Categorization of cosmetic products according to Halal principle
Fakerah Pandagel\textsuperscript{1}, Neti Waranuch\textsuperscript{2}, Pinyupa Plianbangchang

\textsuperscript{1}Master Degrees Student, Faculty of Pharmaceutical Sciences, Naresuan University, Phitsanulok 65000, Thailand.
\textsuperscript{2}Department of Pharmaceutical Technology, faculty of Pharmaceutical Sciences, Naresuan University, Phitsanulok 65000, Thailand.

*Corresponding author. E-mail address: fakerah.pan@gmail.com

Abstract
This study aimed to evaluate the compliance facial and body moisturizing products registered to be sold in Thailand by Halal principles. The evaluation focused on the origins of ingredients in each product, regardless of manufacturing and production process. The Halal cosmetics and personal care ingredient criteria was used to evaluation Halal-ness of ingredients. Products categorized into 3 categories including 1) Halal products; the ingredients of products obtained from the Halal origins, 2) Haram products; products contained the non–Halal (Haram) ingredients and 3) Mushbooh products; products contained the Mushbooh ingredients that can be obtained from Halal or Haram origins. The result showed that there were 97\% Mushbooh products, 2.5\% Halal products and 0.5\% Haram products. The main factor influencing the acceptability of products was the origins of ingredients. This result suggested that most facial and body moisturizing products contained Mushbooh ingredients such as fatty acids, collagen, hyaluronic acid and glycerin. These could be produced or obtained from various sources such as animals, plants, synthetic or petroleum or where uncertainty exists about its permission or prohibition according to Islamic law. For Haram products, there were only three Haram ingredients including a wine extract, carminic acid, and snail secretion filtrate extract. For Halal products, the origins or sources were from plants, seaweeds, mosses, synthetic–petroleum, minerals, aquatic animals including fish, shrimp and other crustaceans, mussels and so on.

Keywords: Halal, Haram, Mushbooh, Facial moisturizing products, Body moisturizing products, Thailand

Introduction
Cosmetic and personal care products are the essential daily items for human needs. According to the Thai Cosmetics Act, B.E. 2535 and Association of South East Asian Nations Cosmetics Association (ACA), cosmetic products refer to products that have to contact with the external parts of the human body or with the teeth and the mucous membranes of the oral cavity mainly for beautifying, cleansing, protecting, correcting body odor and perfuming. Cosmetic and personal care products are the mixture of chemical substances derived from natural sources and synthetic (Stryker, 2012). The advancement of science and technology, the raw materials or ingredients can be obtained from many different sources (Mursyidi, 2013). The issue of cosmetic and personal care ingredients has generated a serious question for Muslim consumers. They concerned that cosmetic and personal care products may contain ingredients that do not comply with Islamic regulations. The purity and cleanliness of the products are important elements in Islamic teaching. The use of Halal cosmetic and personal care products will create more confidence in their use of these products. These concerns lead
to the availability of Halal cosmetic and personal care products in the world market. Halal cosmetics and personal care products are products that are efficacy, quality, safety and compliance religious requirement.

A survey of the awareness of Halal cosmetic and personal care products of Muslim consumers in five Asian countries found that the majority of respondents (79%) presented that they conscious about the Halal cosmetic and personal care products concept. Moreover, the study showed that Muslims in Asia are realizing the importance of the choosing of Halal cosmetic and personal care products (Yusuf & Ab Yajid, 2016). The Halal cosmetic market has constituted 11% of the total global Halal market. Halal cosmetic and personal care market was analyzed as next in line for growth after Halal food products. The huge market of Halal cosmetics is the Middle East and Asia (The Global Halal Industry: An Overview, 2013). In 2015, the value of Halal cosmetic and personal care product was currently estimated to be 945.8 million US dollars in Southeast Asia. The Future Market Insights anticipates an increasing in this market to reach 1037.7 million US dollars by 2016 (Hassali et al., 2016).

