# Religion and Cosmetics: Guidelines for Preparing Products Aimed at the Muslim World Based on the Interpretation of Halal Cosmetics in Malaysia

FATIN N. MAJDINA NORDIN and CHE W. JASIMAH WAN MOHAMED RADZI, Department of Science and Technology Studies, Faculty of Science and Programme of Applied Science and Islamic Studies, Academy of Islamic Studies, University of Malaya, Kuala Lumpur, Malaysia (F.N.M.N.), Department of Science and Technology Studies, Faculty of Science, University of Malaya, Kuala Lumpur 50603, Malaysia (C.W.J.W.M.R.)

Accepted for publication November 15, 2020.

# Synopsis

The ingredients of cosmetic products are the mixture of chemical substances derived from natural or synthetic sources. The substances are used as either active (functional) or excipient (additional) ingredients. The source of origin of the ingredients is a critical point for the determination of halal status. Halal is an Arabic word that means things or actions that are permitted by the Islamic law. A halal product can be interpreted as something permissible for consumption by Muslims. Thus, the objective of this study was to understand the critical points for the differences between halal and general cosmetics, and their classifications. This study also identifies issues related to the safety of cosmetic ingredients that may affect the halal status of a cosmetic product. The method used was document and content analyses. The main documents that were analyzed include Malaysian Standard MS 2634:2019, Manual Procedure for Malaysia Halal Certification issued by the Department of Islamic Development Malaysia or Jabatan Kemajuan Islam Malaysia (JAKIM), and Guidelines for the Control of Cosmetic Products issued by the National Pharmaceutical Regulatory Agency under the Ministry of Health of Malaysia. This study finding describes four critical points of differences, namely, (i) ingredient, (ii) processing, (iii) safety, and (iv) ethics and responsibility. The classification of ingredients is based on the origin of ingredients, and the safety aspect can assist in the determination of halal status. This study suggested the integration between the origin of ingredients, and the safety and ethical aspects in the evaluation of halal cosmetic to better describe the practical aspect of halal-tayyib in cosmetics. The integration of safety and halal, and ethics and responsibility are suggested to better describe the practical aspect of halal-tayyib in cosmetics.

# INTRODUCTION

The use of cosmetic and personal care can be traced from the ancient history. The desire of both men and women to look beautiful and attractive is among the driving factors for

Address all correspondence to Fatin N. Majdina Nordin at fatinmajdina@um.edu.my and Che W. Jasimah Wan Mohamed Radzi at jasimah@um.edu.my.

the usage of these products. Nowadays, these products are used daily by many people, and their consumption is increasing every year. Approximately 9–15 products of different kinds of cosmetic and personal care are used by adults in their daily life (1,2). Besides that, cosmetic and personal care is becoming an important part of human life and considered as a necessity for personal hygiene, improving attractiveness, protecting skin and hair against harmful ultraviolet light and pollutants, and to slow down the ageing process (3).

The cosmetic industry is rapidly growing and offers a promising return to industry players. Among the factors that encourage the growth of this industry are the adoption of a new lifestyle both by youth and by the ageing population and the climate changes. The tendency to follow current trends such as the preference toward natural and organic beauty products, the development of new products due to the development of science and technology, the innovation on the use of different ingredients, the rising demand for brightening or antioxidant face creams, and the growth of global economies makes the cosmetic industry a state of innovation and expansion in the Western and in the Asian world, as well as in Muslim countries (4–7).

Products aimed at the Muslim population have to follow the halal guidelines. According to Mordor Intelligence(8), global halal cosmetic products are expected to reach a value of United States dollar (USD) 51.40 billion by 2022 at a projected compound annual growth rate of 14.79% from 2017 until 2022. The growth of this industry has resulted in huge participation of local manufacturers in the halal cosmetic sector besides the international brands. Halal status is among the major concern of Muslim consumers, particularly in foods and beverages, and other aspects of their lifestyles. In the early development of the halal industry, most of the attention was given to halal food. However, the halal industry has extended into other sectors including cosmetic and personal care, pharmaceutical drugs, medical devices, and logistics industry such as transportation, packaging, and warehousing.

The word halal is an Arabic word (*halla*, *yahillu*, and *hillan*) which means permitted, allowed, permissible, released, liberated, and lawful by the Islamic law (Shariah). The word halal is mentioned in the Quran to explain an act, object, or conduct in which an individual has the freedom of choice and the practice does not carry either a reward or a punishment (3,9). It refers to the whole system of principles and rules that should be abided by every Muslim. For the halal products, particularly cosmetic, halal can be interpreted as permissible for consumption by Muslims. The halal status of products is an important element for Muslims because it might affect the prayer and other religious obligations. Nowadays, halal has become a brand that offers a quality and wholesome product.

