strategy. For example, Ben and Jerry’s continuously relates to the global psyche on issues that relate to all (e.g., Ben and Jerry’s climate change campaign; Image 1).

**Image 1**: Ben and Jerry’s Climate Change Campaign

Source: Ben and Jerry’s

To provide another more tangible example that many readers could better relate to, I cite the following relatively long text from a great example by John Fanning (2011) about Tayto (Image 2), an Irish crisps brand:

“Emigration has been a central cultural issue in Ireland for centuries. It is usually a tragic and depressing event for families and has been depicted as such in numerous artistic renditions of tearful relations waving sad goodbyes to departing sons and daughters at desolate harbours and bus stations.

Irish writers have examined the subject from every angle most recently in Colm Toibín’s Brooklyn, where the young heroine is forced to emigrate not once but twice. But although her plight is poignantly illustrated there are enough indications of liberation from the stuffiness of small-town Ireland. So we now have a distinctive Irish cultural theme: emigration, and the possibility of disrupting the dominant treatment of that theme by regarding it as a positive rather than a negative. Let’s apply this to real life. Tayto, which is about to boldly go where no Irish crisp has ever gone – to China – could be a case study.

The theory of cultural branding would lead to a possible marketing brief to develop a campaign around young Irish emigrants in China [Image 3] not out of desperation but to work and learn with ambitions to return home armed with new business ideas aimed at making Ireland a European bridgehead for the Chinese. They would of course also be fuelled by Tayto crisps, now available for the first time in the Far East.

We could then add a brand activation element to our campaign, citing another positive Irish cultural theme: our adventurous maritime tradition. This would be delivered by organising a Galway Hooker to augment distribution by sailing from Ireland to China with fresh supplies of Tayto. This would be done in conjunction with an educational competition aimed at children who would plot the progress of the voyage. The mind boggles at the creative possibilities the redoubtable Ray Coyle
would make of Galway Hookers and paddy fields but that’s quite enough boggling to be going on with.”

Cultural branding is not as easy as it sounds because as mentioned earlier, staying rather than simply becoming is the goal. In their marketing communications campaign, Mr. Tayto (Image 4), the personification of the brand is continuously searching for the enrichment of his life by learning about life and also educating others about how to improve their lives. Such storytelling based on a cultural phenomenon (i.e., emigration from home) is a universal human experience that Tayto capitalizes upon without losing its authenticity as an Irish brand because, historically, emigration has been a part of widespread experience of people in Ireland and has been depicted in different literary and art genres (e.g., the movie ‘Titanic’ is a great example).

Back to the dark chocolate bar scenario that I used in the beginning of the paper, what do you say would determine your choice? What are the chances that one would prefer a less known brand to an iconic one? If there is an iconic brand that stands out from the rest on the shelf in front of you and you better connect with it, why would you not choose it? Iconic brands gain competitive advantage in different aspects of the business; that is, all the way from attracting investment to persuading consumers to choose.

Now, the question is: how many halal brands are iconic? I am not talking about the iconic brands that have emerged from Muslim minority countries and have adopted halal certification. I precisely mean: how many halal brands from Muslim majority countries are iconic? Within the country local brands aside, how many brands have actually reached an iconic status to be able to complete with Western brands on a global scale? Well, the answer is that there are many successful brands that have originate from Muslim majority countries (e.g., airliners such as Turkish Airlines and Qatar Airways, tourist destinations such as Turkey and Indonesia, or home appliances such as Turkey’s Beko). However, when it comes to product categories in which halal certification is necessary (e.g., F&B or health and beauty), how many globally recognized iconic brands exist? Probably not many! Maybe it is time that halal economy embraced the idea of developing iconic brands that would gain competitive advantage for halal businesses. In the next section, I will propose a number of recommendations on how different stakeholders can contribute to creating iconic halal brands.

5. Some Recommendations to Different Stakeholders

Many things – some, unfortunately, worse than others – are rapidly happening around us in the world. From a social perspective, due to wars, conflicts, unemployment, natural disasters, and so forth, more human beings are being misplaced and displaced in different parts of the world as forced immigrants and refugees. From a cultural perspective, globalization is paradoxically loosening (e.g.,
cultural bonds) and tightening (e.g., cultural protectionism) boundaries between different societies. Economically, the class gap between the poor and the rich is unprecedentedly increasing. Politically, the plague of populism and kakistocracy is eating up the roots of empathy for humankind and is nurturing phobia and hate toward ‘the other’. Environmentally, natural degradation and pollution are growing beyond human control. Technologically, unleashed desire for and obsession with ‘The tech’ (humankin’s own Frankenstein) is alarming leading to the demise of some of the most precious assets of humanity (e.g., senes-making, deep thinking, and thinking in and for society).

These negative phenomena necessitate the need for the good will to be materialized in society and socially, culturally, economically, politically, and environmentally help make the world a better place for all. Today, more than ever, there is need for happiness, health, friendship, peace, reconciliation with nature, justice, fairness, economic security, sympathy and empathy, etc. In my view, these are great aspirations that can and should be embraced by halal economy at a global scale. Each of these qualities can form the foundations of an iconic halal brand that would appeal to all human beings (regardless of their nationality, race, colour, beliefs, religions, and political views) and not only Muslims. Dividing the world into the Muslim and the non-Muslim, I strongly believe, is an unsporting practice of those whose short sight cannot go beyond narrow ideologies and those who see their existence in the negation of others. If the concept of ‘Rahmatan lil’alamin’ applies to his Excellency, the Prophet, then the good will to seek the best of common good will to be materialized in society and socially, culturally, economically, politically, and environmentally help make the world a better place for all. Today, more than ever, there is need for happiness, health, friendship, peace, reconciliation with nature, justice, fairness, economic security, sympathy and empathy, etc. In my view, these are great aspirations that can and should be embraced by halal economy at a global scale. Each of these qualities can form the foundations of an iconic halal brand that would appeal to all human beings (regardless of their nationality, race, colour, beliefs, religions, and political views) and not only Muslims. Dividing the world into the Muslim and the non-Muslim, I strongly believe, is an unsporting practice of those whose short sight cannot go beyond narrow ideologies and those who see their existence in the negation of others. If the concept of ‘Rahmatan lil’alamin’ applies to his Excellency, the Prophet, then the good will to seek the best of common aspirations for all human beings would better guide halal economy toward its attractiveness and acceptance, at least among those who resist the hegemonies of the kakistocrats.

As verbally expressed in many conferences and documented in my earlier writings, one of my main critiques of the existing literature and discourse on halal economy has been the notion of ‘the Muslim’ consumer, businessperson, segment, and so forth. Narrowing halal to the concern of ‘the Muslim’ would deprive the halal from delivering its justice. Halal, in its true sense, is a philosophy that should encompass the universal values of Islam. In order to be able to capitalize on the universal values of Islam, different actors in halal economy can use the capabilities of brand iconism to address humankind at a global level and beyond the ‘Muslim consumer’. Therefore, turn into outlining a number of points that can possibly help actors in halal economy rethink a number of possibilities for a more enjoyable journey:

a) Country level collaborations: healthy competition is constructive as it stimulates innovation and increases productivity. However, states in Muslim majority countries need to work together more closely and effectively to see how they can collaborate in creating global iconic brands as sharing resources is key to developing such brands. Learning from mergers and acquisitions in the automotive industry can particularly help find new ideas. Apart from holding annual industry and academic conferences, summits, and exhibitions, states should form and support international halal think tanks attended by elite academicians and practitioners to brainstorm and develop strategies for creating iconic brands. Governments can also use their higher education institutions as a convergence point for fostering innovative thinking on iconic brand development via joint-research centers and staff-student exchange programs.

b) Capitalizing on country of origin: using Michael Porter’s (1990) generic competitive strategies, countries can identify and utilize the core capabilities and resources in developing iconic brands that can effectively imbued country of origin as a unique value proposition. In doing so, they can focus on the qualities of the brands that can earn them reputation based on what the countries are best known for. A useful example can be how Iran can capitalize on their geographic advantage for creating iconic brands of caviar and fish or Iraq can create iconic brands of dates and date products.

c) Capitalizing on cultural heritage: the Islamic civilization has made valuable contributions to human society in different areas of science, arts, and culture. Many Muslim majority societies of the past that are now distinct nation-states happen to be competing over the ownership of the Muslim iconic figures of the past (e.g., whether Mohammad Jalaladdin Balkhi is from Afghanistan, Iran, or Turkey). At a strategic level, counties should start thinking about how Islamic cultural heritage can bring them closer together in order to offer the best values of such heritage to the world. In the halal pharmaceutical and beauty industry, for example, companies can leverage the rich heritage of medicine to propose powerful iconic brands augmented by brand cultures. Avesina’s heritage can guide many products and services brands in the general arena of medicine and pharmacy. Thanks to the opportunities that digital media have created iconic brands can use ‘crowdculture’ (Holt, 2016) to navigate international borders and promote their iconicism.

d) Energizing brands: given the political dynamics of the world, especially in the Muslim minority West, halal is largely perceived as a ‘strict sharia compliant’ phenomenon. Therefore, it should be no surprise to see how entertainment and style in Muslim majority countries can be associated with the Westernization of the Muslim world as if Muslims are alien to fun, happiness, and laughter. Although the project of Orientalism has historically been accountable for such misperceptions, Muslims themselves should also take responsibility for not having appropriately presented the Muslim lifestyle to the world (see Jafari and Süerdem, 2012). This implies that there is a need for making halal brands more vibrant showing the universal elements of happiness, peace, and prosperity. For example, many characters of One Thousand and One Nights (a collection of Middle Eastern folktales) have been animated by Walt Disney. Alibaba and Sindbad are popular characters around the world. Using cultural strategy, iconic halal brands can be developed based on fascinating narratives and personification techniques (e.g., similar to Tayto).

6. Conclusion

My main objective in this article has been to highlight that Muslim majority and minority countries have different dynamics that can influence the growth of halal economy. I
started my introduction with a scenario in which one would choose a dark chocolate bar from a supermarket shelf filled with many brands that are no different in terms of product features. My point in using the scenario has been to demonstrate that brand and country of origin have the power to influence consumers’ decision making. In the second section of the paper, I presented an overview of the main debates on halal in the marketing literature to highlight why discussions on halal economy should go beyond the Muslim consumer to encompass the larger audience of humankind. Then I explained the key characteristics of iconic brands and the nature of cultural branding to demonstrate the power of such brands in capturing the attention and interest of a much larger audience. In the final section, I outlined my recommendations for creating iconic halal brands. My take on iconic brands has been from a strategic point of view as short term tactical approaches cannot help develop sustainable iconic brands. For example, in many Muslim lifestyle exhibitions in Muslim minority countries Islamic fashion shows are used in order to bring buzz to events and signal the fact that the Muslim lifestyle is modern and compatible with its western counterparts. I want to make my point clear here that what I have tried to mean in this paper is not making such cosmetic surgeries as using pop music, flashing lights, colorful clothes, red carpets, and hired models are less likely to serve halal economy in the long term and strategically. What I would like to become a serious debate on halal economy is how iconic halal brands can gain the competence to be able to compete with the world’s most admired brands without losing their focus on translating Islam’s universal and humanitarian values to tangible benefits for the global audience.

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Muslim and Halal Industry in Taiwan

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ABSTRACT

This paper gives you a brief introduction to the situation of Muslim community in Taiwan. After a short history of Taiwan’s Muslims, it explains how they struggle to maintain the Muslim identity as a minority in a non-Muslim country. When they saw the demand of Halal certification emerging, they took it as an opportunity to introduce Islam to their non-Muslim fellow countrymen while developing Taiwan’s Halal industry and SMEs.

1. Taiwan is a Society of Migration

As an island located at the Pacific Rim, Taiwan is a society of migration. Partly occupied by Spanish and Dutch for some years in the 17th century, Taiwan was named “Formosa” by later, meaning a beautiful island. Later, it was occupied by the Japanese for 51 years. However, for several hundred years since the Ming Dynasty, the development of Taiwan was mainly associated with the immigrants from Fukian Province, China.

Twice in Taiwan’s history, flocks of refugees including Muslims fled from Mainland China to the island of Formosa escaping the collapse of the regimes. The first migration occurred in 1661, after the fall of the Ming Dynasty, and it was led by Zheng Cheng-Kung. The second migration took place in 1949, following Chiang Kai Shek’s defeat by the Chinese Communists.

2. The Rise and Fall of Early Muslims in Taiwan

The earlier Muslim immigrants faced many tough challenges. For one, they lacked religious leaders and scholars to strengthen and educate themselves to survive as Muslims in a completely Shirk environment. Later, they were under the influence by the ruling Japanese who cut off the connection between the immigrants and their Muslim community in Mainland China. The faith of Islam on Taiwan with the first wave of Muslim immigrants simply withered.

After the 2nd World War, Taiwan was re-united with China, a large number of Muslim leaders including military, government officials, legislators and merchants moved to Taiwan along with the KMT Government in 1947. Chinese Muslim Association (CMA) subsequently established its Taiwan branch. Several mosques were established in the following years by the immigrant Muslims with donations from local and foreign Muslim communities and individuals. Now there is a total of 6 mosques available in Taiwan, plus a few Musuallah. Muslim cemeteries were also constructed & regulated in a few major cities. As a result, Islam was recovering from the previous setback.

3. The Current Situation and Difficulty of Muslims in Taiwan

In 1949, an estimation of 20,000 Muslims migrated to Taiwan as “the first generation” of the current Muslim population in Taiwan. After 7 decades, the estimation today is about 50,000, or not more than 0.2 percent out of Taiwan’s total population. Many of them are converts due to marriage. The reason for the low growth rate of Muslim is primarily due to lacking of Muslim Community, activity and Islamic educations- religious and cultural infrastructure has not been properly established. Due to lack of community religious education and biased education system, “Freedom of believe” contributed to the deterioration of religious practice. Many of the “second generation”, now in their 50’s, are isolated from, and unfamiliar with the Muslim Community during their upbringing resulted from their marriage to non-Muslims or converters. Therefore, it is more difficult for the third and fourth generation of Muslims to keep their belief, and sometimes even argumentative, unless their great grandparents (first generation) who were extremely religious.

It is extremely painful for us to watch at a funeral of someone who’s family members sitting in the audience seat, not joining the Janaazah Salat. Isn’t it one of the saddest things for Chinese to lose their decedents? According to the Holy Quran, each human being and race has its lifespan. Allah shall replace us if we deviate from the path of Allah. Life without belief and tradition is worse than dying since it is meaningless and worthless. It is scary to think about that the history 350 years ago may recur nowadays.

4. Struggle for Surviving – We Must Unite

So we are struggling for surviving as Muslims, and we need to clearly understand our situation and difficulties and take aggressive actions, get ready to grab any good opportunities. One thing is definitely very important: We
need to Unite!

5. **Good Opportunity to Promote Islamic Value – Global Muslim Market**

Halal business, halal industries are very important to Muslims. It’s not only a good opportunity to improve economy for the Muslims, but also a very good opportunity to do Da’wah to the public, to promote Islamic value to the unbelievers.

6. **Collaboration to Establish Taiwan’s Halal Industry**

Chinese Muslim Association (CMA) and Taiwan Halal Integrity Development Association (THIDA) have worked closely together in establishing Taiwan’s Halal Industry. Alhamdullilah! Within 7 years starting 2011, we have collectively made the following achievements:

6.1. **Muslim Friendly Tourism:**
- Through CMA contribution, Taiwan becomes “Muslim Friendly Taiwan”.
- Taiwan ranked No.5 of the most favorable Muslim Tourist Destinations. (2018 GMTI-Global Muslim Travel Index)
- 6 Halal Certified Poultry Slaughterhouse;
- 150 Restaurants and Hotels been certified as Muslim Friendly Services;
- More than 500 Tour Guides have been trained as “Muslim Friendly Tour Guide”.