In Thailand, Muslims are the second largest minority group. The Muslim population is about 6.6 million or 10% of the country’s population (Asia Muslim Population, 2014). The demand for Halal products has rapidly increased since Muslim consumers become more aware of the requirements for products to be considered Halal. Thus, Thai Muslims not just focus on Halal food products but have expanded their concerns to include other non-food products such as cosmetics and personal care products. The issue of ingredients in cosmetic and personal care products is a serious challenge. Several cosmetic and personal care products contain some Mushbooh (doubtful) ingredients which can be from Halal or Haram (prohibited) sources. The insufficient number of Halal cosmetic and personal care products, the level of consciousness of Halal cosmetic and personal care products and the Muslim’s concern over the ingredients used in these cosmetics and personal care products, has led to Muslims feeling that the available products may not comply fully with Halal standards. Even with the increase of Halal cosmetics and personal care products awareness among Thai Muslims, there are a few Halal cosmetic products in Thailand. According to the Halal Affairs Department of the Central Islamic Council of Thailand (CICOT) (2014), there were only 300 cosmetic and personal care products that met Halal certification standards.

Especially, Facial and body moisturizing products are of the highest demand in the Thai cosmetic market and they have the high prospect to contain the forbidden and doubtful ingredients such as animal-derived ingredients, including hyaluronic acid, collagen, fatty acid and amino acids and so on. According to the report, “The future of skincare market in Thailand to 2017” and “Cosmetics & Toiletries Market Overviews 2015,” the largest sector of the Thai skin care categories are facial care and body care (Barker, 2013). The information from Thai FDA in 2012, there were
around 30,000 body and facial moisturizing products registered to be sold in Thailand. However, according to the Halal Affairs Department of the Central Islamic Council of Thailand (CICOT) (2014), there were only 80 Halal facial and body moisturizing products. Thus, Thai Muslims have few choices choosing Halal facial and body moisturizing products.

Toward the lack of the number of Halal cosmetic and personal care products and the level of consciousness towards Halal cosmetics in Thai cosmetic market, this study aims to evaluate available cosmetic products registered in Thailand using Halal standard criteria for evaluation and classification.

This study was conducted to evaluate the compliance of facial and body moisturizing products in Thailand according to Halal cosmetic and personal care criteria. The area of the study covered only the investigation the source of ingredients of products. The products within the scope of this study were facial/body moisturizing products with and without sunscreens registered to be sold in Thailand by Thai FDA since these groups of products accounted for high market value and the high risk of the contamination with Haram and Mushbooh ingredients. The Halal Standard criteria that was used for this study focused only the sources of the ingredients, regardless of the manufacturing or production processes.

This information will be valuable to Muslim consumers as it would help them to become more informed of the ingredients of cosmetic products. It would also be useful in helping consumers select cosmetics. This information is another way for consumers to protect themselves as buyers. The use of these products can have an effect on the users as it may have physical and psychological influences. Cosmetic and personal care products that are contaminated with forbidden ingredients can make religious practitioners feel uncomfortable and as though they are not fully complying with their beliefs. The manufacturers who are interested in the development of Halal cosmetic products will also benefit from this study.

Methods and Materials

Population

The population was facial and body moisturizing products registered to be sold in Thailand. The listed population was obtained from the Cosmetic Control Division, Food and Drug Administration, Ministry of Public Health, Thailand on 31st July 2012. The population was divided into 2 groups including facial moisturizing product and body moisturizing product. The total numbers of facial moisturizing products were 21,434 products and the body moisturizing products were 9,319 products.

The sample size of facial and body moisturizing products was calculated based on Yamane’s formula (Israel, 1992).
Where; \( n \) = the sample size  
\( N \) = the population size  
\( e \) = the acceptable sampling error, A 95% confidence level and \( P = 0.05 \) are assumed

Sample  
The number of sample was 400 facial moisturizing products and 400 body moisturizing products. The sampling procedure was systemic random sampling.

Ethical Considerations  
The proposal has been approved by Naresuan University Ethical Committee. This study did not directly involve human or animal subjects.