The discussion on halal and *tayyib* became relevant when the halal industry began to develop. Before that, the word halal was rarely discussed along with the term *tayyib* but always associated with the five defining law in Islam or the scale of five values, namely, the obligatory (*wajib*), recommendable (*mandub*), permissible (*mubah*), reprehensible (*makruh*), and forbidden (*haram*) (9). The word *tayyib* has a strong foundation because the word halal in many verses of the Quran mentioned halal followed by *tayyib* to describe and expand the meaning of the word halal. The four verses in Quran, namely, in surah al-Baqarah (2:168), surah al-Maidah (5:88), surah al-Anfaal (8:69), and surah an-Nahl (16:114), described halal as lawful items such as foods that Muslims are obliged to choose except in an emergency state, and the halal foods should be in good condition and wholesome. In the current context, *tayyib* can be interpreted as a good quality, trusted, hygienic, safe, healthy, and wholesome (9). In short, halal is not a term

that merely discusses food and other religious aspects, but also has a broader meaning in its scope and application (3).

Halal is now becoming a lifestyle, and, in principle, it is not limited to Muslims and does not imply a religious perspective. It is becoming a phenomenal global issue because of the benefits and quality that it offers to consumers. The choice of using halal products is now possible because of the development of human knowledge and technology that leads to the improvement of human intellect, understanding, and lifestyle change. Recently, the halal industry offers great opportunities and profits to industry players from all over the world, including non-Muslim countries. Therefore, there is a need to provide a proper and standard guideline as a reference, particularly for Muslim and non-Muslim cosmetic manufacturers. Such a guideline can avoid confusion and could decrease the gray area regarding the open category of "not forbidden" that might need further explanations, and hence it can help in defining the open aspect to become clearer and more practical.

Malaysia, as the leader in the halal industry, had introduced a guideline to control the application of halal certification and logo for cosmetic products. Cosmetic and personal care is one of the seven Malaysia's halal certification schemes offered by JAKIM (10). However, detailed practical descriptions of "tayyib" and its rational association with "halal" have not been well clarified. Alzeer et al. (11) introduced a practical description and application of "halal—tayyib" relationship that considered halal as a subject and tayyib as a process. This should lead to consider "clean and pure food" as the main objective in achieving the main goal of the comfortable feeling.

Regarding cosmetics, this description can be related to the element of safety in the sense that cosmetics and personal care products should be nontoxic and pose no risk under normal use (11). Besides the element of safety, the source of ingredients in cosmetic production is the main factor for halal certification and recognition. In the overall design of cosmetic products, a careful selection of active ingredients and an evaluation of potential ingredients are critical steps (12). In addition, the complexity of the formulation and the variety of the ingredients of cosmetic products may contribute to difficulties in the adulteration verification. And finally, the ingredients found in cosmetic products may also provoke health and environmental effects that have prompted this study to highlight the ingredients as one of the major factors requiring the attention of the halal guidelines (13–15).

The objective of this study was to provide information about the halal cosmetic area in relation to health risk and halal status by identifying the critical points for the ingredients of halal cosmetic. The first step is to identify the differences between halal and general cosmetics and their classifications, followed by a discussion of issues related to the safety of cosmetic ingredients that may affect the halal status of the cosmetic product. The significant role of this study is to provide information on the importance of producing halal cosmetic products that have attracted the interest of consumers globally in the halal beauty industry.

# MATERIALS AND METHODS

The data were collected from primary and secondary sources, namely, the regulation and standard from the authority's bodies in Malaysia, academic journals, and reference books related to Islamic studies. The main documents that were analyzed include Malaysian

Standard MS 2634:2019 (the new Malaysian Standard for cosmetic that replaced MS 2200) (16), Manual Procedure for Malaysia Halal Certification (10) issued by the Department of Islamic Development Malaysia (JAKIM), and Guidelines for Control of Cosmetic Products issued by the National Pharmaceutical Regulatory Agency (NPRA) under the Ministry of Health of Malaysia. From the documents, related themes and classification were identified in assisting the determination of halal status for the cosmetic ingredients' evaluation process.

#### RESULTS

THE CRITICAL POINTS OF THE DIFFERENCES BETWEEN HALAL AND GENERAL COSMETICS AND THEIR CLASSIFICATIONS

Table I describes the four critical points of the differences between halal cosmetic and general cosmetic. According to Pandagel et al. (17), the main control points are ingredients and utilities that are put in contact with the products. However, this study identified four critical points of differences, namely, (i) ingredient, (ii) processing, (iii) safety, and (iv) ethics and responsibility.

Based on the JAKIM guideline (10) and MS 2634 (16), the source of ingredients can be categorized into *halal*, *haram*, and *syubhah* (18). Meanwhile, other categories are used by the NPRA (19), which are safe—allowed with limitations and allowed due to technically unavoidable—and prohibited ingredients. The different categories are due to the different perspectives and responsibilities by different authority bodies. For example, JAKIM focuses on the halal aspect; thus, the categories are closed to Islamic terms, namely, halal (permitted), haram (prohibited), and *syubhah* (gray area or critical). However the NPRA focuses on health and safety; thus, the categories are safe, allowed with limitations, and prohibited.

The processing and safety aspects are also part of the characteristics of the ingredients that are included in the manufacturing protocol because of their impact on the end product to achieve the halal status. For example, a product that uses all permitted ingredients will be categorized as a halal product. However, if a product is contaminated with prohibited materials such as filth (*najs*) or non-halal additive, then it can be categorized as *syubhah* or critical product that needs further evaluation.