6.2. **Halal Product Certification:**
- With THIDA’s effort, Halal certified products Made-in-Taiwan have been widely accepted by Muslim Countries around the world.
- International Recognition or Accreditation: Malaysia (JAKIM), Indonesia (MUI), Singapore (MUIS), Gulf Countries (GAC).
- Mutual Recognition: Thailand (CICOT), Japan (JMA), South Korea (KMF), Vietnam (HCA), China (CIA, SHC, NAC, LAC), India (JUMHF).
- Products of 594 Companies/Factories have been certified and most of the factories have established Halal Assurance System (HAS).
- Deemed as the most reliable and biggest Certification Body in Taiwan’s Food Industry.

7. **Conclusion**

In conclusion, we thank Allah for His Mercy and Blessings, pray for His Help and Guidance in our endeavor. We are willing to share with the Muslim countries our experience in the development of Halal industry especially the SMEs.

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The Importance of the Halal Market Between OIC Member Countries: African Case Specially

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ABSTRACT

Speaker tell about his experience in the halal certification market in west African countries and the importance of halal products and following halal standards to increase the internal trade among OIC countries.

Introduction

Halal is today a business for some certifier’s or In recent years, Africa has experienced significant external demand for Halal certified products from OIC member countries, as well as domestic demand from African consumers. This request requires companies to comply more fully with Halal requirements to meet the needs of these market organizations to the point that they even forget the religious character. We think that would be good to put the halal in context. (Authenticity) In the Name of Allah, the Most Beneficent, the Most Merciful.

Figure 1. Foreign Trade Developments of the OIC Member States between 2010 and 2016 in billions USD Source: Report on Trade among OIC Member States.

I. Halal Market sectors

The halal market is a very buoyant sector with a financial windfall estimated at about 150 billion US dollars.

- This market includes halal food products (meat and meat products, fishery products, non-alcoholic beverages) and halal non-food products (tourism, fashion, handicrafts, cosmetics and pharmaceuticals, edition, household products, baby toys). Children, media), Islamic Banking and Insurance.

II. Halal Food

The Halal standard is a prior guarantee for African companies that export their products to Arab countries and OIC member countries. However, it provides companies with an opportunity to expand into new African and international markets, as Halal standards are required by all categories of consumers.

III. Halal other than food

The Halal concept is no longer limited to the food sector, but extends more to the pharmaceutical, cosmetic and textile sectors. Thus, companies from different sectors of activity can now offer services that meet the requirements of Halal standards.

IV. Halal World Market

From a niche market to a consumer market. A significant global market: $ 3.6 trillion. More than 2 billion consumers (1.7 billion Muslims). A potential African market (150 billion USD) but almost non-existent at the global level due to lack of popularization and knowledge of the industry.

VI. OIC

The OIC 2005-2015 Ten-Year Plan of Action (PAD) implemented by all OIC Institutions and Member States under the direction of the General Secretariat has achieved the goal set by Leaders to know to reach 20% in 2015. At the 13th Islamic Summit of April 2016 held in Istanbul in the Republic of Turkey, a new Ten-Year Action Plan has been adopted aiming at achieving a 25% share of intra-OIC trade by 2025 (OIC-2025) covering the period 2016-2025.

VII. World Trade of the OIC Countries

The efforts made by the Institutions, Member States and development partners have not made it possible to increase the volume and the share of the OIC countries’ trade which has been
declining between 2015 and 2016 following the fluctuation
commodity prices and the weakness of intra-OIC financing lines;
the existence of tariff and non-tariff barriers to trade and
investment; and the fragile environment of the global economy
and trade.

Despite these activities and projects, the trade of the OIC
Member States accounted for around 9.3% in 2016 against 10.3%
of world trade in 2015, ie a 10% decline. The world trade of the
OIC countries went from 3.4 trillion USD in 2015 to 3 trillion USD
in 2016 ie a reflux of 12.7%. This situation is explained by the decline in foreign trade.

CONCLUSION

Africa has high potential for halal certified products, as
growth is stable in most European countries.
At the same time, African governments are seeking new
markets and accelerating growth to reduce poverty.

Therefore, OIC countries would prefer to focus on internal
exchanges and develop halal certification. It is a
considerable economic challenge. Moreover, it is a factor of
guarantee of the well-being of the consumers.

For good trade cooperation among the OIC member
countries, the OIC-2025 Ten Year Action Plan initiated by the
OIC SG should be the compass of the countries in easing their
procedure of foreign trade and investment. -OCI to
boost trade between Member States. It is therefore important
that Member States participate actively in the activities
of the OIC Institutions, namely those of the IDB Group,
ICCIA and SMIIC, ICDT and COMCEC; this would bring
member countries closer and encourage trade.

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Morocco Halal Expo (MAHAL EXPO 2016) 2016 and a Keynote speaker at Mahal
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Part IX

The Halal Awareness and The Approach of NGO’s
The World Muslim Consumer Organization’s Program

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ABSTRACT

The future growth of the Halal market is limited by the lack of protection for Muslim consumers and the lack of independent studies where only consumers’ interests matter. In fact, the Muslim consumer seems to be the forgotten stakeholder in the halal market that has been high-jacked by political changes in society, especially Islamophobia. In countries with Muslim minorities, these Muslim consumers groups are struggling to fill the vacuum and in the Muslim majority countries there is a lack of awareness of the gravity of the problems that may impact them when they purchase halal products.

To introduce the WMCO’s program, it is necessary to first understand the lack of protection of Muslim consumers in the halal market place. This fact can best be illustrated by discussing two cases of consumer deception. The first is the European horsemeat scandal that involved the brand Findus, in particular in France and the UK; and the second is the deceptive practices of a major European poultry group with regard to the halal quality of their meat.

During the horsemeat scandal of 2013, some of Findus’s beef lasagnas were found to contain 100% horse meat. The giant in the UK frozen food industry informed consumers and apologized by saying it was sorry ‘that we have let people down’. As the scandal touched many other European countries, the European Union spent about three million Euros to test for the presence of horsemeat in beef products. In France, a senatorial mission of information was created to address the meat traceability issue in France (and Europe) and to provide recommendations. All the suspected products were immediately removed from the European markets. Key governments’ institutes and their heads communicated with consumers to reassure them and to explain the immediate decisions being undertaken such as suspending the European license of the suspected abattoir that was supplying the horsemeat. They also recognized the need to improve the procedures to control the traceability of meat products.

As for the European group that is one of the largest exporters of poultry in the world, including supplying the Kingdom of the Saudi Arabia with 40% of its need for halal chickens. This is particularly important to almost all Muslims around the world who would be concerned because they have or hope to go on Hajj to Saudi Arabia at least once in their life. European Muslim institutions and consumer groups (e.g., the Great Mosque of Paris, the consumer association Integrity, ASIDCOM, and Al-Kanz magazine) have denounced the noncompliance of that group’s meat with the religious requirements for halal and its excessive content of water, since the 1970s[3]. On July 26th, 2018 consumers found a confused statement on the SFDA (the Saudi Food and Drug Authority) website. In fact, social media shared a short video from a discussion that had been shown on Alrai TV many months ago[4]. The SFDA denounced the content of the video, described it as a rumor and stated that “an extract of a video of a Gulf TV has circulated. It supposes that the imported poultry and cheap meat to the Kingdom is not halal”. Then the government institute stressed that “the rumor is wrong, as the Kingdom applies the common standards of the Arabia and the Gulf countries – SFDA.FD GSO 993- that ban the use of any kind of stunning for poultry”[1].

The European authorities and brands in the case of Findus have to deal with the scandal within a clear and strong legal and cultural frame of consumers’ protection that include the right to be properly informed about the ingredients including the kind and the origin of the meat. But in the case of the deception on the halal quality, the rights of Muslim consumers doesn’t benefit from such frame which is in particular noted by the lack of formal recognition consumers independent organizations to represent the Muslim religious interests. Then Muslim consumers struggle to obtain the respect for their legal halal standards (such as those required by the GSO to export to the GCC countries) by the European food industry that is part of Europe’s strong legal and cultural frame work of consumers’ protection.

However, it is relevant to note that exported products can be required to comply with the regulation
of the exporting country independent of the rules of the importing country. In a judgement of April 11th, 2018 the court of Rennes (France) condemned the actions of the company (Doux) and required the company to reimburse the aid it has received to export frozen chickens to Saudi Arabia and Russia between 2010 and 2012. The aim of the aid was to enable the group to keep the high European quality of products while it has to face a very competitive price situation on the world market. But as shown by the Rennes’ court, the Group Doux exported “frozen chickens to Saudi Arabia and Russia between 2010 and 2012 that could not be considered of a healthy, fair and marketable quality with regard to the European regulations because of excessive water content”[2]. Unlike in 2016, ASIDCOM, which is a member of the World Muslim Consumers Organization gathered documents and evidence to sue this group because of the deception of Muslim consumers with dead poultry. It had two strong arguments. First, such a product does not comply with the GSO standards for halal while it states on the company website that it does. Second, it asked for the possibility of obtaining judicial expertise to show that the birds were dead before the religious cut. But as all the meat produced was for export, the France-based organization was not empowered legally to deal with this matter. Then ASIDCOM sent a letter to the main Muslim importer country authorities to share with them the legal situation. But unfortunately it hasn’t received any response and the Doux poultry meat still doesn’t comply with the religious requirements of halal.

The deception with respect to the quality of halal products is not an exception on the local and world markets. Many Halal Control Body are allowed for the export to Arabia, Malaysia, Indonesia, Algeria, Tunisia and most other Muslim countries without complying with the halal standards and/or the religious requirements and needs, although the great efforts provided by most authorities to improve the situation. Also, in countries with Muslim minorities, not only, is the halal quality often compromised, but there has been an increase of Islamophobia induced attacks against the rights of Muslim to consume halal products and services. As a result, the halal market is subject to many deceptive practices with the least amount of legal protection in courts around the world. The creation of World Muslim Consumers Organization aims to establish cooperation between Muslim minorities, their countries’ authorities and both consumers and authorities of the Muslim countries, in order to ensure the harmonization of the protection of the religious requirements and needs in the local and world halal markets.

The World Muslim Consumers Organization (WMCO) represents Muslim consumer organizations in many countries and aims to advocate for consumers by seeking to protect Muslim consumers’ rights and choices, while allowing them to make informed decisions when selecting a product or service. The member organizations of the WMCO are busy tackling the issues of corporate competitiveness, which may increase misleading claims, mislabeling and false advertising. The goals are protecting consumers from purchasing unsafe products, increasing competitive practices so consumers get a better value with their purchases, and addressing new issues of concern to consumers such as the environment and animal welfare, particularly with respect to the unique needs of the Muslim consumers seeking to practice their religion in non-Muslim majority countries. These organizations operate via dialoging, campaigning, educating, lobbying, protesting and litigating. Their aim is to create a market place with fair market practices that serves the needs of Muslim consumers. Some Muslim consumer groups like ASIDCOM (Association de Sensibilisation D’Information et de Defense du Consommateur Musulman) in France have conducted comparative studies looking at the appropriateness of the actions of Halal Control Bodies in the local halal markets[5]. One of the main activities of consumer organizations is to provide objective and independent information from comparative product testing. The purpose of these neutral, objective studies are to evaluate products with respect to the consumers’ needs by evaluating the features of products without any conflicts of interest so consumers can make an informed decision and obtain products that meet their specific needs.

The future growth of the Halal market is limited by the lack of protection for Muslim consumers and the lack of independent studies where only consumers’ interests matter. In fact, the Muslim consumer seems to be the forgotten stakeholder in the halal market that has been high-jacked by political changes in society, especially Islamophobia. In countries with Muslim minorities, these Muslim consumer groups are struggling to serve the ever more difficult to meet needs of the Muslim consumer. In the Muslim majority countries there is a lack of awareness of the gravity of the problems that may impact them when they purchase either domestic or imported products. The Muslim majority countries have also been slow to encourage the development of independent Muslim consumers groups. Lack of awareness and weak involvement of Muslim consumers has led to an increase in the dysfunction of the halal system, which harms consumers and leads to further erosion of the image of Islam, particularly in non-Muslim countries.

For example, the codex has developed guidelines for the use of the word “halal”. These guidelines opened the door for many non-Muslim authorities and organization to claim legitimacy as they chose to define, standardize and control halal issues. The non-Muslim institutions like the CEN (the European Committee of Normalization), which has tried to standardize halal secularly without proper input from Muslims, fails to recognize that it should in fact be the responsibility of Muslims to set standards. Such attempts to usurp Muslim rights at the national level can be noted in cases like that in Portugal where the Portuguese norms for “Halal Food” defines halal slaughter without any reference to the Quran or the Sunnah. There are other examples of interference in Muslim life, like the offering of halal certification by non-Muslim international organizations like SGS and Bureau VERITAS. All of these cases and many other deceptive practices continue without any investigation or any sanctions, while the main victims of these activities are the Muslim consumers. Hence, the experience of WMCO and its members has shown that the Muslim consumers have to be central to any effort
to improve the integrity, trust and consistency of halal and of all halal projects designed to affect Muslim consumers, e.g., standards, business practices, accreditation, and certification. Being halal remains an important act of worship first and foremost, which is enshrined in the rights and freedom to practice one’s religion in Western democracies.

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Hanen Rezgui Pizette was born in Tunisia in 1978 and she has dual citizenship: Tunisian and French. She is a Professor of the Science of Engineering (mathematics, physics and chemistry). In 2003, she obtained both an engineering degree from the "International School of Paper, Print media and Bio-materials" of Grenoble (France) and a Master's degree in "Science and Engineering Materials" from the “Polytechnic Institute of Grenoble". In 2004, she worked as a quality engineer in “Tunisie Watt” in Nfidha (Tunisia). Then she returned to France where she obtained a Master's degree "Process Engineering" in 2005 with a mention of “Good”, which allowed her to obtain a grant to work as a researcher until late 2007 in the “Polytechnic Institute of Grenoble". She is studying Sharia with “the European Institute for Human Sciences” in Paris. She joined the Muslim consumers association ASIDCOM, in 2007 and she became its President since 2011, a position she has held since then. She created the “World Muslim Consumers Organization” in 2014 to expand her work to other countries. She has published several scientific studies about Muslim such as the report "The Benefits of Religious Slaughter for Humans and Animals" that was published by the French Agriculture Ministry; and the article "The French Halal Industry: Current State and Future Hopes" in the Global Islamic Finance Report in 2013. In 2015, she published her book “The Republic and Halal: The Story of Halal Slaughter in France since the Second World War" and she was then invited to the French Senate to discuss questions of halal in March 2016. She has contributed to several forums and conferences such as the First and the Second “Gulf Conference for Halal Industry and Services”, "The Halal Workshop", held in Kuwait, “The Annual Conference of French Muslims” in Paris (Le Bourget) in 2011, and in Malaysia at the "World Halal Forum" in 2012. She arranged two conferences "The Muslim Consumer’s Rights and the European Consumer Regulations" and "The European Halal Industry and the Improvement of the Muslim Minority Economic State", during the European Council for Fatwa and Research meeting in June 2013 in Bosnia. She has represented ASIDCOM, since 2010, in the frameworks meetings of the European Halal Standards held in Paris, Brussels and Vienna. She is fluent in Arabic, French and English. As president of ASIDCOM, she served as the secretary of the CFCM’s (the French Council of Muslim Worship) work on the common religious references for halal in France, which was adopted in March, 2016.
Halal Awareness - The Role of Stakeholders and NGOs

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ABSTRACT

Halal promotes safety, effective, quality and hygienic values in addition to being permissible for consumption, yet the demand for, and the provision of, Halal products, what more Halal certified products, are still found wanting. Is there a lack of understanding and appreciation of how Halal can benefit each and every stakeholder within its ecosystem/value chain?

