



Director's Message

Prof. Dr. Russly Abd Rahman

السلام عليكم ورحمة الله وبركاته

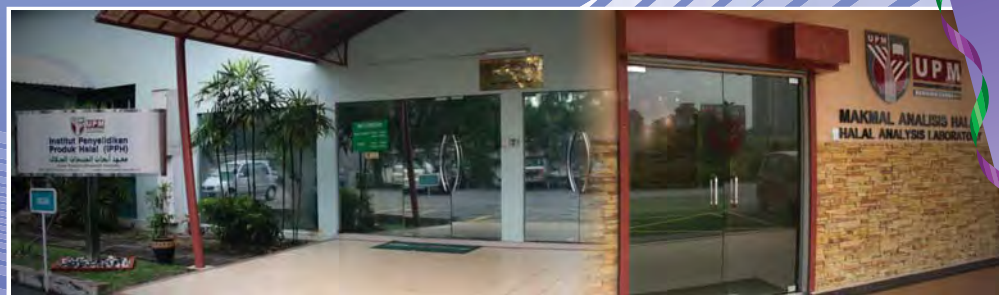


It is duty of every Muslim to uphold the sanctity of Halal in our everyday life. Everyone, without exception, has a role to play and contributes to the wellbeing of the Ummah and in this case is to ensure the food we eat and other products that we utilize are not only safe but also halal. Especially so for us in IPPH, we are specifically empowered with the trust to 'Uphold the Sanctity of Halal Through Research and Services'. If that is the 'amanah' then, that is what we shall deliver.

Indeed the big trust bestowed onto us is no easy task. When we say everybody has a role to play, this is without exception, it means from 'Pengarah' to 'Tukang Cuci', every level is involved. We safeguard our duties and responsibilities from the angle we have been assigned to. It may not be fulfilling if our research laboratories and services are producing marvelous results and breakthroughs, but if our buildings and premises are untidy with litters all over, the incongruence is too much for the takings. Let us together work as a team, help and strengthen each other towards achieving the common aims. Reflecting from the life of Al-Rasul s.a.w during the Battle of Khandaq, he was together with the Muslims digging the trench and during the Battle of Uhud, he was injured while fighting.

At IPPH, we have got the right mix, a team of dedicated scientists and scholars from Islamic background, equipment and facilities to conduct research (though we may require more), state of the art and sophisticated analytical instruments dedicated to halal analytical services and more importantly the ambience or the environment where science and religious disciplines meet. It is not a common occurrence for Prof. Dato' Paduka Dr. Mahmood Zuhdi (Islamic Scholar) together with Ustaz Dr. Suhaimi Ab Rahman (Finance), Mr.Dzulkifly (Chemical Engineer) and Prof. Dr. Russly (Food Engineer) sit together supervising a PhD student on a research alcohol from perspective of science and religion. That happens in IPPH.

I would like to take this opportunity to ask for cooperation from all of us in HPRI, for us to go forward as what has been planned before by the management of the Institute. Also with this opportunity, I would like to thank our beloved former Director, Professor Dato' Dr Yaakob Che Man, who as a founder member of the institute along with everybody, have brought HPRI to this level, recognized by people locally and globally. We also like to make our sincere doa to Allah S.W.T for Prof. Dato' Dr. Yaakob Che Man to have a speedy recovery, ameen. Wallahua'lam



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Editor's NOTE

ASSOC. PROF. DR. SHUHAIMI MUSTAFA
Deputy Director



Of late, we have heard issues on halal integrity being challenged through reports in mass media on the products for Muslim consumption tainted with haram ingredients. We at IPPH see this issues very seriously and with more than six years of experience, we have developed technologies and infrastructure for halal products testing and consultation to help the government authorities and industry players to cope with ever increasing complexity of halal products.

INSTITUT PENYELIDIKAN PRODUK HALAL (IPPH)

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TECHNICAL :

Mohd Salehan Sanusi

The adulteration of halal products with haram ingredients could be done intentionally or unintentionally. While intentional adulteration could be avoided by proper consultation and training to increase halal awareness, the unintentional adulteration poses serious problems to the industries as to trace possible sources of many ingredients used that may be tainted with haram materials is a challenging effort.

In this issue, we have also highlighted the Laboratory of Halal Services at IPPH that offers product testing using current technologies developed by the Research and Development section at IPPH. One of the technologies is HaFYSTM a Porcine DNA Test Kit that could detect the presence of porcine DNA directly from samples within one hour. The laboratory also offers consultation and training to the community as well as the industry.