In that sense, an ethical and responsible worker or person in charge needs to examine and evaluate all the source of origins and procedures. Even though ethics and responsibility are not emphasized, they are also part of the process that leads to clean and pure halal product in generating the comfortable feeling to meet the main objective of *halal–tayyib* (11).

In short, the utilities aforementioned can be defined as the related process of cosmetic formulation and manufacturing, including the safety impact of ingredients to the health, processing impact to the halal status, and ethics and responsibility of the manufacturers or industry players that affect the whole *halal—tayyib* relationship of the cosmetic products (10,11,16). This is the main reason that Malaysia is applying the concept of "halal built-in" in the halal cosmetic certification. "Halal built-in" is a systematic approach to the halal product development which begins with the predefined objectives by the management (16).

Table I
The Critical Point of Difference between Halal Cosmetic and General Cosmetic

No	Point of differences	Hal	al cosmetic	General cosmetic
1	Referred document	10	16	18
2	Definition	for the specification mer to six). However, there a of cosmetic and the place	erence between general cosmetics antioned by MS 2634 and JAKIM a are two important items in the defines and areas where the cosmetics are	s described in items (three nition, namely, the function re used.
	In contact with part of body	placed in contact with	re means any substance or prepar various external parts of the hum , nails, lips, and external genital s of the oral cavity	nan body (including
	Function		sternal parts of the human body, ance or correcting body odours, an condition	-
3	Ingredients	This document presented six requirements of raw materials, ingredients, and processing aid.	Section 4.0 elaborated that halal cosmetics are cosmetic products that contain ingredients permitted under the Shariah law and fatwa and fulfill the seven stated conditions (having a clear status of halal and haram because of the clear statement in the Quran).	This document listed seven prohibited substances and the traces of substances that are allowed because of the presence that is technically unavoidable in GMP. It conforms to the safety requirements.
	Allowed with limitation	No specific section related to this topic.	Section 4.2 elaborated that the materials or ingredients used in the halal cosmetics further explained the allowed ingredients mentioned in the Quran that have consensus due to the status of halal and haram. For examples:  (i) cosmetic originated from GMOs or GMOs by the product or ingredients made by manipulating the genetic material of animals that are non-halal by Shariah law and fatwa, and (ii) animal (and plant) toxins or poisons are permitted after the elimination or removal during the processing (as permitted by Shariah law).	This document listed substances and other ingredients that are allowed to be used within the limits and stated the conditions such as coloring agents, preservatives, and UV filters.
4	Processing of ingredients	Five items identified may affect the halal recognition and halal status, namely	Five items identified may affect the halal recognition and the halal status, namely	No specific section but the overall procedure for cosmetic products must comply with the GMP requirements.
		(i) Production record that is consistently updated,	(i) Hygiene, sanitation, and safety in the manufacturing and handling of halal cosmetics,	

Table I Continued

No	Point of differences	Hal	al cosmetic	General cosmetic
		(ii) preparation, handling, processing, and packaging for the storage or transfer of products shall be in compliance to the requirements by Shariah law and GMP/good hygienic practices (GHP),	(ii) equipment and processing aids,	
		(iii) no mixing between raw materials/products with non-halal materials/sources or those with uncertain halal status,	(iii) materials for halal cosmetics shall be prepared according to the GMP requirements,	
		(iv) transportation used shall be for halal products only, and (v) the use of appliances/ brushes from animal's	(iv) product manufacturing, handling, and distribution, and (v) Packaging, labelling, and advertising.	
		hair is not allowed.	All must follow the requirements stated in the specified clause in the document.	
5	Safety of ingredients	The first requirement of raw materials/ ingredient/ processing aid is as follows: to ensure raw material/ ingredient sources are halal and safe.	No specific section but each ingredient and material used in halal cosmetic must not cause harm or hazard to health and should not be poisonous.	A cosmetic product placed in the market must not cause damage to human's health when applied under normal or reasonably foreseeable conditions of use. The cosmetic Notification Holder (CNH) shall ensure that the safety assessment is conducted for each product <sup>a</sup> .
6	Ethics and responsibility	Related to the responsibility that should be accomplished by manufacturers such as Internal Halal Committee and establishing the halal assurance system with reference to halal assurance System (HAS) 2011.	Management responsibilities are listed in Section 4.1 that includes training, sufficient resources, traceability of document records, religious obligation practices are allowed, and integrity is preserved by each member of the company, including the company's suppliers and distributors.	There are 13 responsibilities of CNH, and the requirement related to the ingredients, safety, and halal status must be fulfilled.

<sup>&</sup>lt;sup>a</sup> Please refer to Annex I, part 6 for Guideline for Safety Assessment of Cosmetic Product.

#### ISSUES AND FACTORS AFFECTING THE HALAL STATUS OF A COSMETIC PRODUCT

In halal status verification either for food, cosmetic, or pharmaceutical, *etc.*, it is suggested to integrate the ingredient verification with the halal supply chain (HSC) to ensure that halal products are not in the gray area. HSC is a process for ensuring that all raw materials of halal products and services are halal and *tayyib* in the supply chain or "from farm to fork." Three main aspects to be emphasized are supply chain resources, supply chain network, and supply chain business processes (20). Therefore, the source of origin is a critical point and fundamental step in the halal cosmetic verification.