In order to understand this matter, let’s explore how important it is for the effect of Halal be made known to all stakeholders within the industry. It is also pertinent for these stakeholders to be cognisant and appreciate how each of them, together with NGOs, have and do play a significant role in their respective capacity within the Halal eco-system which will bring about tremendous benefits to the Ummah and be the leading contributor to the Islamic economy.

In The Name of Allah (s.w.t.)
– The Most Gracious, The Most Merciful

"O My Lord, increase me in knowledge."
Surah Taha (Chapter 20), verse:114 (excerpted)

It can safely be stated that all Muslims are aware of Halal and Allah’s (s.w.t.) decree on it. However, how much of the knowledge of Halal in its truest sense has been grasped or attained which sensitizes the demand to strongly drive the growth of the supply of Halal certified products?

Halal upholds the values of safe, effective, quality and hygienic, in addition to the more well-known aspect of being permissible for consumption. In spite of this, the demand for, and the provision of, Halal products, what more Halal certified products, are still found wanting. Is there a lack of understanding and appreciation of how Halal and a trustworthy certification process can benefit each and every stakeholder within its ecosystem/value chain?

To fully understand this matter, it should, therefore, be worthwhile to explore how important it is for the effect of Halal and its certification process be made known to all stakeholders within the industry.

Anas ibn Malik (r.a.) reported that Prophet Muhammad (s.a.w.) had said:

“Seeking knowledge is an obligation upon every Muslim.”
(Source: Sunan Ibn Majah 224)

So, firstly, what does the term “stakeholder” mean and what role does it play in thriving the Halal industry?

A stakeholder is a person or entity who is involved with an organisation or industry and therefore has responsibilities towards it (i.e. the organisation or industry) and an interest in its success. Hence, the most essential stakeholder, the core, the one that triggers and roots the development of an industry, is none other than you and me – the consumers. Our needs and wants create the demand for the products (and services) to be provided by the industry.

Next would be the internal stakeholders of the organisation within the industry, namely its shareholders, directors, management and employees. Its suppliers and customers, together with the supply chain providers – both inbound and outbound, are part of its direct external stakeholders.

Then comes the indirect stakeholders - the influencers, i.e. the scholars, government/authoritative bodies and professionals/academia/scientists/researchers. Each and every one of these components has a responsibility, a role to play, towards the success and failure of the Halal industry as depicted in Figure 1 below:
in their respective capacity within the Halal eco-system which will bring about tremendous benefits to the *Ummah* and be the leading contributor to the Islamic economy.

So where and how do NGOs fit in?

NGOs, which is the abbreviation for non-governmental organization and is defined as an organization with social or political aims that is not controlled by a government, can comprise of members representing the consumers, or scholars or the professionals/academia/scientists/researchers. Even individuals from the industry and the government/authoritative bodies can become members of an NGO in their individual capacity.

Henceforth, NGOs do have a role to play in the success or failure of the Halal industry. Their activities such as conferences, seminars, roadshows, public statements and social media postings can come into play and be the driving force in enlightening and informing these stakeholders to successfully instigate the desired action from them.

Let’s take the specific example of Halal vis-à-vis pharmaceuticals/medicines, in particular vaccines, considering the most recent headline: “Race is on to create ‘Halal’ vaccines” in 2020. In this article it was announced that an Indonesian pharmaceutical company has said that it is racing to produce a "Halal" form of the measles-rubella vaccine amid concerns that conservative Muslim parents might deny their children’s inoculation on the grounds that it contains traces of pork.

The concept of consuming Halal pharmaceutical products or Halal medicines amongst the Muslims is a bit complex as it involves the interpretation of the flexibility of the consumption of non-Halal pharmaceutical products. So, on the one hand, we have the extreme case such as the one quoted above which is for a life-threatening disease, but on the other hand, a study conducted with patients of a hospital in Malaysia reflects a lackadaisical attitude towards the consumption of Halal medicines in general as shown in Figure 2 below.

![Knowledge and Practice Towards Halal Pharmaceuticals](image)

Even though the knowledge on Halal pharmaceuticals scored a high of 85.6%, unfortunately only a third of the respondents had put the knowledge into practice by consciously looking out for Halal pharmaceutical products for their consumption. This is further attested by the lack of immediate reaction and the lack of a significant increase in demand from the Muslim populated countries upon the availability of Halal certified pharmaceutical generics in the market.

Abu Darda (r.a.) narrated that Prophet Muhammad (s.a.w.) had said:

“Allah (s.w.t) has sent down both the disease and the cure, and He has appointed a cure for every disease, so treat yourselves medically, but use nothing unlawful.”

(Source: *Abu Dawud, Tibb 11, (3874)*)

Now, how can the stakeholders in the Halal industry, particularly Halal pharmaceutical industry, address these two contrasting concerns? Can the NGOs play their roles effectively to lead in resolving this matter?

Perhaps for the Halal vaccines issue they can replicate the success of the humanitarian NGO, the Royal Jennerian Society which was established in 1803 to ensure that “Small-pox may be speedily exterminated… ultimately from the whole earth,” by promoting newly discovered methods of vaccination. Within two decades, the society had attracted an impressive array of patrons, including 14 European monarchs, the Ottoman Sultan, the Mughal of India, the Pacha of Baghdad, the American President and the Pope. It was claimed at the time that “by its efforts… nearly all parts of the world” had received vaccinations.

As for the lack of significant demand for the Halal certified pharmaceuticals which are already available in the market, perhaps a more concerted effort between all the stakeholders of the Halal pharmaceutical industry to sensitize each other of the rightful concept of consuming Halal pharmaceutical products needs to take place.

The approach of a collaborative sensitizing effort has been proven on some smaller scales in Malaysia where a high favourable awareness and understanding of Halal pharmaceuticals by the targeted stakeholders of Malaysia’s leading Halal pharmaceutical manufacturer was achieved. This achievement had led to a significant boost to the demand for its manufactured Halal certified medicines resulting to an increase between 16% to more than 2 folds of sales to those targeted groups whose buy-in were successfully obtained by the said company.

Nevertheless, in order for this sensitizing effort to be scaled-up, the role of NGOs needs to come into play to give a neutral perspective towards such endeavour. Conceivably, the objective should be for the benefit of the *Ummah*, i.e. in providing them with the peace of mind when seeking medical treatment.

One of the approaches that can be adopted is Halalopathic. It represents any medicine derived from conventional or non-conventional therapies that combine the value of religion with the benefits of modern science, utilising the holistic approach and focusing on the healing power of word and tranquillity.

**Conclusion**

NGOs can play a significant role in creating and sustaining a thriving Halal industry through an aptly sensitized environment which will enable all stakeholders to reap the benefit of Halal certified products, be it to their individual selves or to the *Ummah* as a whole because their members would comprise
individuals from these stakeholders who have a common objective.

Furthermore:
1. by taking the lead in this sensitizing endeavour, NGOs would be able to give a neutral and balanced perspective which would endear to the stakeholders in their respective roles,
2. NGOs, through their activities, can be the driving force in enlightening and informing these stakeholders to successfully instigate the desired action from them, and
3. it is pertinent for the communication chain be strongly linked between all stakeholders and thus, NGOs with diversified members held together by a common objective should be able to take up the part of being the strongest link in the chain.

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Rozi Osman is a Certified Public Accountant (CPA) with more than 10 years’ experience in playing the key role to spearhead Malaysia’s National Agendas, namely Halal and Bumiputera Agendas, in her former company - Chemical Company of Malaysia Berhad (CCM) during her stint as the General Manager, Group Halal & Government Relations. CCM is one of Malaysia’s leading public listed government-linked companies (GLCs) and a key player in the pharmaceuticals and chemicals industries.
Rozi was instrumental in pioneering the promotion of the Halal concept of safe, effective, high quality and hygienic, beyond the conventional Halal food & beverages and was entrusted to provide leadership, facilitation and succor for strategizing, planning, implementing and executing activities relating to these National Agendas.
She is a member of the "Halal Professional Board" (HPB) which was established by the Government of Malaysia in 2015 under JAKIM and works closely with the key players within the Halal industry i.e. JAKIM, Standards Malaysia and HDC. She was also a member of the respective Working Groups which had developed the World’s First Halal Standards for Pharmaceuticals and Chemicals.
Rozi has appeared in a number of domestic and international seminars as a guest speaker and panelist. She had organised a number of complimentary Halal Pharmaceuticals Awareness Seminars as part of CCM’s Corporate Responsibility (CR) projects and was CCM’s in-house trainer for Halal. She is also a Lean Six Sigma Green Belt holder.

Figure 3: “...and ensure every single link in the chain that you make is perfectly calculated.
When you do a job, do it perfectly.
All of you be good, do good.
I'm watching what all of you do.” Surah As-Saba (Chapter 34), verse: 11 (excerpted)
Europe: Diffusing and Expanding Halal Frontiers

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ABSTRACT

The halal consumption is increasing in Europe due to internal and external factors. Both, offer and demand are growing in quantity and quality, leading to an increasing diversification and sophistication of the halal sector. The growing potential of the Muslim lifestyle consumer is attracting more actors into the halal ecosystem, public and private. Within the private sector, small and medium enterprises are leading the path of innovative and creativity, developing new products and services adapted to these increasingly assertive consumers.

Europe: and increasing halal actor

Muslim population is growing globally. It is growing in total numbers (2.2 billion population by 2030, being 1.8 billion in 2012; by 2050 around 60% of the world population less than 18 years old will be Muslim). It is growing in purchase capacity, both as middle and upper class (several of the most relevant emerging economies generating more medium and high-middle class are Muslim, such as Indonesia, Malaysia, Turkey, Iran or the UAE). And it is growing in influence, increasingly shaping the global agenda, intensifying its impact in the international flow of ideas and creativity. These trends are not only affecting the Muslim majority societies. They are also having an increasing impact in the developed economies and cosmopolitan mostly urban societies, such as UK, France, Canada, Australia, Singapore or Germany.

This growth is happening in an international historical context where identity is becoming a driving factor in the individual and collective patterns of consume and behaviour. In accordance with this tendency, we are witnessing a growing diversification and sophistication of the meaning and impact of Muslim lifestyle and halal at a global level. Increasingly, more segments of different societies around the world are being interested in knowing the broad implications and values attached to the concept of halal, especially in the food and beverage sectors. This is not only happening in Muslim majority societies, but also in Western countries, were Muslim population tends to be a minority.

Some of the countries of the European Union (EU) with more Muslim population are among these markets in which both, the offer and the demand of halal products and services are growing. This is not only because their Muslim population is increasing, due to their natural demographic growth, immigration, refugees and growing incoming Muslim tourism flows into these markets. It is also due to the increase of the awareness / consciousness of the virtues that halal certification brings to products and services, opening new niches and market opportunities to the companies that obtain it.

The fact that many of the European Union neighbouring countries are Muslim majority markets (North Africa, Mediterranean Levant, Turkey, several Balkan countries and the Middle East), adds increasing attractiveness and emerging business opportunities for the European companies that want to deal with these consumers.

Moreover, many of the millions of EU Muslim citizens (more than 44 million in 2010, and expected to reach above 58 million by 2030, based on Pew Research Center forecasts) are increasingly becoming middle and upper class in their countries, with the second and third generations being increasingly national and international influential economic actors and agenda shapers. This multiplies the exposure and visibility of the Muslim lifestyle, contributing to its normalization. Relevant cases of this tendency are the cities of London, Manchester, Amsterdam, Rotterdam, Paris, Marseille or Berlin.

This tendency has been reinforced in last years due to the fact that several relevant economies from the EU, such as UK and Germany, have developed policies to attract international talent to their countries to cover highly skilled vacant jobs. Among many of the talent attracted there are Muslim citizens from countries such as India, Iran, Egypt, Malaysia or Turkey that have brought with them their Muslim cultural heritage and sensitivities.

All this complex and dynamic scenario shows how Muslim lifestyle will increasingly play a role in the private and public life of many of the cosmopolitan societies of the EU, especially in urban areas. In fact, we are witnessing the emergence of a younger, more assertive, creative, urban, cosmopolitan, entrepreneurial, open and tech-savvy collective among this population. A segment that increasingly demands Muslim lifestyle and halal products and services. And if they feel the offer does not fulfil their expectations, they create their own consumer brands.

Young people that combine naturally modernity with faith, that believes that they can use technology and consumerism as a way of self-expression and Muslim identity that unites them to the Ummah.

There are no clear figures of the size of the halal sector in Europe, but some estimates from SGS in 2015 quantified the halal sector between 40 – 100 billion Euros; and Nestlé estimated recently that the halal food business in Europe may grow by 20 to 25 percent within the next decade.

Historically, European companies have been quite quick and flexible identifying the need to adapt to new trends or niche market, being especially true for Small and Medium Enterprises (SMEs). And this is being the case with halal. Many SMEs from many different EU markets (from UK to Poland, from Spain to Italy, from France to Bulgaria...) are analysing how they can access to new customers, domestic and international, by adapting their products and services to this increasing assertive demand.
Nevertheless, the ones who will succeed in the midterm are those who really understand the comprehensive and holistic sense of the halal concept. Thus, those only seeking short term economic benefits, without a commitment or clear approach to the meaning of tayyib and Halal, sooner or later will be seen as purely opportunistic, not obtaining the trust and loyalty of these consumers.

Aware of the multiple and growing diversification of the demand of halal products and services, and in order to consolidate and reach more segments of society due to its benefits, companies should adapt their marketing strategies. They should develop strategies much more focused in the tayyib side of the products (healthy, wholesome, traceable...) rather than exclusively addressing its Islamic values. By emphasizing to the consumers the technical and healthy side of the products, halal will become more attractive and appealing to the whole population, rather than just the Muslim citizens. This is especially needed in the case of the food, beverage, gastronomy, cosmetic and body care products: the ones that are more directly linked to the primary needs of the consumer and the body. This will open halal to new segments of consumers: the ones that are more conscious of sustainability, environmentally concerned, honest, aware of the rights of the animals, pro-ecological products...thus helping to normalize and spread the halal concept. With time, this would made halal attractive for all consumers.

The potential of Muslim lifestyle could also gain momentum in the EU, and beyond, through the cities that are becoming international hubs of digital development and content. Global Islamic digital content and consumption is one of the most rapidly expanding segments of Muslim lifestyle, reaching $227 billion by 2020 (around 17% of the world total), according to a report elaborated by Thomson Reuters and Dinar Standard. Cities such as London or Barcelona are becoming relevant global players in the development of the digital world (software, e-trade, apps, digital entertainment, conventions...). Thus, if these European global epicenters of the digital world would add a Muslim side to their potential, it would have a multiplying effect on their impact among Muslim consumers.

All these regional and global trends will have a broad impact in the development of the Muslim lifestyle, in Europe and beyond. It would broaden its scope, approaching its values and guarantees to non-Muslim citizens that might also feel appealed. But this growth would also have the potential of being a developing incentive for neighbouring countries that could be positively influenced by the development of these sectors.

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He was the founder of Barcelona Halal Services in 2016. Working to promote business opportunities in this segment as well as cooperation among economic and social players involved.

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Mr. Javier Albarracin is the organizer of the International Halal Congresses of the Alimentaria Exhibition in Barcelona as well as several seminars and training sessions on the halal concept and business opportunities.
Mechanisms to Create Awareness and Promote Halal Industry Globally

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ABSTRACT

The global halal Industry has emerged as a new growth sector in the global economy and is creating a strong presence in both the developed and developing countries. The most promising halal markets are the fast-growing economies of Asia, Middle East, Europe and the Americas. With a growing consumer base, and increasing growth in many parts of the world, the industry is set to become a competitive force in the Global trade. The global halal industry is estimated to be worth around USD2.3 trillion (excluding Islamic finance) as well as growing at an estimated annual rate of 20%, the industry is valued at about USD560 billion a year. Thus, making it one of the fastest growing consumer segments in the world.