"Upholding the sanctity of Halal through research and services"

Researcher's Profile

ALYANI ISMAIL (ASSOC. PROF. DR.)



Alyani received her Bachelor of Engineering (Hons) in Electronic and Information Engineering from the University of Huddersfield, United Kingdom (UK) at a young age of 20 years old in 1999. Her success at a young age has gained the attention of a local newspaper in Huddersfield, where she featured in an article upon her graduation. She then continued to complete her Master of Science in Communication, Computer and Human-Centred Systems, as well as PhD in Electronic Engineering at her University of Birmingham, UK, specializing in Microwave Engineering.

She was appointed as a tutor at the Department of Computer and Communication Systems Engineering in year 2000 and as a lecturer in 2006 after completing her PhD. In 2008, she was promoted to a Senior Lecturer position. With her leadership ability, since September 2010, she has been appointed as the Head of Department until now. Alyani is promoted to the Associate Professor position from the 1st February 2011, at the age of nearly 33 years old.

Alyani has a keen interest in science and technology research, particularly in the area of microwave engineering. Currently, her research works include halal certification management through traceability system, bio-sensors for non-halal detection as well as the use of Radio Frequency Identification (RFID) for authentication of halal logo. Since completing her PhD in March 2006, up until December 2011, she has authored and co-authored more than 100 publications, where 38 of them are in journals published at international level with high impact factors. Within 5 years (2006-2011), the total cumulative impact factor for her publications has reached 54.9, where 31.4 of the total impact factor came from her journals as the main author. Citations for her publications are 146 and her h-index is 7 based on the Scopus database. She also leads 3 research projects with funding totalling nearly half a million ringgit. The total value of research projects that she leads and as a co-researcher amounted to RM3million. For her project, she collaborates with local as well as international institutions.

Until now, Alyani has 2 patents pending as the project leader. The patents pending are for ultra wideband filter for wireless communication and printed circuit board based on green electronics using natural fiber composites. Her achievements in research has been recognised locally as well as overseas. She has been awarded the Young Researcher Award 2010 for Science and Technology cluster by UPM during the Majlis Gemilang Akademia Putra held in 2011, the proud recipient of Excellent Innovation Award 2010, at the state of Selangor level, Excellent Researcher Award 2009, Faculty of Engineering, UPM as well as medals from local and overseas competition. Currently, she serves as an Executive Committee in the Microwave Theory and Techniques/Antenna and Propagation/Electromagnetic Chapter for the Institute of Electrical and Electronic Engineers (IEEE). She has also been appointed as PhD and Master thesis examiners at local and international universities.

Product Highlight

Product Name : Halal Encapsulation for Bifidobacteria (PI 2010001376)

Research Title : Delivery of probiotics in food, pharmaceutical and nutraceutical products

This invention describes the use of bovine gelatin for encapsulation of bifidobacteria. This bioencapsule bead has the capability to provide an alternative mechanism for halal probiotics delivery in food, pharmaceutical and nutraceutical products.

Usefulness / Advantages :

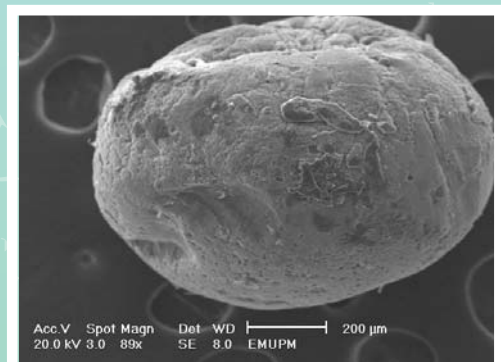
- Halal
- Delivery biomolecules to targeted sites
- Easy to produce
- Stable
- Versatile

Industrial Application / Application :

- Incorporation and delivery of ingredients in:
 - o fruit juices
 - o tablet
 - o dry powder
 - o hydrogel

Market /Commercialization Potential:

- Halal delivery of functional ingredients in:
 - o food
 - o pharmaceutical
 - o nutraceutical



Researcher : Shuhaimi Mustafa, Khalilah Abdul Khalil, Mohd Yazid Manap, Arbakariya Ariff and Rosfarisan Mohamad
Faculty/Institute : Halal Products Research Institute, UPM
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Analytical Methods for Gelatin Differentiation from Bovine and Porcine Origins and Food