In each situation, the origin of raw materials is considered the critical aspects and highlighted by a responsible authority such as JAKIM in Malaysia in the evaluation of halal logo application (10,16). All ingredients used in cosmetic products are examined thoroughly by JAKIM officers. The specifications of halal ingredients are presented in Table II and must be fulfilled to be acknowledged as halal cosmetics. Halal cosmetics must not contain ingredients derived from pig, carrion, blood, human body parts, predatory animals, and reptiles, which all are known as haram components (16). This might be interesting to compare with the western world's cosmetic industry, where a consensus has been reached not to use animal-derived ingredients at all.

Further analyses of all eight conditions were based on the origin of ingredients and their uses. The specification of halal extracted from Shariah law is related to specification numbers one to five. Specification number six is related to safety, specifications numbers seven and eight are included in the utilities and processing criteria, and all of them are part of *tayyib* elements. Halal is not standalone and must be followed with *tayyib* elements such as cleanliness, absence of filth, and does not contain hazardous or poisonous materials that affect health and well-being.

One of the challenges in cosmetic products is to determine whether the ingredients of a product are derived from synthetic or natural sources. Generally, there are two main categories of ingredients used in cosmetics, namely, active (functional) ingredient and excipient (inactive or additional) ingredient. Functional ingredient is the main cosmetic substance that can give the desired effect or the stated claim of a product. For instance, products claimed to have whitening effect might use arbutin and kojic acid as their functional ingredients. On the other hand, excipient ingredients have versatile functions, and can be used as preservatives, stabilizers, emulsifiers, thickeners, moisturizers, pigment agents, and fragrances.

Besides that, some ingredients can be used as active or excipient ingredients depending on their functional effects on the product. For example, gelatine and collagen can be used as active ingredients in anti-ageing products or as excipients such as thickeners or emulsifiers in other kinds of products. In addition, thousands of different ingredients can be used in a product, and this situation needs a competent, knowledgeable, and responsible person to evaluate the ingredients in halal and general cosmetic products for the safety and health risk aspects (11).

Other than that, issues related to contaminants or trace ingredients are allowed because of technically unavoidable situations in the formulation or manufacturing process related to health hazards. In certain situations, the health hazard of cosmetic products is sometimes neglected or ignored. Another concern is the limited information on the health effects of long-term exposure to certain ingredients in cosmetics due to the low numbers

Table II
The Specification of Halal Cosmetic Ingredients Extracted from MS2634:2019 and Manual Procedure of JAKIM

No	Specification	MS2634 (16)	Manual procedure for Malaysia Halal Certification-JAKIM (10)
1	Not contain prohibited animal (and its derivatives)	Do not consist of or contain any part of an animal that is prohibited by Shariah law and fatwa for the consumption of Muslims.	Neither consist of nor contain any part or matter of an animal that is prohibited by Shariah law for the consumption of Muslims.
2	Slaughtered animal (and its derivatives)	Any part of an animal that is slaughtered in accordance with Shariah law and fatwa.	Any part of an animal that is not slaughtered in accordance with Shariah law and fatwa is prohibited.
3	Not contain najs	Do not contain anything which is <i>najs</i> according to Shariah law and fatwa. <i>Najs</i> is a material that is impure according to Shariah law and fatwa.	Do not contain anything which is impure/ najs according to Shariah law and fatwa. Najs means impurity such as blood, urine, and faeces. In Shariah law, najs means all impurities that nullify prayers.
4	Do not intoxicate	Do not intoxicate according to Shariah law and fatwa.	Do not intoxicate according to Shariah law and fatwa.
5	Do not contain part of human being	Do not contain any part of a human being or its yield which is not allowed by Shariah law and fatwa.	Do not contain any part of a human being or its yield which is not allowed by Shariah law and fatwa.
6	Not poisonous or hazardous	Not poisonous or hazardous to health.	Not poisonous or hazardous to health.
7	Not contaminated with najs	Not prepared, processed, or manufactured using any instrument that is contaminated with <i>najs</i> according to Shariah law and fatwa.	Not prepared, processed, or manufactured using any instrument that is contaminated with <i>najs</i> according to Shariah law and fatwa.
8	Process not mixes with prohibited items	Not in the course of preparation, processing, or storing been in contact with, mixed, or close to any materials that fail to satisfy items (1) and (2).	Not in the course of preparing, processing, or storage been in contact with, mixed, or close to any foods that fail to satisfy paragraph numbers (1) and (2).

of studies related to long-term effect (15,21). This is the reason why safe products are the basic requirement of regulatory, halal, and quality control parameters in producing cosmetic products (16,19).

There is no problem if the material used is safe and its effectiveness is proven, but the concern is on the use of restricted or prohibited materials such as heavy metals. There were frequent reports on cosmetic product violations related to the prohibited ingredients found in the cosmetic that impacted safety; thus, there is the need to obtain information from the regulation and manufacturers' compliance perspectives. This situation indicates that sometimes the halal status of products is questionable because of the use of ingredients such as hydroquinone and steroids as active ingredients which are highly toxic, especially after prolonged applications (21–27).