Data and statistics highlighting the size and growth of the Islamic Finance market and has been able to sustain its total assets value at approximately USD2.1 trillion. The Islamic finance sector has witnessed tremendous growth over the past few years with the emergence of crowd funding platforms. Lack of awareness has resulted in an enormous opportunity for products & services offered by this segment. The segment is likely to grow at a CAGR of 10.5% from 2017 to 2024.

The global halal market of 1.8 billion Muslims is no longer confined to food and financial related products. The halal industry has now expanded beyond these two industries to include pharmaceuticals & healthcare, cosmetics, Fashion, Travel & Tourism and supply chain & logistics. The sizeable and growing Muslim consumer market across the globe will continue to fuel the halal industry’s double digit growth, creating opportunities in the market for halal products and services.

There are three major reasons for the growth in the Halal Industry:
1. The Islamic economy is being driven primarily by the increasing youth population with high disposable incomes. Muslim youth are now accounting for 11% of the world’s population and representing just under half of the total global Muslim population. These young consumers are the future of Muslim consumption, and increasingly becoming a new outlet for future growth.
2. Speedy growth of economies in the Middle East and South East Asia are expected to augment the growth of the market owing to the presence of the entire large Muslim population. These economies are likely to emerge as popular destinations for food and fashion.
3. The growing Islamic consumerism among urban middleclass Muslims in countries with a large population of Muslims, such as Indonesia, Pakistan, Turkey and Muslim minority countries such as India, China and Russia has set a new trend in the halal market.

Challenges and some key recommendations to promote the Halal Industry Globally:
1. Confusion surrounding Halal standards, primarily because they are being produced by numerous different organizations in every country. Standards and Metrology Institute for the Islamic Countries(SMIIC)/OIC must set universal Halal certifying guidelines/standards to all Halal Certifying bodies around the globe.
2. Governments must regulate the Halal Certifying bodies in order to maintain standards and accountability.
3. OIC member countries must develop partnerships with non-OIC countries and strengthen their Halal capabilities. (China, South Korea and South Africa are already partnering with Malaysia and the UAE to develop their Halal capabilities).
4. Opportunity to resolve the issue of the scarcity of Halal gelatine by working out a practical solution to utilize the relevant parts from sacrificed animals during Hajj. (OIC & IDB)
5. OIC must coordinate with the Organizers of all Halal Expos, Halal conferences and Halal training institutes from around the world to establish a World Halal consortium.
6. There is a need to develop and publish a Halal Pharmacopoeia and other references for industrial players to supplement Halal pharmaceutical standards.
7. SMIIC/OIC must bring all Halal certifying authorities under one umbrella and organize annual
conferences and seminars Ex: JAKIM (Malaysia), Indonesian Ulama council(MUI), MUIS (Singapore), Halal chamber of commerce (USA) etc.,
8. OIC member countries must extend its fullest support in establishing standards for the travel and tourism industry and actively participate in Arabian travel Mart (ATM), World travel market WTM in promoting Halal Travel and Tourism of their countries.
9. SMIIC- OIC to establish strong relationships with other International standard organizations such as ESO (EU), NIST (US), ACCC Australia.
10. OIC member countries must invest to develop tracking technology. Currently, verifying supply chain integrity is a major challenge.
11. Both the entrepreneurs and consumers need to be educated on the principles of Halal and to enhance their understanding on Halal production from the selection of materials until the products are ready to be consumed. Halal certifying bodies must take the initiative in this regard.
12. The Governments must provide accreditations for Halal related courses such as Halal Auditors, Food technologists, laboratory technicians and etc.,
13. Halal certifying bodies/ Da’wah Organizations must produce Halal concept related materials in a number of languages and make them freely available for easy access for the Muslims and the Non-Muslims.
14. Human Capital Development – Governments and Halal certifying bodies must invest in producing more experts for the industries such as Food, Pharmaceutical, cosmetics, Fashion and Travel & Tourism. This would certainly provide solutions to the shortage of industrial experts in the Global Halal market.

The Halal industry is steadily growing, and is gaining attraction among industry players worldwide. The inclusiveness of the industry which can be integrated into all sectors makes it an attractive niche for companies to invest in as the opportunities are endless. Furthermore, the Halal industry is expected to continue on this path as it garners for more recognition and exposure.

The Halal Industry has extended beyond the food sector into the realm of business and trade and is swiftly becoming a global symbol of Quality assurance as well as A lifestyle choice for both Muslims and non-Muslims.

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Making Halal Public: A Case Study of Halal Awareness Initiatives

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ABSTRACT

Sustainability of the Halal industry is often mirrored upon the growing numbers of Muslim population and value proposition of Halal products. Over the past forty years of Halal certification inception in Malaysia, the real struggle for the industry is managing public confidence towards Halal products. Despite outstanding track record of the products trade, the public remains preoccupied with the misperception about the status of certified Halal products in the event of cross-contamination, unethical news about the status of Halal products, the use of mashbooh ingredients in products and in some countries, the association of Halal with Islamophobia – leading to contestation on the role of Jabatan Kemajuan Islam Malaysia (JAKIM) as the sole Halal certifier and to a certain extent, other competent certification bodies.

In response to fortifying Halal industry integrity, the government through Eleventh Malaysia Plan (2016-2020) has announced that a bold ‘focus will be intensified to advocate halal awareness and understanding among producers and consumers.’ Tagging along with developing Halal innovative products as a logical leap from the existing technology in product manufacture, dissemination knowledge about Halal and Halal industry ecosystem to relevant actors (from workers, manufacturers, entrepreneurs and the public at large) becomes indispensable. If the perception is not properly managed, the industry would not be sustainable and as a consequence, face unprecedented collapse. As a Centre of Halal knowledge, the Institute of Halal Research and Management (IHRAM) takes this national agenda seriously by developing comprehensive Halal awareness programme for the industry players and public at large under the banner of promoting Halal – Istihlak (Consumerism) Education model established by IHRAM in disseminating Halal knowledge to all actors involved in the production line and the consumers, chiefly looking at the program structure and effectiveness to the targeted groups; and fostering collaborative networks with regulatory authorities and reputable multinational and SMEs companies through corporate social responsibility projects. Part II discusses Halal Istihlak (Consumerism) Education model established by IHRAM in disseminating Halal knowledge to all actors involved in the production line and the consumers, chiefly looking at the program structure and effectiveness to the targeted groups; and fostering collaborative networks with regulatory authorities and reputable multinational and SMEs companies through corporate social responsibility projects. Part III proceeds to analyse the empirical evidences resulted from the major Halal awareness projects, mainly Halal@School, Asnaf Projects, Halalan Toyyiban Awareness and Halal Istihlak Seminar, Exhibition and Competition. Feedbacks gained from the public and industry participants, regulatory authorities and Halal experts on the usefulness of the programmes will be discussed. Part IV highlights on the challenges and future opportunities in making Halal awareness more accessible to the public and industry. It concludes that IHRAM has been significant presence in exerting positive perception and influence particularly among millennial generation on the consumption of Halal products.

1. Introduction

In the Eleventh Malaysia Plan (2016-2020), the government announced that a bold ‘focus will be intensified to advocate halal awareness and understanding among producers and consumers.’ Over the past forty years of halal certification inception in Malaysia, the real struggle for the industry is managing public confidence towards halal products. Despite outstanding track record of the products trade, the public remains preoccupied with misperception about the status of certified Halal products in the event of cross-contamination, unethical news about the status of halal products, the usage of mashbooh (doubtful) ingredients in products and in some countries, the association of Halal with Islamophobia – leading to questionable integrity of the Department of Islamic Development of Malaysia (JAKIM) as the sole national halal certifier. This problem has also been experienced by other competent certification bodies.

Public and industry awareness landscape correlates with two major issues: first, the lack of coordinated national policy and strategy on Halal industry development, and second, the lack of structured training programmes to recognise halal workers as qualified personnel. [1] While the demands for halal personnel are increasing, the supply side represents a
governance void where the quality of halal training providers and numbers of halal personnels remains fragmented. This is similarly reflected in the case of Halal awareness training programmes.

Hence, this paper looks at how an institution responds to the need for educating the public as one of the many halal industry actors. The discussion is divided into four Parts. Part I elaborates the importance of the positioning of awareness education within the Halal industry. Part II elucidates the role of Halal 

*Istihlak* (Consumerisme) Education framework developed by the Institute of Halal Research and Management (IHRAM) as a tool for disseminating Halal knowledge to all actors involved in the production line and the consumers. It will look at several activities and their effectiveness to the targeted groups, and collaborative networks established with regulatory authorities and companies through corporate social responsibility projects. Moving on, Part III analyses major Halal awareness projects, including Halal@School, *Asnaf* Projects, Halalan Toyiiban Awareness and Halal *Istihlak* Seminar, Exhibition and Competition. Feedbacks gained from the public and industry participants, regulatory authorities and Halal experts on the usefulness of the programmes will be discussed. Part IV highlights on the challenges and future opportunities in making Halal awareness more accessible to the public and other halal industry actors. It concludes that IHRAM has been making significant presence in exerting positive impacts among millennial generations on the consumption of halal products.

2. Public Misperceptions about Integrity of Halal Industry and Products

The dynamics of halal industry growth is heavily influenced by what and how the public perceive and understand about halal. Multiple evidences showing the downfall of halal business are contributed by the failure to manage expectation and crisis affecting the public. The lack of asymmetrical information relating to animal welfare and halal slaughter, the implication of cross contamination on the status of certified halal products, religious boycott are commonly cited examples.

At the outset, the halal industry is truly a global industry. [2] Similar to Islamic finance, it is indispensable for the industry to deal with market perception and religious connotation is indispensable for the industry, the industry cannot escape from perception that it has religious connotation. Perceptions associating Halal with jihadist movement, hence Islamophobia remains hardly a challenge to the halal industry to go into the global mainstream market. Despite systematic figures to explain the connection of the slow growth of Halal industry and the prevailing boycott against labelling of Halal products and religious slaughter, [3] the rising demands for halal products cause discomfort to certain quarters of the non-Muslim community.

Some claims discrimination of products escalated between certified halal products and non-halal products on shelves, and the only-Muslim criteria for religious slaughtermen. In Muslim countries, religious boycott has been launched against franchise products, predominantly due to its connection to the original owner. While there is a change of ownership in the operating franchise in other countries, Muslims are inclined to perceive that the companies make contribution to Jewish occupation in Palestine. The anger vent upon the franchises is based on sentiments than credible evidence. Some companies have been incorporated in Malaysia and pay the franchising fee for the use of company brand. Hence, they have no association with the global political movement. This is exemplified in the case of boycott against McDonald’s Malaysia and Starbucks Malaysia despite being certified Halal products by JAKIM.

Another persistent threat is the public misunderstanding about the implications of cross-contamination of *najis* or non-Halal materials on certified halal products. The confusion arises as to whether the contamination has rendered the tainted products haram. A good case study was a copy of unofficial test report by the Ministry of Health Malaysia went viral on various social media platforms, leaving an impression that Cadbury chocolate may not be halal. The company made effort to make recall announcement. It did little to slow the public panic. Instead, the company was bombarded with thousands of responses, overwhelmingly inflammatory and adversely damaging the company reputation. Within ten days of uproar, the event has witnessed huge frustration among public over the failure of the company to maintain its products are Halal throughout the supply chain from selection of raw materials to packaging and distribution. Others went further by threatening to take a legal action for misusing its Halal certificate and belittling the Islamic faith in Malaysia.

[4] This has caused Cadbury to suffer losses about RM37 millions. In the case of ready-made products that have been certified as Halal products, but later found it had been contaminated with porcine DNA, the National Fatwa Committee has decided it was categorised as *umum al-balwa* – a problem that is difficult to avoid.

[2] Some quarters of the public, or even non-governmental organisations, also perceive the implementation of Halal policy at food premises cause discrimination between certified halal products and non-halal products. for instance, ‘only halal cake policy’ are allowed to enter into McDonald’s Malaysia premise. The company received mixed criticism for implementing the policy because ‘this will only segregate the people along religious lines, especially at a time when there is a need to enhance unity in the face of rising extremism’ and found the principle of the principle of halal—has become a divisive national discourse. [6] McDonald’s Malaysia however refuted the allegation, saying that the policy is critical to ensure compliance with halal certification requirement; hence preserving the product’s integrity. [2] Another recent example is the use of ‘hotdog’ in Auntie Anne’s Malaysia’s product. Some ridiculed the restriction of names - as the name has been common to almost everyone. JAKIM’s decision not to approve the name
‘hotdog’ did not render the product not halal or haram). It was related to the likelihood of confusion the name would cause if it was approved, and it contravenes the list of products names eligible for Halal certification.

The authority takes seriously the irresponsible widespread of news relating to Halal products. In most occasions, the public claimed that they did not know for posting false or fake posting on social media. Recently, two individuals were found guilty for sharing false news on the mixed storage of halal and non-Halal meats together at a premise. Some news posted also has merits, leading to the supermarket to make apologies for the storage of non-Halal meat in a halal dedicated chiller.

3. Halal Istihlak Education Framework

As a Centre of Excellence, the Institute of Halal Research and Management aims to become a reference centre for Halal Istihlak (Consumerisme) education by delivering innovative research, standard compliant laboratory service and comprehensive training to the nation and ummah well-being. Consumerisme involves protection and promotion of consumer’s interests. In the specific context of halal Istihlak, it aims to disseminate knowledge about consumerisme throughout Halal supply chain. Along the chain, integrity of products will be ensured through various actors within and outside the organisations ranging from workers, executives, Halal supervisors, managers, auditors, enforcement officers, leaders, entrepreneurs, students and the general public.

The public is at front-end of the supply chain. Little was examined in the existing literatures regarding Halal awareness education. The context of education which we are expressing here goes beyond the spectrum of structured training.

Figure 1 exhibits Halal Istihlak Education Framework (HIEF) which will guide the discussion on the scope of HIEF, approach and nature of activities promoted under the framework. As for the scope of HIEF, it broadly encompasses three elements: research, training and laboratory analysis. Research has always been the bedrock of IHRAM as a research institute. IHRAM finds connecting research to halal Istihlak education is imperative so that the outcomes of research will be transpired into the benefits and growth of society. Over the past ten years, research topics covered include alternative halal ingredients, halal forensic science (recycled cooking oil), detection of metabolomics in various animal species, biosensor, developing halal internal control for small and medium enterprises, graduate employability as halal executive, marketing and trade of halal meats into Malaysia, public perceptions, knowledge and attitudes towards halal products, the development of professional halal analysts, shariah governance for Halal executives, shariah and science aspects of sertu and sustainability framework for Halal experts.