Gelatin is a heterogeneous mixture of polypeptides obtained through partial hydrolysis of collagens from animal connective tissues by acidic or alkaline treatments (Zhang and others 2009). The transformation of collagen to gelatin is interpreted as disintegration of the helical structures of collagen into random coils. Upon cooling, the random coils undergo a coil-to-helix transition during which they attempt to reform the original structure (Karim and Bhat 2009). When collagen is subjected to mild acid or alkaline treatment or heating in water, the fibrous structure of collagen is broken down irreversibly and gelatin is formed. During the transformation, the breakdown of cross-linkages between polypeptide chains of collagen occurs (Yang and others 2007). The gelatin manufacturing processes involve general steps including pretreatment of the raw material, extraction, purification, and drying to produce desired gelatin. The most common raw materials for industrial-scale gelatin are obtained from slaughter byproducts due to its availability in sufficient quantities at an economical price. The gelatins derived from porcine skins are treated with acidic treatments (type A) to avoid saponification due to high fat content in this skin. Generally, the acidic treatment is limited to the tissue of younger animals that have lesser degree of covalent bonding in collagen that ensures a good yield and quality of gelatin. The alkaline treatment (type B) is applied to chopped split material and ossein prepared from bones (Schrieber and Gareis 2007). The central layer of cattle hide contains native collagen that is suitable as raw material in gelatin manufacturing process. The physicochemical properties of gelatin are determined by amino acid sequence, the resulting 3-dimensional structure, the molecular mass distribution, pH, ionic strength, and reaction with other components. Type A and B gelatins are different in terms of isoelectric point (IEP) where IEP of type A is in the pH range of 8 to 9 while for type B, its IEP is in the between pH 4.8 and 5.5. The functional properties of gelatin are associated with gelling (bloom strength, gelling time, setting and melting temperature, viscosity) and surface behavior (formation and stabilization of foams and emulsions, adhesive properties, and dissolution behavior) (Schrieber and Gareis 2007).

This well-known food hydrocolloid has been applied in food products as agents for gel formation in jellies and fruit gummies, foam formation and stabilizer in ice creams, marshmallows, emulsifier and foam stabilizer in caramels, syneresis stabilizer in yogurt, foam formation in foamed milk dessert, gel formation in jellied milk dessert, emulsion stabilizer in meat and sausages, binding agent in broths and canned meats, pharmaceuticals (soft and hard capsules, gel-forming component in dental pharmaceuticals, thickener in liquid dosage forms, tablets, ointments for mucosal membranes of the mouth, vitamin coating, pastilles, globules), photography (ink jet printing), cosmetic and medical products (blood plasma substitutes, gelatin sponges) (Hidaka and Liu 2003; Venien and Leveux 2005a, 2005b; Schrieber and Gareis 2007). There is high demand for gelatin especially in Europe, North America, South America, and certain countries in Asia Pacific due to its unique properties that suit its application in a wide range of products (GMIA 2001; SAGMA 2004; GMAP 2005; GME 2011).

Due to the various sources of gelatins that have been consumed, the gelatin authentication has become a major concern among communities including Muslims, Jews, Hindus, and vegetarians. For instance, gelatin from slaughtered cow that has not followed Islamic law and the usage of porcine origin are forbidden for Muslims. Hindus also prohibits the usage of cow while the animal-based food is banned by vegetarian. In health aspects, the outbreak of bovine spongiform encephalopathy (BSE) or commonly known as mad cow disease in Europe has caused restriction on the usage of bovine gelatin in food products (Hidaka and Liu 2003; Venien and Leveux 2005a, 2005b). The bovine and porcine gelatins also would give risks to gelatin-allergic patients (Doi and others 2009). Thus, the gelatin authentication is very crucial so that the gelatin is confirmed to abide with its label description whether it is made from bovine or porcine. However, the transparency of food ingredients is not always readily noticeable. Improper labeling of gelatin origin is the most common case occurred in food industry. Thus, the reliable methods to detect the source of animal utilized in food products are needed and usable to identify the food components so that the adulteration can be identified (Murugaiah and others 2009).