Besides that, cosmetic products that use synthetic additive or chemicals in excessive amounts or beyond the limitation that are sometimes hazardous are prohibited by a number of countries such as the NPRA of Malaysia, European Union Regulation, and the Food and Drug Administration of the United States because of the health risk it possess (14,19,28). This aspect may also affect the halal status because another important element of halal cosmetic is to use harmless ingredients whether they are active or inactive ingredients. Thus, it is important to discuss and instill ethics in the whole aspect of halal compliance. Remote responsibility can act as a safeguard against misuse, mistreatment, and destruction.

All cosmetic products must contain safe ingredients, be manufactured under good manufacturing practice, and undergo an adequate safety assessment to comply with the regulatory requirement and halal and quality control before they are released to the market (16,19). Therefore, the aspect of ingredient for either the source or process, along with the ethics of manufacturer, need to be integrated and elaborated to have a comprehensive understanding of the *halal–tayyib* relationship and concept. Table III describes the integrated halal cosmetic matrix for halal status determination.

# DISCUSSION

The main critical point for the differences between general and halal cosmetic is the origin of raw materials because it is the key aspect of the final cosmetic product. The origin of ingredients is always a vital aspect among Muslims because of the impact on daily religious activities such as *solat* (pray). The aspect of purity and cleanliness are important elements highlighted in the Islamic teachings. The other important points for the differences are *toyyib* characteristics that functioned as the complementing aspect of halal in ensuring the best quality of the product.

In regard to the classification of ingredients, the authorities such as the NPRA Malaysia and Cosmetic Ingredient Review that have different categories of cosmetic ingredients, namely, safe, prohibited, and allowed with limitations (19), and safe as used, safe with qualification, unsafe, and unknown (18). JAKIM Malaysia has an internal categorization for the internal use, namely, critical (animal-based), semicritical (plant- or animal-based mixture with unspecified excipients), and noncritical (plant-based) (29). Other than that, researchers such as Sugibayashi et al. (30) categorized the sources of ingredients into halal (permitted), haram (prohibited), and critical (gray area). He used critical to highlight the uncertain sources of ingredients. Pandagel et al. (17)categorized halal cosmetics into three, namely, halal, haram, and mushbooh.

This study suggests three categories of cosmetic ingredients, namely, halal-safe, haram-prohibited, and critical-need for further evaluation. Critical is under *syubhah* items or any substances that are doubted in either their sources of origin or process of synthesis that are nonconforming to the halal system. Critical is divided into semi-critical and critical by looking at the level of halal status verification for the origin of raw materials. The further evaluation of the ingredients under *syubhah* or critical can either be document verification or laboratory analysis. The result can either be halal or haram depending on the verification for the origin of ingredients.

The ingredients of a cosmetic product that fulfill all the requirements in halal cosmetic matrix are classified as halal-safe and eligible to be acknowledged as a halal cosmetic. If

Table III
Halal Cosmetic Matrix for Halal Status Determination

		Cosmetic products		
Evaluation Risk assessment	Specifications Safety Prohibited-unsafe	Allowed Safe	Because technically	With limitations
Item(s)	List of poisons	All ingredients that are not stated as prohibited (unsafe and list of poisons).	unavoidable Presence of traces of substances bcause of being technically unavoidable in GMP.	Limitation of concentration due to the impact on the users.
	Ingredients are used beyond the specified limits and outside the conditions		Conform to safety requirements.	Substances and other ingredients used within the limits within the stated conditions and they conform to the dates as stated in the regulation.
	Negative health impacts	No negative health im	pacts	
Ingredients	Source of origin  Haram-not allowed- prohibited	<i>Halal-</i> allowed- permitted	Syubhah-gray area-need further evaluation	
	(according to Shariah law and fatwa)	Noncritical	Semi-critical	Critical
		Plant-based and other materials	Plant-based, animal-based, or other materials mixed with unspecified items	Animal-based
Item(s)	Prohibited animals (e.g., pigs and dogs and their descendants and derivatives) Blood and its	All types of plants and plant products and their derivatives are halal.	Animals are divided into two categories: land and aquatic animals.	
	derivatives Intoxicate/alcoholic drinks ( <i>khamr</i> )		Animals that are incontinually fed w	tentionally and/or ith <i>najs</i> or filth are
	Predatory animals (e.g., eagles and owls) or animals with long pointed teeth or tusks (e.g., tigers, bears, cats, and monkeys)	Other materials, including materials for cosmetics that contain alcohol excluding alcoholic drinks (khamr).		
	Pests or/and poisonous animals (e.g., rats, snakes, and wasps)	,		