Instruments  
The instrument of this study was the checklist and the Halal cosmetic and personal care ingredients criteria. The checklist was adopted from the E-number ingredients (E-Numbered Ingredients, 2011). The checklist was designed to collect the information of facial and body moisturizing products including name and ingredients. Then, the categorization of cosmetic ingredients was arranged into three categories as Halal, Haram and Mushbooh.

Halal cosmetics and personal care ingredient criterion was adopted from General guidelines on Halal food of OIC/SMIIC Standard, Halal cosmetic and personal care general guidelines of Malaysian Standard, Requirements for Halal Cosmetics of UAE Standard and Halal cosmetic and personal care general guidelines of IHI Alliance Standard. Cosmetic ingredients in Halal cosmetics and personal care ingredient criterion were divided into 3 groups including Halal, Haram and Mushbooh ingredients.

Halal ingredients refer to ingredients that obtain from origins that are permissible according to Islamic law such as plant, microorganism, aquatic animal, soil, petroleum and mineral, honey, beekeeping products and so on.

Haram ingredients refer to ingredients that obtain from forbidden origins according to Islamic law such as pigs, venomous animals such as snakes and other similar animals, animals which are considered repulsive like lizards, insects and other similar animals, amphibious animals, alcoholic drink, harmful ingredient and so on.

Mushbooh ingredients mean the ingredients that fall into the grey area between Halal and Haram sources. In this study, Mushbooh ingredient mean ingredients that can be produced from the Halal sources or Haram sources such as wax and its derivatives that can be produced from animals,
plants or petroleum, amino acid, the derivative of animal that can be produced from Halal or Haram animals such as hyaluronic acid, collagen, gelatin and others similar ingredients and so on.

**Quality Assessment of the Instrument**

**Validity**

Three experts in the field of Halal assessed the instruments for face validity. First, Halal content experts from the Director of the Halal Science Centre Chulalongkorn University, second from the faculty of Pharmacy International Islamic University Malaysia and the last from the faculty of Pharmaceutical science, Prince of Songkla University. Then the researcher revised the instrument based on experts’ suggestions.

**Reliability**

The reliability of the instrument was determined by inter-rater reliability. There were three evaluators in this study. The reliability test of the instrument by three evaluators revealed that the percent of agreement was 90%.

**Data Collection**

The data were recorded in the checklist. Then, the ingredients were evaluated according to the sources of them by Halal cosmetics and personal care ingredient criteria. According to the criteria, ingredients were divided into 3 groups; Halal, Haram and Mushbooh.

**Data Analysis**

The data were analyzed using the descriptive statistics. These data were described in percentage.

**Results**

Tables 1 and 2 showed the result of the facial and body moisturizing products that were evaluated according to the Halal cosmetic and personal ingredient criteria. The products were divided into 3 groups; Halal, Haram and Mushbooh. According to table 1, most of facial moisturizing products were Mushbooh products 385 (96.25%), followed by Halal products 13 (3.25%) and Haram products 2 (0.5%).

**Table 1** the evaluation of facial moisturizing products.

<table>
<thead>
<tr>
<th>Product category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locally-produced facial moisturizing products without sunscreen</td>
<td>5  2  199</td>
</tr>
<tr>
<td>Imported facial moisturizing products without sunscreen</td>
<td>7  0  115</td>
</tr>
<tr>
<td>Locally-produced facial moisturizing products with sunscreen</td>
<td>1  0  49</td>
</tr>
<tr>
<td>Imported facial moisturizing products with sunscreen</td>
<td>0  0  22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13 (3.25%) 2 (0.5%) 385 (96.25%)</strong></td>
</tr>
</tbody>
</table>

According to table 2, the majority of body moisturizing products were Mushbooh products 390 (97.5%), followed by Halal products 9 (2.25%) and Haram products 1 (0.25%).
Table 2: The evaluation of body moisturizing products.