Eight studies have been published since 2003 until 2010 to differentiate gelatins especially involving bovine and porcine gelatins. They have claimed that differentiation of both gelatins can be made using analytical methods including the applications of spectroscopic, chemical, liquid chromatography, and immunochemical techniques (Hidaka and Liu 2003; Nemati and others 2004; Venien and Leveux 2005a, 2005b; Zhang and others 2008, 2009; Doi and others 2009; Hashim and others 2010). To the best of our knowledge, no review related to differentiation of gelatins has been published. Thus, this paper reviews summarization of the related studies about analytical methods including advantages and limitations. With this review, it can be used as a quick reference so that new analytical methods can be tested.



Keywords: analytical methods, food products, gelatin.

Source of Article : **Raja Mohd Hafidz Raja Nhari**, Amin Ismail, and Yaakob B. Che Man (2012). Analytical Methods for Gelatin Differentiation from Bovine and Porcine Origins and Food Products. Journal of Food Science. 2012 : R 42 - 46.

Raja Mohd Hafidz Raja Nhari is a research officer in Halal Products Research Institute, UPM under supervision of Prof, Dr. Amin Ismail. His specialization is more on Food Proteins Analysis.

Publication 2

APPLICATION OF FAST GAS CHROMATOGRAPHY AND FOURIER TRANSFORM INFRARED SPECTROSCOPY FOR ANALYSIS OF LARD ADULTERATION IN VIRGIN COCONUT OIL

Abstract Lard (LD) and virgin coconut oil (VCO) share some similarities such as having transparent to yellowish color and are solid at room temperature; hence, as a consequent, LD may be a potential oil adulterant in VCO. This study highlights the application of fast gas chromatography with surface acoustic wave detector (GC-SAW system) and Fourier transform infrared (FTIR) spectroscopy combined with chemometrics to analyze the presence of LD in VCO. Binary admixtures of LD in VCO in various percentage concentrations ranging from 1% to 50% (v/v) were assayed using the fast GC-SAW system and FTIR spectroscopy. Using the fast GC-SAW system, ten different chromatogram peaks were identified as the adulterant peaks. One peak in the fast GC-SAW system chromatogram was found to have the best relationship, with a coefficient of determination (R^2) value of 0.9344. Furthermore, FTIR spectroscopy coupled with partial least square (PLS) and discriminant analysis (DA) can be successfully developed for quantification and classification of LD in VCO. The results showed that PLS able to predict the LD contents in VCO with the equation of $y = 0.999x - 0.006$, for the correlation between actual value of LD (x) and FTIR predicted value (y) with R of 0.9990 at frequency regions of 3,020–3,000 cm^{-1} and 1,120–1,000 cm^{-1} . DA can classify VCO and that adulterated with LD using the FTIR spectra at the same frequency regions used in quantification.

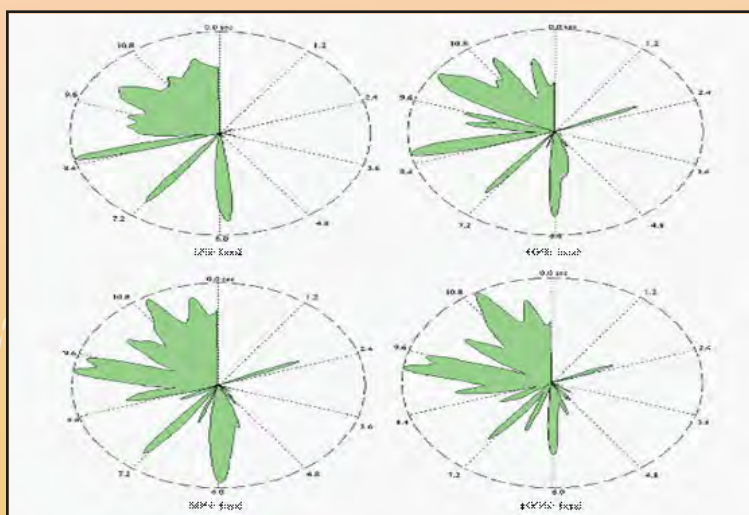


Figure 1 : Visual profiling of lard in VCO at different percentage concentration (v/v) from Fast Gas Chromatography-Surface Acoustic Wave (Fast-GC-SAW) system.