Table III Continued

		Cosmetic products	
	Creatures that are considered repulsive (e.g., lice and flies) Carrion or any part of an animal that has not been slaughtered	All types of microorganism and their by-products and/or derivatives.	Cosmetics containing products and/or by-products of genetically modified organisms (GMOs) or made by manipulating genetic materials of non-halal animals are considered not halal.
	Any part of a human being or its yield Anything which is <i>najs</i> or filth or farmed halal animals that are intentionally fed with <i>najs</i>	All minerals, chemicals and synthetic, all sources from soil and water, and their by-products.	All items can either be haram-prohibited or halal-permitted depending on the source of origin and processing procedure.
Production	Poisonous or hazardous to health Prohibited	health.	e poisonous, intoxicated, or hazardous to nonitored. It is related to the <i>toyyib</i> aspect.
procedure Item(s)	Prepared, processed, or manufactured using any instrument that is contaminated with <i>najs</i> or in contact with non-halal substances during its preparation and/or mixed with materials that are decreed as <i>najs</i>	substances during its preparation.	
Ethics and responsibility Item(s)	is related to the toyyib	egrity in each section is preserved (comply with HAS and halal	

an ingredient falls under one of the haram-prohibited metrics, it is required to fix the noncompliant aspects. If all the raw ingredients are halal but non-*toyyib*, either it is poisonous or hazardous to human's health and environment or contaminated with *najs*; thus, the cosmetic cannot be certified as a halal cosmetic. Some of the critical or *syubhah* ingredients are presented in Table IV.

Non-tayyib products such as products containing restricted ingredients or traces of heavy metals like mercury, arsenic, or hazardous and harmful ingredients are not recommended to be used. They can be categorized as syubhab or critical that needs further evaluation because of the impact of safety such as causing harm to consumers and having health risks. From the Islamic jurisprudence point of view, it is advisable to place the doubtful substances under the category of makruh (reprehensible) or avoided until further information become available to clarify the position (9).

Table IV Syubhah-Critical Ingredients in Halal Cosmetic (Adapted from Refs. 18, 29, and 30)

No	Ingredients	Function	Source of origin	Safety aspect (CIR)
1	Allantoin	Active, moisturisers	Might be derived from unspecified animals' urine. Uric acid from cows or most mammals. Halal if it is from plants (especially comfrey).	Safe for use as a cosmetic ingredient.
2	Collagen	Active, moisturisers	A protein found in cartilage and other connective tissues or fibrous protein. May be porcine-derived or human-derived collagen. Halal if it is marine-derived collagen.	Safe as a cosmetic ingredient.
3	Keratin	Active, moisturisers	A protein derived from hair, wool, horn, nails, or other similar tissues in animals.	Allowed to use under EU regulation, except for hydrolysed hair keratin due to the human's origin.
4	Urea	Active, moisturizers	Might be derived from unspecified animals. Excreted from urine and other bodily fluids.	Safe to be used in cosmetics and personal care products.
5	Vitamin E/ Tocopheryl acetate	Active, moisturizers	Might be produced from non-halal processes (e.g., the use of lipase or unspecified origin of precursor materials).	Safe to be used in cosmetics and personal care products.
6	Hyaluronic acid	Active,	Might be derived from unspecified	Safe to be used as cosmetic
7	Azelaic acid	moisturizers Active, moisturizers	animal tissues.  Might be derived from oleic acid of unspecified animal origin.  Haram if it is contaminated with Malassezia furfur.	ingredients.  Determined safe for use in cosmetics and subjected to concentration or limitations.  Distinction between safe concentration in leave-on and rinse-off.
8	Lanolin/ lanolin alcohol	Emulsifiers, moisturizers, thickeners	A refined derivative of the fat-like sebaceous secretion of sheep. May be derived from non-halal slaughtered animals. Halal if it is obtained from living animals.	Safe for use in cosmetics and personal care products.
9	Gelatin	Thickeners	Might be porcine-derived gelatine. Halal if it is derived from fish.	Allowed to be used in any way under the rules governing the cosmetic products in the EU, except for monoalkanolamine and water-soluble zinc salt.
10	Palmitic acid	Thickeners, moisturizers, emulsifiers	May be derived from unspecified animal. Halal if it is plant-derived.	Safe for use in cosmetic products.
11	Xanthum gum	Thickeners	Haram if contaminated with fermenting bacterium. Halal if uncontaminated and obtained from natural aerobic fermentation.	Safe to be used in cosmetics and personal care products.
12	Stearic acid/ stearyl alcohol	Emulsifiers, moisturizers	May be porcine-derived. Halal if it is plant-derived.	Safe for use in cosmetic products.
13	Oleic acid	Emulsifiers, moisturizers	May be porcine-derived.	Safe to be used as a cosmetic ingredient under the present conditions of concentration and use.

Table IV Continued

No	Ingredients	Function	Source of origin	Safety aspect (CIR)
14	Glyceryl stearate	Emulsifiers, moisturizers	May be derived from glycerine and stearic acid of unspecified animal origin.	Safe to be used in cosmetics and personal care products.
15	Vitamin A/ Retinyl palmitate	Moisturizers	May be derived from animal fats. Halal if it is from fish liver oil and plants (contain beta-carotene).	Safe for use in cosmetic products.
16	Cetyl alcohol	Thickeners	May be derived from palmitic acid of unspecified animal origin,	Safe for use as cosmetic ingredients.
17	Glycerin/ glycerol	Solvents	May be porcine-derived.	Safe for use in cosmetic products.
18	Ethanol	Solvents, preservatives	May be from plant natural aerobic fermentation or synthetic ethanol.	Safe as a cosmetic ingredient in the present practices of use and concentration that is generally <1%.
19	Propylene glycol	Solvents	May be derived from glycerol of unspecified animal origin.	Safe for use in cosmetic products when formulated to be nonirritating to the skin.