Training programmes at IHRAM is designed to cover the entire spectrum of awareness, intermediate and competency levels. We perceive the concept of ‘training’ goes beyond the classroom setting per se through various activities as shown in Table 2:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Summary</th>
<th>Approach</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicara Halal</td>
<td>Series of public talks to address current issues on Halal.</td>
<td>Own</td>
<td>Own</td>
</tr>
<tr>
<td>Halal@School</td>
<td>Series of Halal education for primary schools, employ interactive and fun concept</td>
<td>Co-partner (industry partner)</td>
<td>Industry partner</td>
</tr>
<tr>
<td>Halal Standard Seminar</td>
<td>Series of halal standards seminar, reviewing issues relating to industry compliance with the requirement of standards</td>
<td>Co-partner (agency)</td>
<td>Own + Industry partner</td>
</tr>
<tr>
<td>Halalan</td>
<td>Annual seminar jointly organised with regulatory authorities and agencies</td>
<td>Co-partner (regulatory authority/ agencies)</td>
<td>Industry partner</td>
</tr>
<tr>
<td>Toyyiban Awareness Seminar</td>
<td>Bi-annual event comprising seminar, exhibition of innovation and global halal game.</td>
<td>Co-partner (regulatory authority/ agencies/ industry)</td>
<td>Industry partner</td>
</tr>
</tbody>
</table>

Table 2. Halal Awareness Programmes

The thinking behind the halal awareness initiative has always been on the widespread dissemination of knowledge to the public at large. IHRAM is
increasingly becoming visible in Malaysia as the leader for halal *Istihlak* education and continuously engaging significant industry players in the respective fields. Through HIEF, IHARM builds its awareness education approach either on its own or co-partner with industry players via the platform of philanthropy or corporate social responsibility, by identifying knowledge in critical areas for the industry practice which must be made known and accessible to the public, such as Halal critical points and Halal assurance system. Through this platform, the public are now more informed about differentiating between: (i) halal and haram becomes an indispensable core in halal awareness education and on another end, and (ii) between certified halal products and non-certified halal products. These two ends bring the public to understand the significance and implications of halal certificate on a product. The case for miscommunication and mishandling of halal crisis primarily emanates from the failure of the public to understand between the two ends.

Halal awareness education in Malaysia is offered by multiple Halal training providers. Participation fee may vary, depending on the target groups. At heart of the halal industry sustainable market and growth is the public.

Variation of costs often been the main concern, be it either the general public and students. Students, being the young generation, are found to be powerful in voicing out their opinions. The public opinion is significant for responding to Halal industry-related issues and are channelled through knowledge shared by halal experts in shariah and science. The parallels of halal-haram affairs must be read together with the grey areas (doubtful matters) – * mashbooh* and toyibian. The public tends to make judgments without understanding the dichotomy of Halal, haram, *mashbooh*, toyib and ethics.

Halal awareness education also speaks of the living knowledge being translated into action. The participation of the industry as collaborative partner in the halal education platform bridge the gaps among the public to understand the theory and practice of Halal. Through the agenda of philanthropy or corporate social responsibility, IHARM receives undivided support from multinational companies and local large companies (LLC) such as Quick Serve Restaurant (QSR) Brands Sdn Bhd, Nestle, Mamee-Double Decker and McDonald’s Malaysia. Wider reach of halal professionals trained under the Certificate of Professional Halal Executive also helps us to get feedbacks and useful insights the industry. The success of the halal awareness education relies greatly on the participation of industry players as our partners and collaborators. Programmes like Halal@School and Halal Standard Seminar engage with the industry to be part of module developers and reviewers. Works in progress include developing talents amongst the targeted groups, and Corporate Social Responsibility (CSR) talents among students in preparing them for their future career.

4. Methods

IHARM regularly gains feedbacks from participants attended awareness programmes. The feedbacks are useful to ensure quality and consistency of the programme to the target groups. Analyses were carried out using quantitative approach which measure the participants’ perception on training performance and modules used for every training. Correlation analysis was available only for the Halalan Toyibian Awareness Seminar as there was sufficient data which measured the quality of modules used in the seminar involving 119 responses altogether. The other three events (HalJob; Halal@School; Halal *Istihlak* Seminar, Exhibition and Competition (HISEC) were measured according to the training performances only which focuses on the means score and standard deviation (S.D.). The analysis uses the Statistical Package of Social Science (SPSS Version 25) for descriptive analysis, mean scores, level of performance and relevancy of content, and the correlation respectively.

5. Findings

There are four types of trainings examined in this study. They were distinctive in the subject matter yet similar target for the audiences involved. These four programmes were held in three consecutive years from 2016 until 2018. Feedback forms were distributed and collected by participants on voluntarily basis. There were four programmes were examined in this particular study which are Halal Standard Seminar (2016), Halalan Toyibian Awareness Seminar (HATAS)(2017), Halal *Istihlak* Seminar, Exhibition and Competition (HISEC) (2017) and Halal@School (2018). Responses varied from one to another due to the differences of events and size of the participating audience.

According to Sidik et.al [11], Halal awareness education players were put into four categories: (i) Department of Islamic Development Malaysia (JAKIM) and the State Islamic Religious Department (JAIN); (ii) the country’s educational institutions such as Institute of Halal Research and Management (IHARM), Universiti Sains Islam Malaysia, Halal Products Research Institute (IPPH), Universiti Putra Malaysia, International Institute for Halal Research and Training(INHART), International Islamic University and, polytechnics and colleges; (iii) non-governmental organizations (NGOs) or associations such as the Muslim Consumers Association of Malaysia (PPIM) [12], Consumers Association of Penang (Penang Consumer Association CAP), and group training centres such as Melaka Industrial Skill Development Center (MISDC), Penang Skill Development Center (PSDC), and Pahang Skill Development Corporation (PSDC); and (iv) individuals or training companies who also provide halal consumerism education programmes such as al-Hamra Management & Consultancy Services, Innovative Management Consultancy (IMC) Sdn. Bhd., Olive Global Sdn. Bhd., and Halal Global Sdn. Bhd.

Along similar thoughts, Jamaluddin et al. [13] highlighted on the way forward for the government to
integrate halal awareness education into halal certification ecosystem where the industry players would be subject to. Table 1 shows high reliability for every variable involved which explain the reliable measures used for training performance and training module (in the case of HATAS). As HATAS was the only programmes that measures both the training performance and training module, the correlation analysis was performed and the result shows positive correlation with strong relationship between the training performance and training module. In other words, the higher the performance of the training, the more effective the module will be. It is found that overall goal of performance improvement, the training should include both professional knowledge and skills either at individual or organisation level. \[14] IHRAM has also positioned itself among the prominent institution which gives emphasis on changing of attitudes among the industry actors by encouraging awareness about Halal through the platform of training, seminar, conferences, corporate social responsibility (CSR) such as Halal@School) and HalJob (Halal Slaughter).

Table 1: Reliability Score and Correlation Analysis

<table>
<thead>
<tr>
<th>No.</th>
<th>Training</th>
<th>Reliability Score (4)</th>
<th>Correlation</th>
<th>Part A</th>
<th>Part B</th>
<th>r</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Halal Istihlak (HISEC) (n=31)</td>
<td>0.822</td>
<td>NIL</td>
<td>NM</td>
<td>NM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Halal Standard Seminar (n=93)</td>
<td>0.875</td>
<td>NIL</td>
<td>NM</td>
<td>NM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Halal Toyyiban Seminar (n=119)</td>
<td>0.870</td>
<td>0.774</td>
<td>.272</td>
<td>0.003**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Halal@School (n=29)</td>
<td>0.712</td>
<td>NIL</td>
<td>NM</td>
<td>NM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: NM=Not Measured

As shown in Table 2, it revealed poor level of performance for two programmes (n=93) which are Halal Standard Seminar and HATAS (n=119) for 1% and 8% each. According to Table 4, Halal Standard Seminar shows lower scores for the location of the program (Mean=1.709, S.D. = .456). It reveals the discomforts among the respondents where they had difficulties in looking for the location. There was a lack of directions which can be solved with the help of Maintenance and Development Department. Besides, lower score is also revealed by the HATAS for the element of time management (Mean=3.352, S.D. = 1.101).

Table 2: Training Effectiveness

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Training</th>
<th>Level of Effectiveness/Importance</th>
<th>Training Performance (%)</th>
<th>Training Module (%)</th>
<th>Low</th>
<th>Mod.</th>
<th>High</th>
<th>Low</th>
<th>Mod.</th>
<th>High</th>
<th>Low</th>
<th>Mod.</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Halal Istihlak (HISEC) (n=31)</td>
<td>0</td>
<td>19.4</td>
<td>80.6</td>
<td>NM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Halal Standard Seminar (n=93)</td>
<td>1</td>
<td>24</td>
<td>75</td>
<td>NM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Halal Toyyiban Seminar (n=119)</td>
<td>2</td>
<td>24.4</td>
<td>73.9</td>
<td>17.6</td>
<td>81.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Halal@School (n=29)</td>
<td>0</td>
<td>10.3</td>
<td>89.7</td>
<td>NM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

It is noteworthy that different programs reveal different factors for the lower mean score. Based on the figures in Table 3, the program design represents the lower score for the training performance (Mean=3.709, S.D. = .739). Regardless of the score, the result is actually within the positive score which is between 4 and 5-points scale. The negative perception towards the program design, is thus, void.

Table 3: Item Measuring Training Performance for HISEC According to Mean Scores and Standard Deviation (S.D.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Items Measuring Variable</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Training Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Program Design</td>
<td>3.7097</td>
<td>.73908</td>
</tr>
<tr>
<td>2.</td>
<td>Objective Achieved</td>
<td>3.8710</td>
<td>.61870</td>
</tr>
<tr>
<td>3.</td>
<td>Presentations</td>
<td>3.8387</td>
<td>.73470</td>
</tr>
<tr>
<td>4.</td>
<td>Speakers</td>
<td>3.9677</td>
<td>.70635</td>
</tr>
<tr>
<td>5.</td>
<td>Secretariats Assistance</td>
<td>4.0645</td>
<td>.67997</td>
</tr>
<tr>
<td>6.</td>
<td>Fees</td>
<td>4.0968</td>
<td>.74632</td>
</tr>
<tr>
<td>7.</td>
<td>Time Management</td>
<td>3.9032</td>
<td>.78972</td>
</tr>
<tr>
<td>8.</td>
<td>Technical and Logistics</td>
<td>3.9355</td>
<td>.67997</td>
</tr>
<tr>
<td>9.</td>
<td>Foods and Beverages</td>
<td>4.0645</td>
<td>.99785</td>
</tr>
</tbody>
</table>

Table 4: Item Measuring Training Performance for Halal Standard Seminar According to Mean Scores and Standard Deviation (S.D.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Items Measuring Variable</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Training Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Location</td>
<td>1.7097</td>
<td>.45637</td>
</tr>
<tr>
<td>2.</td>
<td>Seminar room</td>
<td>4.3656</td>
<td>.80467</td>
</tr>
<tr>
<td>3.</td>
<td>Food and Beverages</td>
<td>4.1828</td>
<td>.83336</td>
</tr>
<tr>
<td>4.</td>
<td>Objective of the Programme</td>
<td>4.3226</td>
<td>.69409</td>
</tr>
<tr>
<td>5.</td>
<td>Clarity</td>
<td>4.3656</td>
<td>.63904</td>
</tr>
<tr>
<td>6.</td>
<td>Notes and References</td>
<td>3.9140</td>
<td>1.01784</td>
</tr>
<tr>
<td>7.</td>
<td>Align with the Career Development</td>
<td>4.2688</td>
<td>.76811</td>
</tr>
<tr>
<td>8.</td>
<td>Knowledge</td>
<td>4.3871</td>
<td>.69207</td>
</tr>
<tr>
<td>9.</td>
<td>Suitability</td>
<td>4.2796</td>
<td>.88913</td>
</tr>
</tbody>
</table>

Table 5: Item Measuring Training Performance and Training Module for HATAS 2017 According to Mean Scores and Standard Deviation (S.D.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Items Measuring Variable</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Training Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Program Design</td>
<td>3.9496</td>
<td>.68703</td>
</tr>
<tr>
<td>2.</td>
<td>Objective Achieved</td>
<td>4.1353</td>
<td>.67543</td>
</tr>
<tr>
<td>3.</td>
<td>Presentations</td>
<td>4.1513</td>
<td>.65921</td>
</tr>
<tr>
<td>4.</td>
<td>Speakers</td>
<td>4.1849</td>
<td>.65051</td>
</tr>
<tr>
<td>5.</td>
<td>Secretariats Assistance</td>
<td>3.8891</td>
<td>.83146</td>
</tr>
<tr>
<td>6.</td>
<td>Fees</td>
<td>4.0924</td>
<td>.83353</td>
</tr>
<tr>
<td>7.</td>
<td>Time Management</td>
<td>3.3529</td>
<td>1.10153</td>
</tr>
<tr>
<td>8.</td>
<td>Technical and Logistics</td>
<td>3.6975</td>
<td>.84927</td>
</tr>
<tr>
<td>9.</td>
<td>Foods and Beverages</td>
<td>4.0840</td>
<td>.79809</td>
</tr>
</tbody>
</table>

B. Training Module

<table>
<thead>
<tr>
<th>No.</th>
<th>Items Measuring Variable</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Current Issues on Malaysia Halal’s Certification</td>
<td>2.5546</td>
<td>.49911</td>
</tr>
<tr>
<td>2.</td>
<td>From Farm to Fork: Sharing Session with Industries</td>
<td>2.6218</td>
<td>.48698</td>
</tr>
<tr>
<td>3.</td>
<td>Halal Critical Control Point</td>
<td>2.7731</td>
<td>.42059</td>
</tr>
</tbody>
</table>
As shown in Table 6, the duration of the programme was found insufficient for Halal@School programme (Mean=1.862, S.D.= .515). The respondents who were the teachers of the school involved requested for longer than one and 30 minutes. Due to the limitation, the program was very compact thus created inconveniences among the students who had to go back with their parents. The program was held on Friday which had shorter time that the other working days for Jum’ah prayer.

Table 6: Item Measuring Training Performance for Halal@School Program 2018 Seri 1 According to Mean Scores and Standard Deviation (S.D.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Items Measuring Variable (n=29)</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The program should be done during school day</td>
<td>4.2414.68947</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>The duration is sufficient enough for the program to take place</td>
<td>4.1861.51576</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>The talk session is suitable for Level4.4483.50612</td>
<td>Two of students</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>There should be circulation of notes 4.0690.52989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>The content was suitable for the primary4.2414.68947</td>
<td>school students</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>It meets the objective of Halal@school4.2759.59140</td>
<td>program</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>It should be done in a closed area rather4.2069.77364</td>
<td>than an open space</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>There must be goodies/Halal drinks or4.3103.54139</td>
<td>foods prepared for the students as an incentive</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>There must be a participation among4.3103.66027</td>
<td>teachers of the school</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>IHARAM plays an important role in Halal4.4138.50123</td>
<td>education</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>The game of HalalRace is suitable for4.3793.62185</td>
<td>the program of Halal@School</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>It has to be done in few series per year4.2069.72601</td>
<td>continuously</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>A collaboration with industries gives4.3448.55265</td>
<td>greater impact to the interests on Halal issues in Malaysia</td>
<td></td>
</tr>
</tbody>
</table>

6. Challenges and Opportunities

The built up of HIEF has been instrumental in driving forward halal awareness education in Malaysia. The initiatives however it is not without challenges. The challenges can be divided into internal and external factors. The internal factors relate to the review of HIEF to ensure it achieves the desired outcome and impacts of the initiatives. Mobilisation of people within the university, involving the students and academics as CSR talents for instance, need to be intensified. In the world of digital connectivity, the role of young generation serves as ‘defenders’ to the widespread fake news which can tarnish the reputation of the Halal industry.

External factors include finding the stakeholders and funding. Getting the industry players involved in Halal education can be part of their corporate social responsibility projects. Through our experience, the companies are committed to sharing knowledge and practices with the public. As part of good corporate governance, the company involvement in Halal education awareness has given positive impression about what the company is doing, what the company is not doing (as allegedly claimed in irresponsible fake news in multiple social media sites). This has enabled better transparency and disclosure of the company’s business. Working with the industry (and also the regulatory authorities) requires the Halal education providers like universities to understand the real problems, of the society/ public about halal rather than academic discussion per se. Further collaborative engagement and partnership with the industry needs to be diversified in many ways – covering the target groups, the content/ modules or curriculum.