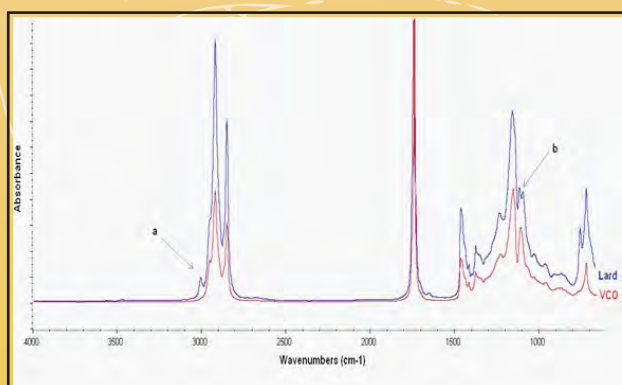


Figure 2: Typical FTIR spectra of Lard and VCO recorded at frequency of 4,000–650 cm^{-1} . The assigned peaks with arrow (a and b) are absorption bands, which are significant in differentiating between VCO and Lard.



Source of Article:

Application of Fast Gas Chromatography and Fourier Transform Infrared Spectroscopy for Analysis of Lard Adulteration in Virgin Coconut Oil. Food Analytical Methods. 2011. 4: 363 - 372

Tengku Salwani Tengku Mansor is currently a Masters student at Halal Products Research Institute, UPM. Her main research interests are the application of various analytical instruments to detect potential adulteration in fats and oils and antioxidant studies of Virgin Coconut Oil.

Scholar's Note

ALCOHOL – HALAL OR HARAM? What is alcohol and *khamr*?

by Syariena Arshad and Nur Fadhilah Khairil Mokhtar
(Research Officers)

In general there seem to be a lot of misunderstanding with regard to what alcohol actually is. The misunderstanding is due to the incorrect translation of term the *khamr* (Arabic) to alcohol (English). The term alcohol from a chemistry perspective is more than just ethanol. Alcohol is an organic compound in which the hydroxyl functional group (-OH) is bound to a carbon atom. There are many types of alcohol such as methanol, ethanol, propanol and butanol. Of those, ethanol is the type of alcohol commonly found in food, beverages, perfumes and medicines. Ethanol is derived from two main processes, hydration of ethylene and biological fermentation of carbohydrate source. Hydration of ethylene is the primary method for the industrial production of ethanol (synthetic alcohol), while fermentation is the primary method for production of beverage alcohol and fermented foods.

Khamr is a term that derived from verb *khamara* means "to shroud" or "to cloud". This term refers to any substance that intoxicates the mind and can cause the person who took it lose their ability to control their mind and action. The Maliki, Shafi'i, and Hanbali schools consider *khamr* to be any intoxicating drink made from grapes, dates, or raisins. Whereas according to Hadith Bukhari and Muslim, *khamr* is what covers intellect and made from five things that are grapes, dates, wheat, barley and honey.

Halal issues on the use of alcohol in products

The prohibition of *khamr* is clearly stated in the Holy Quraan. In Surah Al-Baqarah verse 219: "They ask Thee concerning Wine and Gambling, Say: In them is great sin, and some profit, for men; but the sin is greater than the profit." and also in Surah Al-Maaidah verse 90: "O Ye who believe! Intoxicants and Gambling, Sacrificing to Stones, and (divination by) Arrows, are an abomination, of Satan's handiwork; Keep away from such, that Ye may prosper."

Ethanol is not necessarily *khamr* although the intoxicating substance in *khamr* is ethanol. Ethanol produced from the non *khamr* industry is not najis. Local fermented products such as tapai, soy sauce, budu, cencalok and belacan are permissible to consume even though they contain ethanol as they are not intoxicating. The permissibility from a religious perspective and hence the halal compliance of such products will depend on the intention and utilization of the product. The usage of ethanol from *khamr* industry or it's by products and derivatives even in small quantity in food products is haram.

The Fatwa on alcohol usage in food, beverages, perfumes and medicines have been revised by the Fatwa Committee of the National Council for Malaysian Islamic Religious Affairs on July 14 to 16, 2011. Based on the briefings, presentations and explanations presented by the experts of Halal Products Research Institute, Universiti Putra Malaysia and taking into account of the results of the dialogue held in the Fatwa Committee of the National Council for Islamic Affairs Malaysia earlier, the Fatwa committee has agreed to decide as follows:

1. All *khamr* contains alcohol. However, not all alcohol is *khamr*. Alcohol obtained from *khamr* making process is najis and haram.
2. Alcohol obtained from non *khamr* industry is not najis, but not permissible to drink in its original form because it is poisonous and can kill.
3. Soft drinks that are processed or made not with the intention to produce *khamr* and contain alcohol below the level of 1% (v/v) is permissible to be drank.