In the halal certification application and process, the complete documentation on the origin of ingredients and the overall cosmetic production process are the vital aspects that should be complied by manufacturers (16,19). Besides that, it is important to highlight the aspect of cosmetic safety to be in line with the raw materials or sources of ingredients. For the global well-being, it is recommended that manufacturers ponder on the long-term effect of ingredients by studying the halal guidelines before manufacturing and selling the cosmetic products. Figure 1 describes the process of halal status determination.

There is a need to highlight the impact of ingredients to consumers and environment to maintain the quality of halal cosmetics. In certain cases, the safe ingredients may not be halal because they may originate from prohibited animals such as collagen, glycerine, allantoin, or hyaluronan (29). However, if it is originated from the synthetic process, it is considered halal. This issue can lead to the next question whether it is safe for consumption besides determining the health risk for long-term and short-term application. Ethics is considered important to manufacturers to ensure the compliance and maintain the halal integrity and quality. Ethics help to produce *tayyib* or wholesome products rather than relying only on halal aspect.

In short, manufacturers need to understand the parameters of halal and haram and the components of *halal—tayyib* in producing halal product, particularly halal cosmetics. The understanding can help in the selection of ingredients and the halal status determination of ingredients used in cosmetic products. Halal is an ingredient that fulfills the specifications of Shariah law or the subject. *Tayyib* is all the aspects related to processing, safety, ethics, and responsibility or a process that leads to clean and pure items as a result of generating the sense of comfort.

### CONCLUSION

Halal is not a privileged product that is produced only for Muslims but for all consumers around the world. The main objective of halal specifications is to protect the consumers'

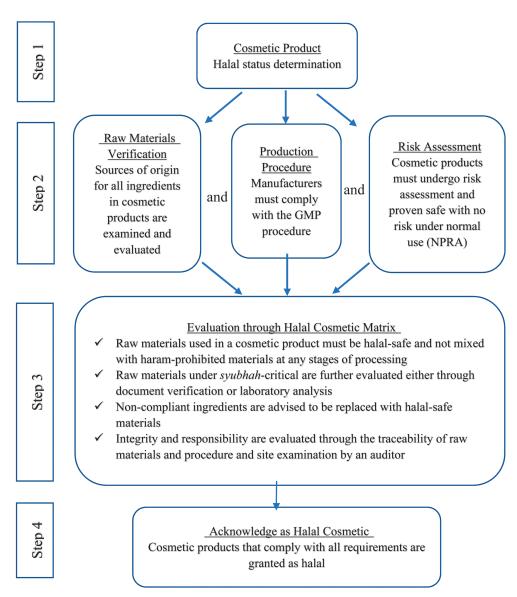


Figure 1. Practical steps in halal status determination of cosmetic products.

well-being through producing high-quality products. The western world's cosmetic industry also has developed guidelines and consensus and regulatory statements meant to protect consumers against harmful products. Some of these guidelines differ from halal principles, some do agree with halal principles, and some are even more strict than halal guidelines. Understanding the basic principles and critical points of halal can help manufacturers and others to better understand the philosophy, process, and practical aspect of halal cosmetics, thus making it as a guideline in producing halal cosmetics. Halal cosmetic is also sustainable because it combines the ingredients of products and their impacts, and the ethics and responsibility of the producer.

# ACKNOWLEDGMENTS

The authors would like to thank their colleagues from the Department of Science and Technology Studies, UM, and University Malaya Halal Research Centre (UMHRC) for their assistance with the references and comments that are greatly helpful in producing this manuscript.

Author contributions: F.N.M.N. helped in conceptualization, methodology, analysis, and writing; and C.W.J.W.M.R. performed supervision.

Funding: This work was financially supported by the University of Malaya Research grant under Grand Challenge for Humanities Research Cluster (GC002C-17HNE).