7. Conclusion

Halal awareness education initiatives can be pursued through community services, corporate social responsibility, training and laboratory. IHARAM’s commitment to Halal Istihlak education in positioning the Institute as the trustworthy institution in disseminating Halal knowledge to various target groups – and in the context of the paper – the public. IHARAM is gaining visibility in Malaysia and in the near future, international partners. Strong emphasis on public is critical as the Halal industry on market perception vis-à-vis public perception. Sound public understanding about the operation of the Halal industry should be distinguished from the principles of halal and haram in Islam. Public misperceives about the implications of cross-contamination to Halal certificate and business. Looking back and forward, Halal awareness education initiatives rely greatly on three major enablers – talents, industry partners and Halal education design. These enablers altogether create important catalysts for enculturating passion for Halal knowledge in the public fraternity. Talents are nurtured among the university students whom we will be branding them as CSR fraternity. Talents are nurtured among the university students whom we will be branding them as CSR talents, giving them added values chiefly in the aspects of character building and future preparation for professional career. The mesmerising support received from our industry partners have been an important success factor for Halal Istihlak education. The designing part equally plays an important role in understanding the funding, approach and structure of HIEF continues to be significant to the need of the public. With the bottom-up approach underlying the halal industry, it is hopeful that Halal Istihlak Education can be magnified to fostering wider partnership with regulatory authorities and industry partnership in Malaysia and abroad, and to making intervention on the public misperception on Halal products crisis.

Acknowledgement

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References

Muhammad Nizam Awang holds joint positions as Senior Lecturer in Law, Faculty of Syariah and Law and Deputy Director, Institute of Halal Research and Management (IHRAM). He works as a legal expert for the Ministry of Health (MOH) and the Ministry of Science, Technology and Innovation (MOSTI) in the area of nanotechnology safety. His research, teaching and expert advice focuses on the interfaces of risk regulation, health law and environmental law. Muhammad’s current works examine the governance of services sector in the Halal industry (with particular focus on laboratory testing, human resources and logistics); and implications of chemical and occupational health laws for nanoscale substance and workplace exposure. Muhammad holds a PhD from Brunel Law School, and graduated with a LLB, LLM and Diploma from Universiti Kebangsaan Malaysia.

Area of interest: Nanotechnology Law & Policy, Halal Law & Policy, Health Law & Policy

Muhammad’s research, teaching and expert advice focus broadly within the law and policy of environmental and health protection, particularly the ways in which law, actors and institutions respond to the governance of new and enabling technologies and market (i.e. nanotechnology, synthetic biology, Halal). His current projects look at managing regulatory strategy and compliance with respect to: nanomaterials and nanosafety
Consumer Protection and Remedy of Halal Food Abuse from Malaysian Legal and Regulatory Framework

Mustafa ‘Afifi bin Ab. Halim

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ARTICLE INFO

Keywords:
Halal
Consumer Protection Law
Halal certification

ABSTRACT

There is a growing global market for halal food, estimated to be USD 168 billion per annum. These facts show that the halal market is very significant and will continue to grow. Thus, specific guidelines, regulations and laws are required to ensure that halal products are genuine and comply with Sharia. Compliance of halal food requirements is important to ensure that the food poses the quality and safety for consumer. There are many reported incidents where the food producer or manufacturer claim that their food is halal but in fact it is not. As most of the halal food abuse incidents does not involve great monetary loss, but it might give psychological effect, thus, it is not easy for consumer to seek personal redress and have access to justice due to the cost and evidential issue. Based on this fact, there will be civil, administrative and criminal liability towards the producer or manufacturer for committing halal food abuse. This presentation will discuss on the legal protection of consumers and remedy in Halal food abuse from the Malaysian perspective.

1. Introduction

The food industry, like any other industry, responds to the needs and desires of the consumers. The number of food industries is growing rapidly both locally and internationally. With Islam being the world’s fastest-growing religion, the halal market is equally expected to grow. The world’s Muslim population in 2017 is 2.18 billion (www.muslimpopulation.com) and this number is predicted to increase to 30% of the whole world population by 2025. The increase in Muslim population is occurring in both Muslim and non-Muslim countries. Approximately, 11 million Muslims live in North America, 12–13 million in West Europe, and 400,000 in Belgium. One in four consumers worldwide buy halal products. In the Netherlands, the Muslim population is estimated to be 1/16th of the total population, amounting to 940,000 and representing 1% of the total Muslim population in Europe. Business opportunities relating to halal food are currently exploding worldwide. There is a growing global market for halal food, estimated to be USD 168 billion per annum.

2. Regulations and Laws

Thus, specific guidelines, regulations and laws are required to ensure that halal products are genuine and comply with Sharia. Compliance of halal food requirements is important to ensure that the food poses the quality and safety for consumer. There are many reported incidents where the food producer or manufacturer claim that their food is halal but in fact it is not. As most of the halal food abuse incidents does not involve great monetary loss, but it might give psychological effect, thus, it is not easy for consumer to seek personal redress and have access to justice due to the cost and evidential issue. Based on this fact, there will be civil, administrative and criminal liability towards the producer or manufacturer for committing halal food abuse. This presentation will discuss on the legal protection of consumers and remedy in Halal food abuse from the Malaysian perspective.

3. Redress

Currently, the main legislation governing Halal is the Trade Description Act 2011 which imposes a fine and imprisonment for those who abuse the Halal label in Malaysia. The focus of this presentation is to identify whether consumer who are effected by Halal abuse can seek personal redress and have access to justice; despite the monetary loss suffered by the consumer being not too great. Even if the substantive law were to be framed in the most pro-consumer terms, the right granted to consumers would not be effective due to the amounts of money involved by claims from the individual consumer are too small to be worth litigating in Halal food abuse.
To only claim the value of food with the fake Halal label purchased by them is not worth litigation. To get a better remedy, consumers also need to prove the loss - other than monetary loss - they have suffered by consuming non-Halal food, and this might be difficult for to prove. Reference will be made to Halal related legislation such as the Consumer Protection Act 1999 and the Sale of Goods Act 1957.

4. Conclusion

Lastly, this study will offer some recommendations to ensure that a remedy for the consumer is available in the case of Halal food abuse and to ensure the effectiveness of the legal infrastructure for Halal food industries to enable the word Halal, to become a marketing tool in winning the hearts of consumers; and as a symbol of healthy, quality, clean and safe products in accordance with the Sharia requirements.

References

Article in Journals


Proceedings


Books


Thesis


Mustafa’s wide exposure as lecturer and researcher in Faculty of Shariah and Law, Universiti Sains Islam Malaysia (USIM) and former research fellow at Institute of Halal and Research management USIM has helping him to develop his passion in Halal food studies from consumer protection perspective. He is also one of the certified professional Halal trainers in Malaysia. He is graduated from International Islamic University of Malaysia (IIUM) with a degree of law (LLB) and Post Diploma Degree in Shariah and Legal Practice (DLP). Obtained his Master of Law (LLM) from National University of Malaysia (UKM) and Ph.D. from Law School, The University of Hull, United Kingdom. Starting his career as an advocates and solicitor of the High Court of Malaya and had a various experience in handling litigation matter. After that, he joined Universiti Putra Malaysia (UPM) as the head of litigation and public drafting. In 2009, he joined Faculty of Shariah and Law, USIM as a law lecturer. He has been entrusted to teach various law subjects and develop various courses including halal courses. Apart from teaching, he is actively presented paper in conferences local and abroad. He authored and co-authored several researches works and projects on food study and has published research papers in national and international journals. In 2018, He was represented Malaysia in MTCP 2018 on Halal Standards and Conformance Infrastructure organized by Standards Department of Malaysia.
Part X
Halal Lifestyle
particularly corporate collaboration of various outside of consumer of economic income of the demands of the Muslim and the ever increasing transparency of the food products in this global halal economy.

The statement elaborates on the need for better creation, representation, and marketing of halal food to meet international needs and the ever-changing consumer demands. It emphasizes the importance of understanding the cultural and religious values that underpin the halal market and the need for transparency in the food manufacturing industry.

This is crucial for businesses looking to enter the halal market, as it ensures that consumers can trust the products they are purchasing. The statement highlights the need for businesses to actively seek to better create, represent, and market halal products, taking into account the specific needs of the target market.

The statement also underscores the importance of seeking input from experts in the halal food industry, such as scientists and researchers, to ensure that the products are produced according to the highest standards. It emphasizes the need for businesses to be aware of the latest trends and research in the halal food industry, and to adapt their strategies accordingly.

Overall, the statement calls for a collaborative approach to the halal food market, with businesses, consumers, and experts working together to ensure that the products are of the highest quality and meet the needs of those seeking halal food options.
Understanding the Modern Halal Consumer: Focus on Halal Food Experiences

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ARTICLE INFO

Keywords:
- Halal
- Food
- Consumer
- Islamic Economy
- Culinary Travel

ABSTRACT

The halal food industry can understand, communicate with and market to the new globally-aware halal consumer. This new global consumer is interested in the transparency of the food production process, including the source of all animal products, the absence or inclusion of chemicals, artificial sweeteners, GMOs and other ingredients in their foods. As a halal industry, we must understand their mindset, their needs and the ever-changing food manufacturing industry and their processes in order to better create, represent and market products in this global halal economy.

1. Introduction

Tapping into the mindset of the modern Halal consumer provides great insights into how to best serve a growing consumer base with an increasingly large amount of economic power. This base not only seeks out places to use its discretionary income but also desires brands and businesses that offer products and services that meet their expectations for meaningful experiences within a unique system of traditional values. This presentation serves to describe the characteristics of this consumer base as it relates specifically to the Halal food industry and the problems associated with deriving sales from marketing campaigns and collecting data on specific deliverables within food industry-related collaborations and projects.

2. Problem Statement

Today’s Halal consumer holds the key to one of the largest, fastest-growing, and potentially most profitable consumer markets in the world. Understanding how this type of consumer makes their economic choices is impactful not only to everyone in the global Halal industry but to those outside of it as well. This understanding can facilitate the necessary international trade and economic development in various regions of the Muslim world, as well as add to collaboration with Western governments, boards of tourism, corporate entities, and the like.

This presentation will elaborate specifically on the potential of the Halal food industry in order to address how to satisfy the demands of modern Halal consumers, particularly Muslim millennials, who are educated about the food they eat and from where it comes and who care about social ethics and environmental sustainability. With the availability of around-the-clock shopping on multiple platforms, these global consumers are well-informed about the type of food and dining-out experiences they want and actively seek these out as options have grown globally. Whether it’s a Halal burger restaurant or a family-friendly vacation location accommodating visitors with Halal-friendly restaurants, demand has grown and shows no indicators of slowing.

Social media plays a very important role in this endeavor because consumers themselves are also sharers of content and online content creators. They hold the key to the potential multiplier effect from which this consumer-driven marketing collaboration can have either incredibly successful sales growth or devastating ramifications, depending upon how the businesses and brands online have prepared for and actively engage with these users.

There are key markers for today’s Halal food consumers that differentiate them from even just a decade ago. Consumers not only look for a trusted Halal certification symbol on product packaging but also prefer to see those labels alongside ones for all-natural, gluten-free, certified organic, non-GMO, and an increasing percentage of these customers are seeking out vegetarian and vegan options. The paleo and ketogenic diets are increasingly popular globally, as much more emphasis on health and wellness and conscious eating (i.e., eating less carbohydrates and more plant-based protein) makes its way around the world in an effort to curb climate change and to keep a watchful eye on food supply and food security, looking to animal protein as
Culinary Travel is gaining in popularity and is an unsustainable contributor to environmental destruction. These trends offer significant avenues for collaborative efforts between Halal producers and the niche producers around the world.

Opportunities for growth in the Halal food industry are numerous, particularly once the mindset of the consumer and the growing food trends are understood and identified. Consumers are not only much more informed about the importance of knowing what’s in their food but expect transparency in the food process and want to see the farm to fork journey, expecting food brands to oblige with full disclosure. Young Muslims, for example, will become parents and demand more Halal products for their babies and children and the emphasis on tayyib (pure/organic foods) is growing in popularity and has the potential to intersect with the mainstream wellness industry in both food and beverages. That said, synergizing or cross-collaborations with sports entities as large as the Olympic Games are not farfetched. Culinary travel and international cooking classes and tours are additional areas where Halal food and Halal tourism can intersect and benefit each other by way of including hotels and airlines in the mix. Universities, schools and hospitals are other potential sources of high-volume food products and brand influence over vast quantities of consumers globally.

Challenges still lie in several areas, such as effectively communicating the benefits of Halal products and services over other types whether related to food, pharmaceuticals, cosmetics, fashion, travel, or finance. Moreover, as research shows, this consumer base responds positively to culturally relevant marketing, innovative designs, modern branding, and pertinent storytelling.

3. Research Methodology

Research conducted for this study was done in various arenas. One of the most important and research-driven ways used by the author was attending key conferences and meeting with chief Halal industry leaders and influencers in the United Arab Emirates (ESMA Conference and Gulf Food Expo- Dubai); Turkey (GIMDES- Istanbul) and the United States (I Heart Halal by IFANCA- Chicago; ISWA-Washington, DC). Reading key journals and studies performed by marketing agencies and research institutions such as Dinar Standard was also conducted. Other sources are cited in the bibliography.

Yvonne Maffei is a travel-obsessed food writer, cookbook author, e-commerce entrepreneur and Founder of MyHalalKitchen.com, a halal food and cooking website. Her book titles include: Clean Your Kitchen Green (2010), Summer Ramadan Cooking (2013) and My Halal Kitchen: Global Recipes, Cooking Tips, Lifestyle Inspiration (2016). She lives in Chicago and is working on her next book, building her online halal marketplace (My Halal Market) and eating her way around the world on global culinary adventures.
Karim’s Dilemma in The Song of Sparrows: Halal-Life-Style Vs. Opportunist-Life-Style

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ARTICLE INFO

Keywords:
The Song of Sparrows, halal-life-style, halal-income, Iranian cinema, Majid Majidi.

ABSTRACT

Directed by Iranian director Majid Majidi, The Song of Sparrows (2008) tells the story of Karim, who begins to work as a motorcycle taxi driver in the city-centre after losing his job at an ostrich farm outside of Tehran, Iran. But the change in his job begins to change his perception of life and it begins to challenge his moral values and principles and he goes through some temptations as to whether he should preserve his halal-life-style or he should adopt an opportunistic-life-style.

Introduction

If the meaning of the word halal is to be explained it means “lawful or permitted” (“What is Halal?”) in Arabic and it might be suggested that halal-life-style requires a person to be respectful to other people’s rights and needs and to live within the boundaries of religious and humanitarian rules. And in The Song of Sparrows, the story of Karim and his family is shown and the temptations/obstacles in the way of halal-life-style are explored. As a critic puts it

[In The Song of Sparrows Karim, the protagonist] begins his new profession: ferrying people and goods through heavy traffic. But the people and material goods that he deals with daily start to transform Karim’s generous and honest nature, much to the distress of his wife and daughters. It is up to those closest to him to restore the values that he had once cherished. (Levy, “Song of Sparrows, The: Iran’s Oscar Entry for 2008 Foreign Language Film”)

Development

Karim, the father of three children, is depicted as a sympathetic father, who cares about the needs of his children and his wife, but unfortunately he gets fired from his job at the ostrich farm as one of the ostriches runs away and he could not catch it. In order to get his job back, “Karim hunts it in the surrounding hills, [even] donning a homemade outfit to masquerade as another ostrich, perhaps to pique the interest of the escapee” (“The Song of Sparrows”, CINEASTE, 46). Despite all his efforts, he could not find it and we, as the audience are exposed to his “story of hardship and struggle, pain and suffering, pathos and perhaps a muted and mystical redemption (“The Song of Sparrows”, CINEASTE, 46). As his days in the ostrich farm become a thing of past, so do his naivety and innocence.