<table>
<thead>
<tr>
<th>Product category</th>
<th>Halal</th>
<th>Haram</th>
<th>Mushbooh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locally-produced body moisturizing products without sunscreen</td>
<td>2</td>
<td>0</td>
<td>215</td>
</tr>
<tr>
<td>Imported body moisturizing products without sunscreen</td>
<td>5</td>
<td>1</td>
<td>110</td>
</tr>
<tr>
<td>Locally-produced body moisturizing products with sunscreen</td>
<td>1</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>Imported body moisturizing products with sunscreen</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>9(2.25%)</td>
<td>1(0.25%)</td>
<td>390 (97.5%)</td>
</tr>
</tbody>
</table>

Discussion

This study was an initial screening of the amount of Mushbooh, Haram and Halal facial and body moisturizing products on the Thai cosmetic and personal care market. The evaluation showed that some products on the market are of concern to Muslim consumers, especially, those containing Mushbooh ingredients that can be obtained from various sources such as animals, plants, petroleum and so on. According to Khattak (2008), to examined the ingredients used in making cosmetic and personal products. He found that many of these ingredients are of doubtful (Mushbooh) origins and may not comply with Halal standards. Thus, Mushbooh ingredients that were found in Mushbooh products can be obtained from various sources, some of which may not comply with Halal certified.

Halal verification and authentication require all products to have Halal-compliant ingredients. One method to authenticate Halal-ness of products is to perform a chemical analysis. This method is used to verify the source of ingredients of cosmetic and personal care products. Thus, chemical analysis is another best way to identify the Mushbooh ingredient in the case of doubtful origins.

However, the chemical analysis does not cover all Haram or Mushbooh ingredients which are not chemical in nature like dead animals. Moreover, when Haram ingredients are mixed with other Halal ingredients having similar chemical structures in the products, it increases the difficulty in analyzing for Haram ingredients. Chemical analytical methods are difficult to identify the sources of pure ingredients or compounds, especially ingredients that do not have DNA such as fatty acid like stearic acid, amino acids such as cysteine, etc. (Jahangir et al., 2016). Thus, Halal organizations use chemical analytical techniques with a documentary process to check the origins of ingredients.

According to the teaching of the Al-Quran, Allah (God) recognized that “He did not make anything Halal without it being Toyyiban (pure, clean and wholesome) nor anything Haram which was not impure, dirty with filth (Kamali, 2013).” Thus, in the case of ingredients where the origins cannot be identified, by the use of both methods (chemical analysis and the documentary method), it is going to be a question for the evaluators of how to identify its sources. Can this ingredient be identified as Halal if it is clean and not contaminated with any forbidden substances under Islamic law, it is safe and wholesome for consumers.
In this study, Halal products were products that contained ingredients of obvious origin, produced from Halal approved sources such as plant extracts, petroleum, chemical synthetics, soil, aquatic animals and the like. For Halal products in this study were the products that have a high probability to be registered and awarded Halal certification. Even though the sources of ingredients that are used in Halal products are naturally Halal but if they are mixed with prohibited substances or compounds during the ingredient’s production, that ingredient will be Haram. Thus, process and methods of the extraction and preparation as well as the manufacturing process of products have to be considered for Halal certification.

For the identification of Haram products in this study, researchers could identify the Haram-ness by the name of the ingredients. Ingredients that were found in these groups are produced from specific sources that were only obtained from Haram animals or products. Haram ingredients that were found in this study including the wine extract, carminic acid which is a red coloring that is extracted from the female cochineal insect, and snail secretion filtrate extract.

However, there is still conflict about the sources of ingredients for Halal cosmetic and personal care products by various scholars. Mahyeddin et al. (2013) assessed the viewpoints of the different scholars regarding the issue on the use of leeches and earthworms in pharmaceutical and personal care products. It is known that leeches and earthworms are classified to be Haram animals. However, according to highly beneficial substances that were found in earthworms, leeches and the hygienic production process, from the Islamic lawyer’s perspective, it is permissible to use leeches and earthworms for medication and cosmetic purposes. The allowing of both animals is practical, as they are beneficial. So, how about snail secretions? Snails are classified as Haram origins; however following the research snail secretions contain various substances that benefit the skin with the hygiene production process, Can snail secretion be regarded as a Halal ingredient?

