

Alternative Ingredients in *Halal* Cosmetics and Medicine

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Abstract

Rising disposable incomes has increased demand for consumer goods, which include *halal* cosmetics, medicine and services besides *halal* food consumption. This provides opportunities for growth in the ingredient sector. The global market for flavours and fragrances has grown by a compounded annual growth rate of 6.6% per annum, reaching USD11.27 billion in 2006. During the same period, the market for food emulsifiers grew by 4.75% while the market for food enzymes grew by 4.3%. This growth trend is expected to continue, given the continuing increase in the demand for cosmetics and medicine besides food for the increasing population globally. The global market value for ingredients was USD30.3 billion in 2005, and is expected to rise to USD34.2 billion in 2010.

The sources and *halal* status of ingredients have a critical bearing on whether a product is *halal* or otherwise. The demand for innovative ingredients remains stable regardless of whether the cosmetic sector is doing well or not. Many potentially *halal* products become non-*halal* through the use of non-*halal* ingredients for example oleochemical, collagen and gelatine from pork or non-*halal* beef origin. In addition to *halal* issues, there is increasing concerns on consumer safety and a backlash against the use of carcinogenic chemicals. Medicines, like cosmetics also utilize more or less the same ingredients, which are mostly manufactured in non-Muslim countries. While the general principle that in the case of a life-threatening emergency, one is allowed to consume prohibited (haram) products, but it does not absolve Muslims from their religious obligation and ethical duties to develop a totally *halal* medical industry.

In moving forward, critical moves will be to develop alternative ingredients from *halal* sources such as palm oil derivatives (e.g. coenzyme Q10, *halal* animal fat replacers, and *halal* emulsifiers), fish byproducts, seaweed and new technologies to replace current shortage. According to the Malaysian Halal Cosmetics Standard (MS2200: 2008), “the sources of ingredients for *halal* cosmetic products can include *halal* animals (land and aquatic), plants, microorganism, alcohol, chemicals, soil, and water as long as they are not hazardous and *najs*.” The presence of alcohol, specifically ethanol, in cosmetics is of very great concern among Muslim consumers. According to Malaysian Standard (DSM, 2008), industrial alcohol is permitted.

The *Halal* Product Research Institute, Universiti Putra Malaysia is currently focusing on researching for alternative ingredients such as alternative enzymes from plants, alternative gelatine from aquatic animals and the alcohol content in consumer products to resolve problems of non-*halal* protein and lipid sources. The emphasis in R&D is on producing *halal* protein and lipid innovations for example emulsifiers from *halal* lipids which functions similarly to non-*halal* sources. The study on organized supply chain for *halal* animal parts to supply *halal* gelatine manufacturers is also useful to build in *halal* integrity right from the farm level.

Keywords: *Halal* ingredients, protein, lipids

Introduction

Rising disposable incomes has increased demand for consumer goods, which include *halal* cosmetics, medicine and services besides *halal* food consumption. This provides opportunities for growth in the ingredient sector. The global market for flavours and fragrances has grown by a compounded annual growth rate of 6.6% per annum, reaching USD11.27 billion in 2006. During the same period, the market for food emulsifiers grew by 4.75% while the market for food enzymes grew by 4.3% (Figure 1). This growth trend is expected to continue, given the continuing increase in the demand for cosmetics and medicine besides food for the increasing population globally. The global market value for ingredients was USD30.3 billion in 2005, and is expected to rise to USD34.2 billion in 2010.