While he is trying to earn his bread as a motorcycle taxi driver in the city-centre, he is exposed to many customers from all walks of life; some with moral values and halal concepts, some others without moral values and halal concepts. For instance, in one scene, a customer warns Karim that Karim gives more money back in change and this shows that there are still some people, who care about halal-life-style. In another scene, a well-to-do looking man does not pay the motorbike-taxi fee and when Karim asks for the fee, shameless customer threatens Karim saying that he would call the police in order to declare that he gave the taxi fee, but the motorbike-taxi man did not give his money back in change. Karim is shocked at this customer’s false claims and in the following scene, we see him praying (under a tree at a roadside) in order to seek refuge in God.

However, later on, with pros and cons, these experiences and his urgent need to buy a new hearing-aid to his deaf daughter blur his mind and he goes through a sort of temptation scene just like the Jesus Christ’s temptation (with regard to hedonism, egoism and materialism as narrated in the Bible). As in line with this temptation passage in the Bible, in The Song of Sparrows, Karim is tempted to gain materials, which do not belong to him. One of the critics says that

entering upon his life’s later every one must pass from the life of innocence and mature life of principle; and before the life of principle there is a contest to determine what principle is to

1 Karim’s temptation to ignore God’s rules may also be likened to the temptation of Prophet Abraham by Satan (see Şeriati’s Hac, 173-182).
2 For further details see “The Three Temptations of Jesus”, New American Standard Bible.
questions of life force themselves to the front with irresistible demanding a practical answer; and every one experiences and a conversion either to what is holy or to what is unholy, the service of God or to the service of Mammon.

(Fleming, 132)

And the question in The Song of Sparrows is which path Karim will follow; the halal-life-style or the opportunist-life-style? One day, when he is trying to transport a refrigerator with a group of other motorcycle-taxi men, his motorbike gives up the ghost and he falls behind and later he cannot find the address to deliver the refrigerator. And the next day, he is tempted to sell it to second-hand shops in order to make material profit. He does a few attempts to do so, but eventually, he brings it back to its owner. Upon his honest behaviour, the owner of the warehouse offers him another task. Thus, his honesty and virtuous behaviour is immediately rewarded in the movie, which may suggest that if someone prefers to follow halal-life-style, then God will always help him/her, as it is also explicitly stated in the Quran; “Indeed, he who fears Allah and is patient, then indeed, Allah does not allow to be lost the reward of those who do good” (see “Surah Joseph, 90” and Öztürk, “Yusuf Suresi”, 90, 199). Karim fears Allah and he decides to stick to the rules of Islam, the life of principle and he acts with patience. In other words, he chooses halal money and God rewards him with another task to earn more halal money.

As time passes, as well as being a motorcycle taxi driver, he also becomes a junkman after his exploration of the construction sites in the city-centre. But one day, when he is trying to repair things in the junk area in his garden, he falls and twists his ankle. As the saying goes “misfortune never comes alone” and Karim and his family goes through another challenge this time; Karim has to stay in bed in his period of convalescence, which means more financial crisis at home. Yet, luckly enough, the atmosphere of The Song of Sparrows is never dark and gloomy, Majid Majidi makes sure that there is always hope; there is a solution to every problem.

As opposed to the expectations of the most of the audience, Karim’s convalescence period creates an atmosphere of peace and solidity at home since his wife and his children find ways to earn money in order to ease his burden to run the house. His wife and daughters sell vegetables and his son sells flowers to contribute to the family budget. During these times, we see that “whatever a man soweth, that shall he also reap”. It may be suggested that since he nourishes his children with halal lokma/halal money, in return God rewards him with a supportive wife and children. The happy picture at Karim’s family brings Surah Furqan into our minds, in which it is stated that “And those who say, ‘Our Lord, grant us from among our wives and offspring comfort to our eyes and make us an example of Islamic teachings and principles and therefore he sets a good example to the audience as well as his children. Similarly, his wife and his children have a good influence on him by being content with what they have in their hands. What they pay attention is that their income should be gained through halal ways.

Conclusion
Thus, in this study, the temptations not to adopt halal-life-style and the ways of coping with these temptations and the importance of one’s moral values and family have been questioned and discussed with reference to the examples given in The Song of Sparrows. Also, the importance of earning one’s bread in halal-way and how it influences one’s own life and his/her immediate family have been scrutinized in relation to the events in the movie.

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Halal as a Life Style in Islamic Law

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ABSTRACT

As a religion that has been sent to all mankind and encompasses the whole life of human beings, Islam constitutes the essential element of the relations between human beings and God-creator communication and has an effect on people's thought structures and ways of life. In this context, the essence of Halal religion is directly related to the duty of servitude to serve God. The products and services used in daily life should be suitable both for Islamic conditions in terms of the provision of raw materials and must be “halal and good”. As a life style in Islamic law, halal is a matter of faith and is directly related to the belief in the afterlife and is important in terms of gaining the approval of God as a requirement of servitude. In order to ensure that all production processes are halal, even the source of funding should be from a halal source. Halal life is built with the halal aspects of behaviors, activities and activities which are not contrary to Islamic thought, are committed with faith and honesty, conform to the principles of Islamic law, reduce difficulties, and provide welfare and benefits to people and the universe and thus gain the approval of God. For Halal life, religious-moral values must be transformed into action by internalizing. The purpose of halal life for all mankind, zarûriyyât-ı hamse five essentials' protection. In Islamic law, it is essential that instruments are just as legitimate. For this reason, salary and clean earnings are encouraged, and the gains obtained from haram, illegitimate and dirty ways are prohibited.

Introduction

Lifestyle which expresses the preferences and general life views about how human beings will live their lives individually and socially; lifestyles and ways of living together for individuals’ activities, beliefs, interests and ideas, values and tastes, as well as their needs such as eating, housing, recreation, recreation, health and culture.

As a religion that has been sent to all mankind and encompasses the whole life of human beings, Islam constitutes the essential element of the relations between human beings and God-creator communication and has an effect on people’s thought structures and ways of life. In this context, the essence of Halal religion is directly related to the duty of servitude1 to serve God. According to the religion of Islam, all faith principles, worship, social principles, punishments, legal systems, obedience to God and commitment, and belief in God are brought into action.

In this context, the duty of servitude requires not only man's worship, but also the whole life, behavior and way of life of man in individuals and society. Thus, according to Islamic law, as a way of life, he is concerned with almost every aspect2 of life of Muslims, such as faith, worship, law, economics and politics, as a halal, body and spirit.

On the other hand, developments in science and technology, especially the latest developments in the field of biotechnology of the food industry, the state of GMO, genes, the use of enzymes, as well as the use of food ingredients or food enhancers/supplements in food, nano materials, nano fluids, nano coatings, nano catalysts, nano electronics, nano energy, nano toxicology, environment and safety, implantation of nano-technological chips into the body, Considering that new areas of new products and services have been developed for the use of nano technology in the fields of nano technology, such as the area of the fight against cancer cells and the placement of synthetic nerves in the body according to nano technology and implantation of

1 Dhariyat, 51/56.
nerves, knowledge of the essence of freedom as a lifestyle according to Islamic law is of great importance.

In this study, we will try to briefly discuss the conceptual framework, its importance, scope, purpose and legal basis of life as a lifestyle according to Islamic law.

I. Halal Concept as a Life Style in Islamic Law

The concept of halal as a way of life in Islamic law is in the dictionary; allowable means being lawful and free, giving a license, coming out of the Harem or coming out of ihram. Therefore, for each of the issues facing individuals and societies, these are the subjects that are considered allowable/lawful/suitable God gives permissible for the creatures of God. In the Islamic legal methodology, halal, as the opposite meaning of the haram, refers to the behavior and his/her religious-legal provision, which are permitted in accordance with the sharia, without any prohibition or restriction in accordance with the sharia. The “halal” and “good” terms with the phrase halal and good which is mentioned in the Qur’an verse “Oh People! Eat the things that are halal and good...” are included in halal concept. The term Good in the Qur’an; those who are tenacious in their faith are used in a very broad sense, such as chastity and good morals, legitimate means of gain, halal and clean food, good word, life, wind, dwelling, land and country. However, the term good also refers to what is lawful, good, beneficial and what people find beautiful.

In this context, while the concept of halal deals with issues related to religion, belief and spirituality, the concept of good refers to quality, confidence, health, hygiene, cleanliness, nurturing and trust. Thus, the products and services used in halal have hygiene, nurturing and safety qualities for both quality and quality. In this context, the concept of halal, integrating with science, focuses on universal benefits, natural tendency of man, health, cleanliness and quality and encompasses the universal nature of Islam, that is to say, universal.

The concept of halal, however, is defined as a lifestyle that guarantees the morality of things we do, say, or participate in, and are chosen ethically, without external intervention, discrimination or prejudice.

II. The Importance of Halal as a Life Style in Islamic Law

As a way of life in Islamic law, halal is a matter of faith and is directly related to the belief in the afterlife. In this regard, the Qur’an orders that: “I did not create the jinn and the humans except to worship Me.” The target shown by this verse is that man should not only be a servant or slave to his/her own desire and feelings, but also to any being except himself; to devote the sense of servitude to God, and not only prayers, fasting, pilgrimage, but it also includes behavior and orientation the whole life of man as an individual and a society. Along with this, the Hadith scholars emphasize man will be taken into account in every act and every word and behavior is under God's supervision that through the dialogue in the Gabriel Hadith: Gabriel asks Muhammad “What is goodness?”; Muhammad replies “It is that worshiping as you see God; because even though you do not see Him, He sees you.”

Saïbi states that, based on the fact that the life of the world is experienced for the life of the afterlife, all the jurisprudence provisions have been put in place to enable people to move away from their desires. Therefore, when all this is taken into consideration, according to Islamic law, the purpose of mentioned “servitude” is not only worship (human-God relations) but also a wider concept covering the whole of servitude, human-human and human-world relations. Therefore, the power of religion is also effective in areas where the law cannot reach.

This point of view carries a feature that covers not only human, but whole of the universe. As part of this universe,

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4 Baqarah, 2/196, 228, 229; Ma’idah, 5/5, 88; Nahl, 16/116; Hajj, 22/30; Ahzab, 33/52.

5 Ma’idah, 5/2.


7 Catechism, 1/72.


9 Nur, 24/26; Âl-i İmân, 3/38.

10 Baqarah, 2/267; Nisa, 4/2; Anfal, 8/69.

11 Baqarah, 2/57, 168, 172; Nisa, 4/160; Ma’idah, 5/ 4, 5, 87, 88; A’raf, 7/32, 60, 157; Nahl, 16/72, 114; Anfal, 8/26; Yunus, 10/93; İsrâ, 70; Ta- Ha, 20/81, Mu’minun, 23/51; Jâhiyât, 45/16.

12 Fâtit, 35/35; Ibrahim, 14/24.

13 Nahîl, 16/97.

14 Yunus, 10/22.

15 Tawbah, 9/72; Saff, 61/12.

16 Nisa, 4/43; Ma’ide, 5/6.

17 Saba, 34/15.


23 Dhariyat, 51/56.


man will gain the pleasure of God and the happiness of the world and the afterlife.\textsuperscript{26} Therefore, as a way of life according to Islamic law, law is important in terms of gaining the approval of God as a requirement of servitude. Because religious sanctions, not only in the world, but also in the afterlife, human beings for all things he does in accordance with religion/halal, not only a worldly profit, but also in the afterlife is an interest.\textsuperscript{27} In this regard, the Qur'an orders; “Whoever comes to his Lord guilty, for him is Hell, where he neither dies nor lives. But whoever comes to Him a believer, having worked righteousness—these will have the highest ranks. The Gardens of Perpetuity, beneath which rivers flow, dwelling therein forever. That is the reward for him who purifies himself.” Therefore, all things that God has created in the earth and in the sky and that benefit from it are important for man.\textsuperscript{28} It is therefore permissible, halal. In this context, since the behavior of Muslims, their life styles, and their consumption preferences are the most important for the public, the enterprises are producing, designing and marketing their products and services in accordance with halal sensitivity.\textsuperscript{29} However, the products and services used in daily life related to the fields such as food, tourism, industry, textile, finance, medicine, chemistry, medicine/chemicals, cosmetics, and media should be shaped with the belief of Islam. Therefore, it is very important that each phase in the life cycle of a foodstuff or product can be precisely determined in terms of the conditions in which the product is produced.

In order to ensure that all production processes are halal, even the source of funding should be from a halal source. First of all, it should be said that Islamic finance is to promote justice and equity in transactions while leaving usury. The concept of risk and return sharing of Islamic banking can contribute to the growth of the halal industry while at the same time contributing to the growth of a new halal industry.\textsuperscript{30} In this context, according to Islamic law, the products and services used in daily life should be suitable both for Islamic conditions in terms of the provision of raw materials and must be “halal and good”.

On the other hand, today’s halal life style is becoming more and more economically important, and it shows the economic dimension of halal. In this context, not only Muslims but also non-Muslims prefer halal products and services.\textsuperscript{31} The popularity and demand of halal products are increasing among non-Muslim consumers because of the high quality, safe and ethical products sought by a large number of non-Muslim consumers.\textsuperscript{32}

The growing population of Muslims is strengthening/supporting global purchasing power, the modernization period, and the global lifestyle. Global markets must meet specific needs, preferences. The development of the halal market: food, beverages, medicine and cosmetics, finance, media and communication, fashion, textiles and clothing, tourism and holidays offer a significant opportunity for growth in some regions, especially despite the low global growth. Due to the increasing population, growing Islamic economy, lifestyle and commercial practices, Muslims are increasingly spending on this sector.\textsuperscript{33}

In this context, some of the reasons that make the halal lifestyle important in marketing and e-commerce are: First, Islam addresses all humanity and is universal and does not belong only to Muslims. It aims to benefit as much as possible to all people in business life. Second, the term halal is very specific and detailed. It covers all processes starting from the halal production stage to the distribution processes and the end user/consumer in business life. That is why it is more than creative marketing. For example; it is not conditional to use designs that tell lies, sexual abuse, emotional abuse in marketing and e-commerce. Third, Marketing is a part of communication. Communication is the process of interaction between buyers and sellers. Considering the expected effects such as attention, interest, desire, action, in order to build a civilization that is more intelligent, comprehensive and more appropriate to the essence of the human being, this process is of paramount importance.\textsuperscript{34}

III. The Scope of Halal as a Life Style in Islamic Law

According to Islamic law, the way of life of Muslims is divine orders and Muslims have defined a way of life in accordance with divine orders in the Qur'an and Sunnah. Halal life is built with the halal aspects of behaviors, activities and activities which are not contrary to Islamic thought, are committed with faith and honesty, conform to the principles of Islamic law, reduce difficulties, and provide welfare and benefits to people and the universe and thus gain the approval of God.\textsuperscript{35} For the purpose of Muslim's lifestyle; with the Muhammad's hadith “Actions, are only according to intentions”\textsuperscript{36} stated that the religious value of a verbal or an actual behavior can change according to the intention. Hence, Islamic law, which aims to regulate individual and social life according to the value judgments in accordance with the divine will, because it is composed of religious, moral and legal rules, halal life, halal products and services, 5, No. 2, pp. 170-180, p. 172.

Hussein Elasrag, Halal Industry: Key Challenges and Opportunities, MPRA Munich Personal RePEc Archive. Online at No. 69631, posted 22 February 2016 07:20 UTC, p. 6. https://mpra.ub.uni-muenchen.de/69631/ MPRA Paper


Boediman, p. 932.

Boediman, p. 934.