# REFERENCES

- (1) Environmental Working Group, Exposures Add up Survey Results (2016), accessed July 15, 2019, https://www.ewg.org/testimony-official-correspondence/ewg-testimony-exploring-current-practices-cosmetics-development#\_ftnref.
- (2) Mercola, Women Put an Average of 168 Chemicals on Their Bodies Daily (2015), accessed July 15, 2019, http://articles.mercola.com/sites/articles/archive/2015/05/13/toxic-chemicals.
- (3) P. Hashim and D. Mat Hashim, A review of cosmetic and personal care products: halal perspective and detection of ingredient, *Pertanika J. Sci. Technol.*, 21(2), 281–292 (2013).
- (4) Grand View Research, Skin Care Products Market Size, Share & Trends Analysis Report, By Product (Face Cream, Body Lotion), by Region (North America, Central & South America, Europe, APAC, MEA), and Segment Forecasts, 2019–2025 (2019), Market Research Report. Report ID: 978-1-68038-902-9. accessed May 31, 2019, https://www.grandviewresearch.com/industry-analysis/skin-care-products-market.
- (5) M. A. Hassali and S. AL-Tamimi, Malaysian cosmetic market: current and future prospects, *Pharmaceut. Reg. Affairs.*, 4(4), 4–6 (2015).
- (6) S. Ali, F. Halim, and N. B. Ahmad, Beauty premium and halal cosmetics industry, *J. Market. Manag. Consumer Behav.*, 1(4), 52–63 (2016).
- (7) M. R. Haliza, Beauty or health? A personal view. Malay. Fam. Phys., 1(1), 42-44 (2006).
- (8) Mordor Intelligence, Halal Cosmetic Products Market Trends, Growth, Share, Industry Analysis (2017–2022) 2017, accessed September 6, 2020, https://www.mordorintelligence.com/industry-reports/halal-cosmetic-products-market.
- (9) M. H. Kamali, The Parameter of Halal and Haram in Shariah and the Halal Industry, (The International Institute of Islamic Thought, London, United KIngdom, 2013).
- (10) JAKIM, Manual Procedure for Malaysia Halal Certification (Third Revision), Jabatan Kemajuan Islam Malaysia, Putrajaya, Malaysia (2014).
- (11) J. Alzeer, U. Rieder, and K. A. Hadeed, Rational and practical aspects of Halal and Tayyib in the context of food safety. *Trends Food Sci. Tech.*, 71, 264–267 (2018).
- (12) A. Kowcz, G. Schneider, W. Pape, and T. M. Weber, "Bench to beauty counter: development of cosmeceuticals," in Cosmeceuticals and Cosmetic Practice, P. K. Farris. Ed. (John Wiley & Sons, West Sussex, United Kingdom, 2014).
- (13) Z. Zakaria, Regulation of cosmetics: what has Malaysia learnt from the European system? *J. Consumer Policy*, 38(1), 39–59 (2015).
- (14) C. Juliano and G. Magrini, Cosmetic ingredients as emerging pollutants of environmental and health concern, *A mini-review. Cosmetics.*, 4(4), 11 (2017).
- (15) S. R. Zulaikha, S. N. Syed Ismail, and S. M. Praveena, Hazardous ingredients in cosmetics and personal care products and health concern: a review. *Public Health Res.*, 5(1), 7–15 (2015).
- (16) Malaysian Standard MS2634, Islamic Consumer Goods Part 1: Cosmetic and Personal Care–General Guidelines (Department of Standards Malaysia, Selangor, Malaysia, 2019).
- (17) F. Pandagel, N. Waranuch, and P. Plianbangchang, Categorization of Cosmetic Products According to Halal Principle, Naresuan University, Thailand, 21-22 July, (2013).
- (18) Cosmetic Ingredient Review (CIR), accessed July 15, 2019, https://cosmeticsinfo.org/cir.
- (19) NPRA, Guidelines for Control of Cosmetic Products in Malaysia (NPRA, Petaling Jaya, Selangor, 2017).

- (20) M. Tieman, The application of halal in supply chain management: in-depth interviews. *J. Islamic Market.*, 2(2), 186–195 (2011).
- (21) American Cancer Society, Cosmetics, accessed October 8, 2020, https://www.cancer.org/cancer/cancer-causes/cosmetics.html. (2014).
- (22) National Pharmaceutical Regulatory Agency (NPRA) (2019), Pembatalan Notifikasi Produk Kosmetik, accessed July 15, 2020, https://www.npra.gov.my/index.php/en/consumers/safety-information/cancellation-of-notified-cosmetic-products.html.
- (23) P. Hashim, N. Shahab, T. Masilamani, R. Baharom, and R. Ibrahim, A cosmetic analysis in compliance with the legislative requirements, halal and quality control. *Malay. J. Chem.* 11(1), 81–87 (2009).
- (24) C. R. Hamann, W. Boonchai, L. Wen, E. N. Sakanashi, C. Y. Chu, K. Hamann, P. Hamann, K. Sinniah, and D. Hamann, Spectrometric analysis of mercury content in 549 skin-lightening products: is mercury toxicity a hidden global health hazard? *J. Am. Acad. Dermatol.*, 70(2), 281–287.e3 (2014).
- (25) Y. B. Ho, N. H. Abdullah, H. Hamsan, and E. S. S. Tan, Mercury contamination in facial skin lightening creams and its health risks to user. *Regul. Toxicol. Pharmacol.*, **88**, 72–76 (2017).
- (26) I. Al-Saleh, Potential health consequences of applying mercury-containing skin-lightening creams during pregnancy and lactation periods. *Int. J. Hyg Environ. Health*, 219(4–5), 468–474 (2016).
- (27) World Health Organization, Mercury in Skin Lightening Products (Geneva, Switzerland: WHO 2019), accessed July 15, 2020, https://www.who.int/publications/i/item/WHO-CED-PHE-EPE-19.13. 2011.
- (28) R. Siti Zulaikha, S. I. Sharifah Norkhadijah, and S. M. Praveena, Hazardous ingredients in cosmetics and personal care products and health concern: a review, *Public Health Research*, 5(1), 7–15 (2015).
- (29) Adzlina, Halal certification for cosmetic products, Seminar Kosmetik Halal, presented on November, 15, (Universiti Malaya Halal Research Centre & JAKIM, 2019).
- (30) K. Sugibayashi, E. Yusuf, H. Todo, S. Dahlizar, P. Sakdiset, F. J. Arce, and G. L. See, Halal cosmetics: a review on ingredients, production and testing methods. *Cosmetics*, 6(37), 1–17 (2019).