**Conclusion**

The result showed that most of facial and body moisturizing products were Mushbooh (97%), followed by Halal (2.5%) and Haram (0.5%). The main factor influencing the acceptability of products was the origins of the ingredients. Mushbooh products were products that contained ingredients of unknown origin, or can be produced or obtained from various sources, where uncertainty exists about its permission or prohibition according to Islamic law. Mushbooh ingredients that were found in this study include fatty acids such as stearic acid, arachidic acid, lauric acid, oleic acid, palmitic acid and so on, fatty alcohols such as stearyl alcohol, oleyl alcohol, lauryl alcohol, cetearyl alcohol and so on, cholesterol, amino acids, collagens, elastin, hyaluronic acid, the mixture of amino acid and other substances.

Haram products, there were only three Haram ingredients including a wine extract, carminic acid and snail secretion filtrate extract were found. Some Haram ingredients are easily identified
according to their origins. However, there are some ingredients that are the high concern for Muslim consumers including gelatin, collagen, and hyaluronic acid. These type of ingredient usually obtain from animal especially pork.

For Halal products, origins or sources of them in this study were obtained from plants, seaweeds, mosses, synthetic–petroleum, minerals, aquatic animals including fish, shrimp and other crustaceans, mussels. According to the limitations of this study, this study focused only on the sources of the ingredients, regardless of the manufacturing or production processes. So Halal products in this study were products that have high probability to be registered and awarded Halal certification.

**Suggestions**

The issue of cosmetic and personal care ingredients is the main factor for the choosing of Halal cosmetic and personal care products; however, to choose Halal cosmetic products, consumers must have knowledge of the ingredients in products. According to this study, to identify Halal-ness of products by the evaluation of ingredients, the evaluators must have knowledge about Halal principle of ingredient origins co-ordinate with information of ingredients. Even the consumer can find information of ingredients of products but it is still difficult to identify Halal-ness of them anyway. Thus, the list of ingredients on the cosmetic and personal care product label just tell the name of ingredients that are useful for the safety information. Therefore, the best way for Muslim consumers are the looking for Halal logo on the product’s label.

According to the number of Muslim population and the serious attention of religious compliant, Muslim market is considered to be a homogenous market. Thus, Muslims is becoming the Huge market potential of the world market. This is the good opportunities for manufacturers to produce Halal products in the world market because Thailand already has the high potential of cosmetic production and the most sources of ingredients are botanicals products. Moreover, the Halal cosmetic and personal care products not only for Thai Muslim consumers but also for the Muslim population in AEC country which has almost 50% Muslim population (Asia Muslim Population, 2014) as well as the Middle-East and Asia countries that are also the high potential market of Halal cosmetic and personal care products. According to the demand of Halal products, the current market for Halal product offers huge export opportunities. Therefore, Thai cosmetic manufacturers have a high opportunity to export Halal products because there is the supporting from the Thai government to support the knowledge and advice for Halal product production and the promotion of Thai Halal products in the world market.

For manufacturers who are interested in the production of Halal cosmetics and personal care products, the main control points are ingredients and utilities that contact with products. According to Halal cosmetic and personal care guidelines, first manufacturers must focus on ingredients which comply with the Halal certification. In the case of ingredients that do not certify Halal standards,
manufacturers have to place the relevant information of ingredient from the supplier for the detail of source and the production. Second, the production must comply with the GMP Standard. GMP Standard will protect the production line from the contamination of forbidden and harmful ingredients or substances. For the exported, manufacturers should check the Halal certification of the country that manufacturers export.

Moreover, according to the Halal Affairs Department of the Central Islamic Council of Thailand (CICOT) in 2014, there are only 80 facial and body moisturizing products certified as Halal. The lack of Halal products on the Thai cosmetic market showed that Thai cosmetic manufacturers did not realize the importance of Halal cosmetic products. The main reason may be the small number of Muslims in Thailand compared with other countries such as Malaysia and Indonesia that are the Muslim-majority countries. Thus, the future research may contemplate the awareness and intention of Halal cosmetic and personal care products in Thai Muslim consumers to know the demand of Halal cosmetic and personal care products in Thailand. Moreover, this will improve the knowledge of Thai Muslims in the Halal cosmetic and personal care products concepts.

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