..... continue

4. Soft drinks which are made with the intention and the same way as the process of making *khamr*, whether it contains a lot or a little alcohol or distilled alcohol are haram.
5. Foods or drinks containing natural alcohol such as fruits, nuts or grains and its juice, or alcohol produced as by-product during the manufacturing process of food or drink is not najis and permissible to be eaten or drink.
6. Foods or drinks that contain flavoring or coloring materials containing alcohol for the purpose of stabilization is a permissible to be used if the alcohol is not produced from the *khamr* source and the quantity of alcohol in the final product is not intoxicating, and at the rate not exceeding 0.5% alcohol.
7. Medicines and perfumes that contain alcohol (not from *khamr* source) that being used as a solvent is not najis.

In conclusion, alcohol derived from non *khamr* source and not intoxicating is not najis and therefore it is permissible to be consumed and used.

References

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2. <http://www.positivearticles.com/Article/Khamr---Prohibited-Drink/48245>
3. Unraveling the Issue of Alcohol for the Halal Industry. Mr. Dzulkifly Mat Hashim. Presented at the World Halal Research Summit 2010.
4. A. Kamarulzaman, S.M. Saifuddeen. Islam and harm reduction. International Journal of Drug Policy 21 (2010) 115–118.

Staff Profile

Syariena Arshad
Research Officer

Education:

Secondary - Sekolah Menengah Sains Muar, Johor

Tertiary - BSc (Physics), Universiti Kebangsaan Malaysia
- MSc (Microengineering & Nanoelectronics),
Universiti Kebangsaan Malaysia

Experience and career highlights:

Research Officer (current) - Laboratory of Halal Science Research,
Halal Products Research Institute, Universiti Putra Malaysia

Research interest : Alcohol-based sensor
Nanoscience



IPPH ACTIVITIES

	Date	Activities	Location
JULY	12	<i>Seminar Kesedaran & Kepenggunaan Halal Negeri Selangor : Peranan R & D dalam Pembangunan Industri Halal</i>	Fakulti Perubatan & Sains Kesihatan, UPM
	19	Visitor from AAACU Study Tour Program 2011	IPPH, UPM
	19 - 21	<i>Pameran Rekacipta, Penyelidikan dan Inovasi 2011</i>	Dewan Besar, UPM
	21	<i>Program Latihan Halal Standards and Conformance Infrastructure For OIC Countries Di Bawah Program Kerjasama Teknikal Malaysia (PKTM)</i>	Hotel Allson Putra Nilai
	26	<i>Persidangan Meja Bulat: Farmaseutikal Yang Halal: Isu-isu dan Cabaran</i>	Dewan Besar, IKIM
	26	<i>Seminar On Food Safety 2011</i>	Cititel, Mid Valley
AUG	7	<i>Seminar Isu-Isu Keselamatan Makanan (Fasa 1)</i>	Kedah
	12 - 14	<i>Bengkel Pembangunan Polisi dan Prosedur Perkhidmatan</i>	Melaka
	29	<i>Penceramah Kursus Verifikasi Makanan Halal</i>	USM Kelantan
SEPT	13 - 15	Pameran Persidangan dan Ekspo Ciptaan (PECIPTA)	KLCC, Kuala Lumpur
	20	<i>Lawatan Delegasi Universiti Islam Sultan Sharif Ali (UNISSA) Brunei</i>	IPPH, UPM
	30	Invitation For Kuliyyah of Engineering, IIUM Seminar	UIA Gombak
OCT	13	<i>Majlis Pelancaran Portal Halal & Halal Pages 2012</i>	PWTC
	13 - 15	4th International Halal & Healthy Conference	Istanbul Turkey
	18	<i>Seminar Hukum Islam Semasa VII Peringkat Kebangsaan 2011</i>	UM, Kuala Lumpur
	19	Seminar on Compliance with Food Act & Regulations of Malaysia	Cititel, Mid Valley
	29 - 30	<i>Bengkel Penambahbaikan Polisi Penyelidikan UPM</i>	Hotel Colmar Tropicale, Bukit Tinggi
NOV	22 - 25	International Seminar on The Miracles of Al-Quran in the Field of Science	Padang, Indonesia
DEC	3	10th International Conference of The Academy of HRD (Asia Chapter)	InterContinental , KL
	7	Visitor from TNB Research	IPPH, UPM

Achievements

15 Sept - Gold medal in PECIPTA

The team of HPRI researchers won the gold medal at the International Conference and Exposition on Inventions of Institutions of Higher Learning (PECIPTA 2011) at the Kuala Lumpur Convention Centre, Kuala Lumpur.