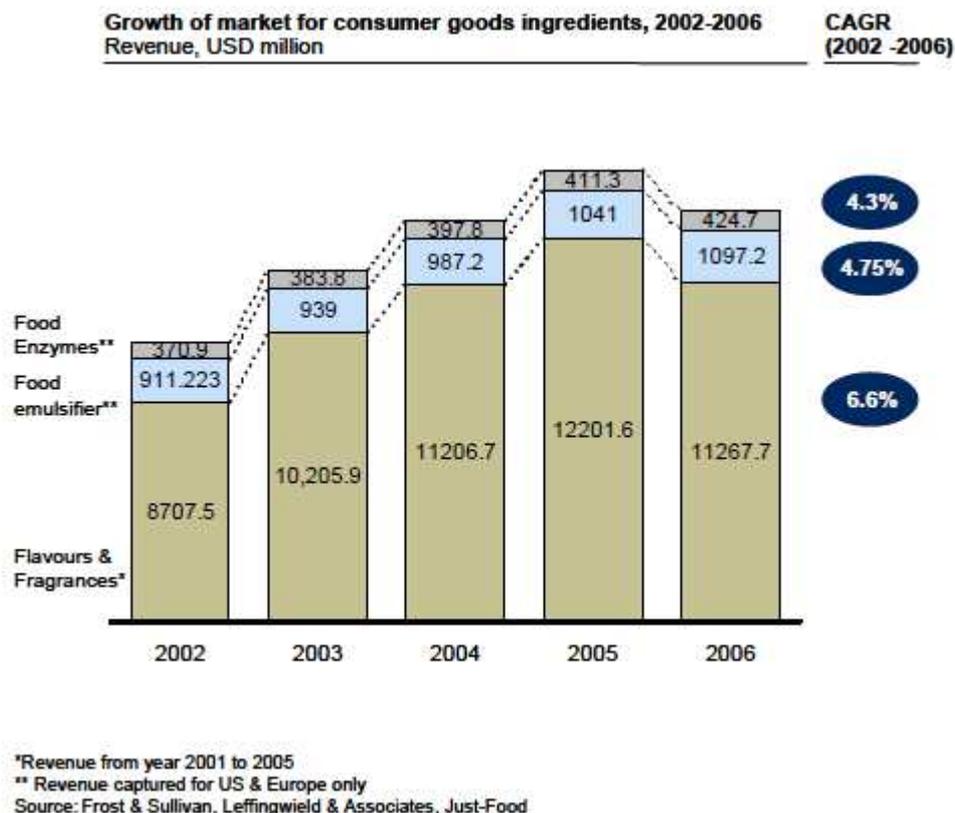


Figure 1: Market for top three ingredients

Critical Issues on Halal Ingredients

The sources and *halal* status of ingredients have critical bearing on whether a product is *halal* or otherwise. The main sources of *halal* cosmetics and medicines are animal, plant, natural and chemical substances of which, some are *halal* and some are not (Table 1). The demand for innovative ingredients remains stable regardless of whether the cosmetic sector is doing well or not. Many potentially *halal* products become non-*halal* through the use of non-*halal* ingredients for example oleochemical, collagen and gelatine from pork or non-*halal* beef origin. In addition to *halal* issues, there is increasing concerns on consumer safety and a backlash against the use of

carcinogenic chemicals. Medicines, like cosmetics also utilize more or less the same ingredients, which are mostly manufactured in non-Muslim countries. While the general principle that in the case of a life-threatening emergency, one is allowed to consume prohibited (haram) products, but it does not absolve Muslims from their religious obligation and ethical duties to develop a totally *halal* medical industry.

Table 1: Critical ingredients in halal cosmetics and medicine

Critical Ingredients	Function	Sources
Gelatine	Capsules, emulsifier, filler	1. Skin, bones, joints (bovine, porcine). Collagen derivatives. 2. Vegetables
Glycerine Glycerol	Diluent, antibacterial, sweetener, preservatives (found in syrup, toothpaste, soaps, shampoo)	1. Lard 2. Vegetables 3. Byproducts of biodiesel productions
Alcohol (ethanol - drinks) (methanol-reagent)	Solvent, Antiseptic	1. Fermentations 2. Chemicals
Stearates e.g Magnesium, Stearic acid, calcium	Lubricants Binder	1. Animal Fats, Lard or fatty acids from pig's stomach) 2. Vegetable (palm oil. Coconut, soybean, castor oil, sunflower)
Enzymes e.g. Trypsin ACTH	Media for microbial growth (TSB) Hormones, corticotrophin	1. Pig's Pancreas 2. Pig's Pituitary Gland
Heparin	Anti-Clotting Agent Also used in 'coating' in medical devices e.g. catheter, heart transplant devices	1. Pig's intestine 2. Bovine

(Source: Akasah, T. 2011)

The Malaysian Standards on Cosmetics and Pharmaceuticals

Muslim consumers are obligated to use cosmetics and medicinal products which are halal, sanitary and safe, based on the Qur'an, Surah Al-Baqarah verse 195, which means "Do not throw yourself into destruction". According to the Malaysian Halal Cosmetics Standard (MS2200: Part 1:2008, Islamic Consumer Goods – Part 1: Cosmetic and Personal Care – General Guidelines), "the sources of ingredients for *halal* cosmetic products can include *halal* animals (land and aquatic), plants, microorganism, alcohol, chemicals, soil, and water as long as they are not hazardous and *najs*." The presence of alcohol, specifically ethanol, in cosmetics is of great concern among Muslim consumers. According to MS2200:2008 (DSM, 2008), industrial alcohol is permitted.

As defined in the MS 2200:2008, **halal cosmetics** are cosmetics permitted under the Shariah law and fulfil the following conditions:

- a) No human parts or ingredients derived from there of;
- b) do not comprise of or contain any parts or substances derived from animals forbidden to Muslims by *Shariah* law, to use or to consume or from *halal* animal which are not slaughtered according to *Shariah* law;
- c) do not contain any materials or genetically modified organisms (GMO) which are decreed as *najs* according to *Shariah* law;
- d) is not prepared, processed, manufactured or stored using any equipment that is contaminated with things that are *najs* according to *Shariah* law;
- e) during its preparation, processing or manufacturing the product is not in contact and shall be segregated from any materials that do not meet the requirements stated in items a), b) or c); and
- f) do not harm the consumer or the user.