Buhârî, Ebî Abdîllâh Muhammed b. Išmâîl, Sahîhû'l- Buhârî, el-Mektebetü'l-Islâmiyye, Istanbul (publication date not available), I/2, Kitâbû'l-Vahî, I.
belief, morality and Islamic law. In this context, towards halal lifestyle religious-moral values must be transformed into action by internalizing.37 This situation, as a way of life according to Islamic law, will move from the knowledge to the effect dimension.38 This will ensure that Muslims are prepared in accordance with their needs in a religiously appropriate, permissible, acceptable way of product preparation and service.

On the other hand, as a lifestyle in Islamic law the scope of Halal includes Muslims helping each other, loving each other and advising each other, Islamic banking and monopoly, business and investment funds, importation and exportation, livestock and slaughterhouses, food processing-supply chain management, storage, packaging and shipping, retail food, restaurants and food service providers, halal travel industry, medicine, drug, cosmetics and toiletries, Islamic fashion and clothing, products and services related to all aspects of life such as music, books and website reviews and media/press. For this reason, it is inevitable to apply to experts who are experts in the field, with the order “So ask the people of knowledge, if you do not know”39 40. In this context, it is necessary to define the components/contents of the halal foods clearly and to make inferences/fatwa taking into consideration the technological developments while making the decisions of the Islamic scholars. At present, the halal logo represents a global symbol for cleaning, health, quality assurance and lifestyle selection, as well as demonstrating that Islamic conditions are guaranteed at all stages of the preparation of the product.

IV. The Purpose of Halal as a Life Style in Islamic Law

According to Islamic law, the purpose of life as a way of life is to gain the happiness of the world and the afterlife by winning the approval of God. In this context, the purpose of salvation is considered within the scope of the interest of humanity, which is the purpose of sending the religion of Islam.41 This is to protect the things that are in the best interests of humanity and, in contrast, to eliminate the issues of humanity.42 For this reason, products and services that are in the best interests/benefits of assets are considered haram for the products and services that will harm halal and assets.

In terms of liesbles in Islamic law, halal sensitivity is considered as a part of the test we are subjected to in the world as a requirement of servitude.43 However, besides the understanding of this servitude, force of humanity’s interest the human rights are beneficial or harmful to human beings, in other words, the benefit-harm relationship constitutes a basic and general aim for the halal lifestyle. For the benefit of all mankind for realizing this general purpose, the aim of the halal lifestyle is the highest level in the tripartite distinction in the form of essential-necessity-beautification; it was evaluated within the context of the purposes of the law, which consisted of protection of the soul44, mind45, religion46, generation47 and property48, (zaruriyyât-hamsese-five essentials)49 which the religion aims to protect and maintain. Therefore, according to Islamic law, the purpose of halal life for all humanity is to five essentials’ protection.50

Given the fact that most of the halal values are similar to those of industry development standards, such as the UN Global Compact 2000 (UNGC)51, the realization of halal practices will not differ much from the current industry practices. The universal values of halal will also benefit to non-Muslims either. At the same time, the similarities between halal and other ethical practices in the context of universal values concerning both Muslims and non-Muslims will provide an opportunity for global recognition of halal life.

On the other hand, “today, consumers, investors and the company stakeholders in general expect their companies to be fair and honest in their activities and relations with their competitors, customers, suppliers and partners, avoid any application that would lead to unfair competition, as well as full compliance with legal and administrative regulations, as well as internationally recognized universal values”52 is the fact that the purpose of the halal life is universally aimed at the preservation of the five essentials of universal values.

V. The Legal Basis of Halal as a Life Style in Islamic Law

As a way of life in Islamic law, it is possible to see the legal basis of law in the Qur’an, Sunnah and Islamic law doctrine. In this context, the Qur’an, the things that have been created in the law, without destroying the wisdom and

38 Belen, et al., p. 163.
39 İstanbul Dincer and Erkol Bayram, p. 30.
40 Nahal, 16/43; Anbiya, 21/7.
41 Erol, p.22.
42 In the works of Islamic legal methodology, interest is generally defined as the acquisition of the beneficial and the elimination of the harmful one (def-i mefâdis sel-i menâfî dir/cell-bi menace ve def-i madarrat). (Gazzâlî, Ebi Hâmid Muhammed b. Muhammed (A.D. 305/1111), el-Müssefû min Ilm-i Uslûl, (publishing house not available), Beirut 1993, I/174, 179; Bûtî, Muhammed Saîd Ramazan, Davâm-i Maslahâ ft-sê-Seri’ât’-i-İlâmîyye, Müessesset-i Risâle, Beirut 1400/1982, p. 22; 23; Tvheez-zahâliyâ, el-Feciî ft Usîlî-fîl-Fîh, Dâru’l-Fihk, Duneş-Suriye 1431–1430, p. 92; Müfrezâ, Muhammed Tâhir, Philosophy of Islamic Law: Purpose Problem, (Trans. Vecdî Akyüz-Mehmet Erdogen), Legal Publication, Istanbul 1996, p. 122-123.
43 Ibn Kayyim, Abdullah b. Muhammed b. Ebi Bekr el-Cevziye, İlamu’l-Muwaikkin an Rabbi’l-Âlemin, Dâru’l-İbn Cevziye, Riyad 1423, (I-VII), I/61; Ibn Abdesselâm, âz-âz-dîn Abdalâzîl, el-Kavâîdîl’-Kîhve (Kavâîdîl’-Akhâm ft Mesâlîhi’-Enâm (Kavâîd), Dâru’l-Kalem, Dümekş (publication date not available), (I-II), I/1-12.

45 Nisa, 4/93; Ma’ide, 5/32.
46 Azaz, 33/72.
47 Baqarah, 2/256; Kafirun, 109/76.
48 Furqan, 35/74.
49 Nisa, 4/5.
52 2000 UN Global Compact, UNGC, The Global Compact, which was established in 2000 with the support of world leaders in order to spread a common culture of global development, works to ensure the fulfillment of 10 universal principles in line with the common vision, goals and values with the participation of thousands of companies, international work and civil society organizations all over the world. Borsa Istanbul started to support this initiative in 2005.” (Sustainability Guidelines for Companies, Borsa İstanbul, p. 14. http://www.borsaistanbul.com/data/kilavuzlar/surdurulebilirlik-rehberi.pdf) 18.08.2018
53 Sustainability Guidelines for Companies, p. 10.
reasons, halal ways to win and people to eat as well as recommending people to be restrained from the consumption of halal food, stingy and want to avoid wasting.

There are many verses in the Qur'an concerning Halal. In one verse it is ordered: “And do not say of falsehood asserted by your tongues, “This is lawful, and this is unlawful,” in order to invent lies and attribute them to God. Those who invent lies and attribute them to God will not succeed.” Therefore, it is stated that the foods that consumed should be preferred the halal in the Qur'an, all the foods containing alcohol and alcohol have been prohibited.

In the same way, it is forbidden to consume foods that are not suitable to be consumed, which are haram”, and animals that are slaughtered before reciting bismillah. The remaining issues are considered as halal in accordance with the principle of “what matters in the products is being allowable”.

Muhammad says that “Halal is what God has made halal in his book. Haram is what God has made haram in His book. What He kept quiet about was forgiven. Don’t go into the debate about them.” In addition, Muhammad said: the prayer and worship of those who do not make a living on the halal path will not be accepted. “No one can enter Heaven to oppress the people under his command and those around him”, and “God does not look at your appearance and your possessions. He just looks at your hearts and works”, and these expressions emphasize the necessity of the halal lifestyle.

According to the Islamic legal doctrine, the existence of an issue related to lifestyle or the lawfulness of the products and services used can be understood by the absence of any prohibitive evidence about the fact that there is no harm in the Qur'an and Sunnah. If there is any doubt about the use of any product or service in question, the source of such doubt is the dispute over his or her evidence. Other provisions of Islamic law, such as the provision of laws, jurisdictions or charges, shall be determined by evidence or case-law.

According to the Islamic legal doctrine, the criteria to be taken into account for the lifestyle is the criterion of halal. In this context, the products or services offered are halal and legal if they do not contradict the prohibitions mentioned in the Qur'an and the Sunnah, the main sources of Islamic law. In this framework, some criteria and some basic principles have been put forward by Islamic jurists in determining the products or services used in the Islamic law doctrine in the context of Qur'an and Sunnah.

On the other hand, in Islamic law, it is essential that the instruments are just as legitimate. For this reason, salary and clean earnings are encouraged, and the gains obtained from haram, illegitimate and dirty (malignant) ways are prohibited. There is no doubt that living in a lawful way according to Islamic law will be of value in terms of increasing the awareness of law among Muslims in practice, and it will be beneficial for both Muslims and non-Muslims.

Conclusion

Islam constitutes the essential element of the relations between human beings and God-creature communication and has an effect on people’s thought structures and ways of life. As a life style in Islamic law, halal is a matter of faith and is directly related to the belief in the afterlife. Halal is important in terms of gaining the approval of God as a requirement of servitude.

The essence of Halal religion is directly related to the duty of servitude to serve God. According to Islamic law, the purpose of mentioned “servitude” is not only worship (human-God relations) but also a wider concept covering the whole of servitude, human-human and human-world relations.

The term halal includes the terms “halal” and “good”. While the concept of halal deals with issues related to religion, the concept of good refers to quality, confidence, health, hygiene, cleanliness, nurturing and trust.

The products and services used in daily life related to the fields such as food, tourism, industry, textile, finance, medicine, chemistry, medicine/chemicals, cosmetics, and media should be shaped with the belief of Islam. Therefore, it is very important that each phase in the life cycle of a foodstuff or product can be precisely determined in terms of the conditions in which the product is produced.

In order to ensure that all production processes are halal, even the source of funding should be from a halal source.

According to Islamic law, the products and services used in daily life should be suitable both for Islamic conditions in terms of the provision of raw materials and must be “halal and good”.

Halal is universal. It does not belong only to Muslims. The popularity and demand of halal products are increasing among non-Muslim consumers because of the high quality, safe and ethical products sought by a large number of non-Muslim consumers.

It covers all processes starting from the halal production stage to the distribution processes and the end user/consumer in business life.

As a lifestyle in Islamic law, halal is built with the halal aspects of behaviors, activities and activities which are not contrary to Islamic thought, are committed with faith and honesty, conform to the principles of Islamic law, reduce difficulties, and provide welfare and benefits to people and the universe and thus gain the approval of God.
Halal life, halal products and services, belief, morals and covers the principles of Islamic law. In order to be effective in human life, religious-moral values must be realized by internalizing.

As a life style in Islamic law the concept of Halal includes Muslims helping each other, loving each other and advising each other, Islamic banking and monopoly, business and investment funds, importation and exportation, livestock and slaughterhouses, food processing-supply chain management, storage, packaging and shipping, retail food, restaurants and food service providers, halal travel industry, medicine, drug, cosmetics and toiletries, Islamic fashion and clothing, products and services related to all aspects of life such as music, books and website reviews and media/press.

According to Islamic law, the purpose of the law of life, life, property, mind, generation and religion five essentials’ protection. Halal sensitivity is considered as a part of the test we are subjected to in the world as a requirement of servitude.

The universal values of halal will also benefit to non-Muslims either. At the same time, the similarities between halal and other ethical practices in the context of universal values concerning both Muslims and non-Muslims will provide an opportunity for global recognition of halal life.

According to the Islamic legal doctrine, the criteria to be taken into account for the lifestyle is the criterion of halal. The existence of an issue related to lifestyle or the lawfulness of the products and services used can be understood by the absence of any prohibitive evidence about the fact that there is no harm in the Qur’an and Sunnah.

At present, the halal logo represents a global symbol for cleaning, health, quality assurance and lifestyle selection, as well as demonstrating that Islamic conditions are guaranteed at all stages of the preparation of the product.

In Islamic law, it is essential that instruments are just as legitimate. For this reason, salary and clean earnings are encouraged, and the gains obtained from haram, illegitimate and dirty (malignant) ways are prohibited. According to Islamic law, in order to live well, in practice, the awareness of moral must be increased among Muslims. This will be beneficial for both Muslims and non-Muslims.

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WORLD HALAL SUMMIT 2018 ISTANBUL DECLARATION

World Halal Summit (WHS) 2018, Istanbul under the theme Halal and Healthy Life “Awareness and Sustainability”, supported by leading organizations in their relevant sectors, brought together the industry leaders and experts from all over the world, and throughout its sessions and forums, the speakers focused on Halal Quality Infrastructure (Standardization, Conformity Assessment, Metrology and Accreditation), “Halal Food”, “Meat and Slaughtering Studies”, “Halal Pharmaceuticals”, “Laboratories and Halal Authentication”, “Halal Supply Chain, Feed for Halal Animals and Leather Products”, “Halal Tourism”, “The Importance of Halal Finance in Production and Investment (Finance, Marketing and Country profiles)”, “The Halal Awareness and The Approach of NGO’s” and “Halal Lifestyle”

Taking into consideration the valuable contributions of the speakers, participants, organizers and the other relevant parties,

As WHS Organizing Committee, we hereby declare,

1. *wholeheartedly promotes* working together to issue new common halal standards under the umbrella of the Standards and Metrology Institute for Islamic Countries (SMIIC) that works in liaison with International Islamic Fiqh Academy (IIFA) and implementation of the existing OIC/SMIIC Halal Standards by organizations from OIC and Non-OIC Countries,

2. *puts emphasis* on the importance of religious oversight on Halal Industry and its services which belongs to all of us individually and which is our religious social responsibility as well as our governments,

3. *underlines* the urgent need of the establishment of worldwide single halal accreditation and certification scheme in order to remove all technical barriers in the halal trade and to achieve a common understanding in this area,

4. *highlights* that halal is not limited to OIC countries and the importance of understanding and cooperating with Muslims in Non-OIC countries to regulate the halal issues for them,

5. *emphasizes* on considering the tayyeb and quality part in halal industry and the need of studying the emerging issues like the clean meat issue,

6. *also highlights* that animal feed and halal supply chain and their studies as important steps in ensuring halal food products,

7. *puts emphasis* on the importance of the authenticity tests and testing methods for detection of non-halal in its all different forms of instrumental analysis methods and detection kits which will improve the halal quality assurance,

8. *promotes* innovation in production of halal pharmaceuticals, vaccines, biological products, excipients and enzymes by taking into consideration the governments rule in putting rules regulating importing and producing halal pharmaceuticals,

9. *also promotes* developing halal pharmaceuticals university curriculum and halal pharmacopoeia as basic blocks in the halal pharmaceuticals field,
10. **emphasizes** that Halal tourism is not limited to hotels and restaurants, Muslim travelers attending sport events, traveling for medical tourism or even travelling for honeymoon resort need halal tourism services,

11. **highlights** the importance of the social media, TV series drama and studying the traveler behaviors and needs to know the factors affecting decision making in halal tourism and promoting halal tourism,

12. **welcomes** the efforts of the Muslim community organizations in non-Muslim countries to maintain and develop halal industry from religious perspective,

13. **also highlights** the importance of the Islamic finance and marketing sectors as an initiative and supporter of halal industries, and request to share and learn from each country’s valuable experiences in halal,

14. **supports** halal awareness and education through NGO’s and governmental bodies,

15. **emphasizes** on the Muslim consumer right on having halal products and services in high quality and keeping these right by specialized NGO’s,

16. **condemns** any attempt to misuse the halal for any purpose,

17. **also supports** training to better understand the probabilities of the halal market and future development,

18. **recommends** this declaration to political representatives, religious officials, producers, service providers, scientific and academic communities, halal certification bodies, institutions accreditation, standardization and financial institutions, trade and tourism chambers,

19. **reminds** the importance of awareness and sustainability in halal and healthy life,

20. **thanks** to all organizers, speakers, supporters, exhibitors and participants for their kind contributions.

*Istanbul, December 1st, 2018*