Welcome Visitors to IPPH



19 July - Group from AAACU Study Tour Programme



28 July - Group from Guru Bimbingan & Kaunseling



05 Sept - Group of students from Sek. Men. Dang Anum, Melaka



18 Oct - Group of students from MICET, Melaka



25 Jan 2012 - Discussion with Jakim



21 Feb 2012 - Group from Kementerian Keselamatan Dalam Negeri



27 Jan 2012 - Group from Persatuan Masjid Daerah Kemaman

Seminar / Workshop



01 Oct - Bengkel Pemantapan Organisasi IPPH



10 Jan 2012 - Seminar Research Proposal



01 Feb 2012 - IPPH Scientific lecture



2-3 Mac 2012 - Bengkel Penyediaan Business Plan LPH

Staff Activities



26 July - Friendly Game



27 July - Visit to HDC



19 Sept - Majlis Jamuan Hari Raya 2011



30 Dec - "Majlis Jasa Mu dikenang" former Director



26 Jan 2012 - "Majlis Serah tugas"



9 mac 2012 - Tazkirah by ustaz Muhammad Asraf (Imam muda)

Exhibitions



30 Sept - Transformasi Sistem Pengurusan Islam Exhibition



16 Dec - Pesta Konvokesyen @ Bukit Ekspo UPM



16 Dec - Program Juara Rakyat @ Segamat Johor





Student's Profile



Siti Aimi Sarah Bte Zainal Abidin

Master of Science in Halal Product Science

**Research Title : Screening and Characterization of Species Specific
Thermostable Protein from Porcine Using Proteomic
Approach**



Salwani Bte. Md Saad

Master of Science in Halal Products Science

**Research Title : Effects of Stunning and Slaughtering on
Physiological Responses and Meat Quality
in Broiler Chickens.**



Siti Husnaa Bte Mohd Taib

Master of Science in Halal Products Science

**Research Title : Development of Halal edible Bird's nest
formulation for lips care applications.**



Norazlin Bte Mat Husin

Master of Science in Halal Products Development

**Research Title : Development of Halal Lipstick with Protection
Properties.**



Khairunnisa Bte Hasanudin

Master of Science in Halal Products Development

**Research Title : Bioactivities of Corn Silk (Stigmata Maydis) for
Halal Cosmeceutical Application.**



Nor Irmey Bte Nor Hamidi

Master of Science in Halal Products Development

**Research Title : Development of Germination Brown Rice with
High Resistant Starch.**



Student's Profile



Siti Anis Bte Laderlah

Master of Science in Halal Syariah and Halal Laws

Research Title : Development the Concept of Islamic Tourism.



Nuur Hana Bte Mohammed

Master of Science in Halal Products Management

Research Title : The Factors Influences Non Compliance of Halal Among SMEs in Malaysia.



Nur Illiyin Bte Mohamed Roslan

Master of Science in Halal Products Development

Research Title : Effect of Replacing Pork Fat with Plant Lipids on The Quality Characteristic of meatballs.



Mohammad Aizat Bin Jamaludin

Doctor of Philosophy in Syariah and Halal Laws

Research Title : Penentuan Kadar Alkohol Dalam Produk Makanan dan Minuman menurut Perspektif Islam dan Sains.