Najs is defined as things that are themselves not permissible such as dog and pig and all its derivatives, blood and carrion; things that are contaminated with things that are *najs*; things that come into direct contact with things that are *najs*; any liquid and objects discharged from the orifices of human beings or animals such as urine, placenta, excrement, blood, vomit, pus, sperm and ova of pigs and dogs (milk, sperm and ova of human and other animals are not *najs*); and carrion or *halal* animals that are not slaughtered according to *Shariah* law. (MS2200:2008).

Sources derived from halal land animals and slaughtered according to Shariah law are halal for use in halal cosmetics. Sources derived from land animals' fur, hair and related materials, which were harvested whilst the animals are still alive are considered halal. Sources derived from soil, chemicals, synthetic materials, plants and microorganisms on land, air and water, are all halal except those that are hazardous and/or mixed with *najs*.

Muslims are encouraged to seek medicines in treating any diseases based on the hadith whereby the Prophet SAW said: "There is no disease that Allah has created except that He also created its remedy" (*Bukhari* 7.582). Medicines which are made from haram materials or *najs* are haram for consumption or application according to the consensus of the Muslim jurists, because the Prophet SAW said: "Allah does not put your cure in that which He has forbidden for you." (Reported by Al-Bukhari). In view of the rising awareness of halal obligation and knowledge, the Malaysian government has published the Malaysian standard for Halal Pharmaceuticals, MS2424:2012, recently as a guideline for the stakeholders: government, industry and the consumers.

MS2424:2012 defines pharmaceuticals as "Pharmaceutical products in finished dosage forms, includes both prescription and non-prescription medicinal products for human use (ie. biopharmaceuticals, radiopharmaceuticals, traditional medicines and investigational medicinal products) which is registered with the Drug Control Authority, Ministry of Health Malaysia.

Alternative Ingredients:

1. Animal sources

Sources derived from halal land animals such as cattle and sheep, which are slaughtered according to Shariah law are halal for use in halal medicine. The raw materials such as halal cattle bones, hides and tendons are available but they are scattered throughout the world and are not being collected aggressively to produce halal gelatine, with the hope to supply the halal medical/pharmaceutical industry particularly in the use of capsules. Gelatine is sourced from animals, never from plants. It will be a good suggestion if a Collection Centre for Halal bone, hides and tendons is developed to produce halal gelatine.

Halal Gelatine sourced from fish skins was a successful research work by Universiti Putra Malaysia (Jamilah, B. 2002) but yet to be properly commercialized. Another study on other types of fish skin supply good sources of glycine (Irwandi, et al. 2009). Fish gelatine is a potential alternative ingredient to replace mammalian gelatine, for the world supply, which warrants further research and development (Karim, A.A. 2009). Apart from the land animals and the fish skins, gelatine substitutes can be sourced from plant gums such as agar-agar/carrageenan from seaweed, guar gum, acacia gum, arabic gum and xanthan gum.

2. Plant sources

All plant types and their products are deemed halal except for those, which are poisonous, intoxicating, pose a danger to human health and biotechnology produced plants using DNA derived from haram substances. Alternative plant ingredients are many but lack in research and development. One of the popular sources is seaweed, which are about 50% being cultivated for the world supply. There are now 145 species of red, brown or green seaweed are being used as food. Seaweeds are excellent sources of antioxidants, soluble dietary fibers, proteins, minerals and vitamins (Wijesinghe and Jeon, 2012). They also exhibit therapeutic properties as preventive measures in the form of anti-cancer, anti-obesity, anti-hypertensive, anti-oxidant, anti-coagulant and anti-bacterial (Suhaila, Nadia, and Hafeeda, 2012).

The other important plant source is the herbs. The World Health Organization (WHO) estimates that over 80% of the world's population uses some form of herbal medicine in treating their diseases. Medicinal herbs are being used as health benefits as they are perceived to be safe and healthy, with relatively few side effects in contrast to synthetic drugs. Herbs are common and traditionally consumed as medicines in Malaysia, India, China and other parts of Asia for hundreds of years. Its benefit as a natural antioxidant extracts which helps in wound healing, anxiety, eczema, ulcers, colds, hepatitis and fatigue is conventional.

Palm oil by-products are also potential alternative ingredients for the halal cosmetics and medical industries. Lycopene, beta-carotene and tocotrienols are examples of functional by-products of palm oil. Other palm oil by-products are glycerin, coenzyme Q10, fat replacers, monoglycerides and diglycerides as emulsifiers. Malaysia Palm Oil Board has invested heavily in R&D for palm oil derivatives to be used for the halal industry.

Moving Forward

In moving forward, concerted effort should be initiated to seriously conduct more researches and studies on aquatic animals and plant sources to develop alternative ingredients. Sources from palm oil derivatives such as coenzyme Q10, fat replacers, and emulsifiers, fish by-products and plant sources should be further researched for more yield and production to replace current haram and mashbooh ingredients in the supply chain.

On the other hand, more research and studies should be focused on ingredients which are mentioned in the Quran and the Hadith such as olive oil, honey, ajwa dates, henna, habbatus saudah and manna. These are cosmetics and preventive medicine to be used by the Muslims as guided by Allah SWT through the Prophet Muhammad SAW for the benefits of Muslims in this world and hereafter.

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