Shahirah Atiqah bte Osman

Master of Science in Halal Products Management

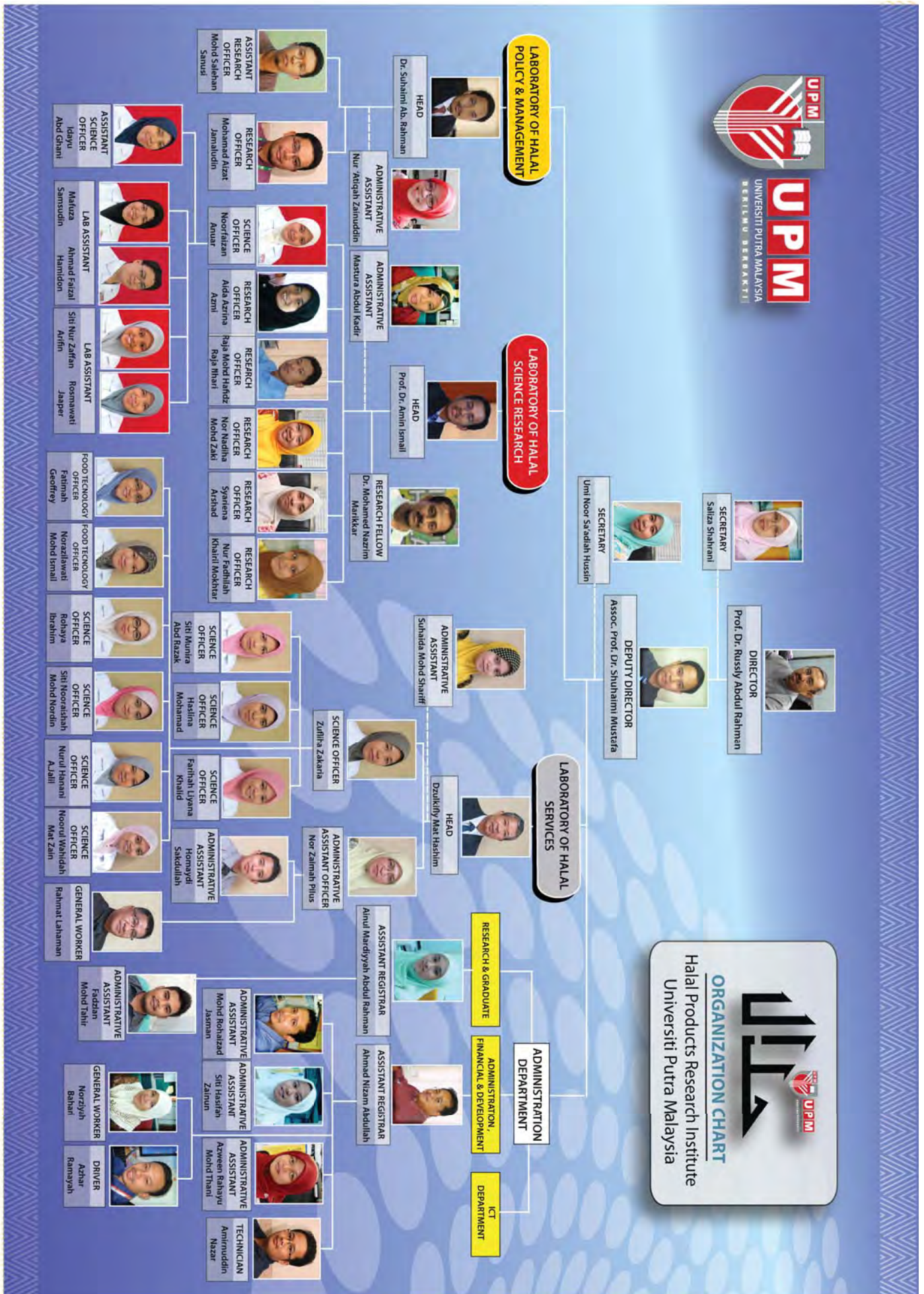
Research Title : Different Concept of Halal and Its Impact on Halal Industry Development in ASEAN.



Zaidah binti Mohd Nor

Doctor of Philosophy in Syariah and Halal Laws

Research Title : Makanan Haiwan dari Perspektif Hukum Syarak



Halal Services Laboratory

The UPM Halal Services Laboratory was established in 2010 as a testing laboratory and specialised in halal analysis using state-of-the-art equipment and facilities. The laboratory's range of services span the entire supply chain of halal food and selected non-food products. The Halal Services Laboratory also provides consulting services and training. Services offered are open to government agencies, private industries and also the public.

The types of analytical services offered are :

Testing Services

Test	Sample	Cost/sample (RM)
Porcine DNA detection (DNA extraction and detection using Real-time Polymerase Chain	Meat products, Animal feed Processed food	600.00
Alcohol content	Beverage ,Food , Processed food Consumer products	350.00
Fatty acid methyl ester (FAME)	Food, Processed food Consumer products	300.00
Amino acid profile	Raw gelatine, Gelatine capsule Tablet coating, Processed food Raw food ingredients	630.00
Amino acid profile and origin	Gelatine products, Collagen Capsule	750.00
Screening test (porcine	Meat products (raw and processed)	380.00

Results and reporting

Results are reported by conventional hard copy formats. Depending on the customers need, the reports can be faxed, phoned, e-mailed or provided as hard copies. Individual samples and results may be discussed with the staff involved in the process of analysing the samples.

CONTACT

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