

# Preserving Halal Integrity in Herbs and Herbal Industry Supply Chain

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## ABSTRACT

The rapid development of halal industry has significantly influences people's tastes, habit, and spending patterns across the globe. Halal also influences an individual's lifestyle as it offers a wide range of options which is not only limited to food items but also healthcare products, cosmetics, logistics and financial services. Consumers nowadays do not only demand for halal products, but are also aware of the *halalan toyyibban* concept which requires every activity in the production process to be halal, safe and not harmful. However, due to the complexities of supply chain activities, the halal status of a product might be at stake. This unfortunately has triggered consumers to raise questions on authenticity and integrity of the products. The scenario is worsen by the increasing number of fraudulent halal certifications as well as the physical contamination of halal products. Hence, it is a major challenge to preserve halal integrity among its players both in the local and international markets. Thus, the main objective of this paper is to provide an in-depth review on halal food supply chain management focusing on the herbal industry. The paper also highlights the issue of halal integrity in the industry.

**Keywords:** Halal integrity, halal supply chain, herbs and herbal industry

## 1. Introduction

Malaysia is well known for its rich natural resources and dense forests. According to the Malaysian Agricultural Research and Development Institute (MARDI), the rich flora of Malaysia includes 15,000 registered plant species, of which 2,000 species have medicinal value and highly potential for commercialization (MARDI, 2010). In Malaysia, herbal related products have generated gross profits of more than RM5.4 billion in a year. Besides, it is forecasted that local herbal markets will grow around RM29 billion by 2020, 15% more than RM7 billion in 2010 (Bernama, 2013). On top of that, the 2013 World Bank Report indicated that almost 80% of the world's population depends on herbal medicines to heal their illness. Based on these facts, the herbal industry has tremendous potential to grow. Realizing the economic potential, the Malaysian government encourages herbal products initiatives under the Economic Transformation Program (ETP) which emphasizes on improving product quality and marketing efforts to tap the global demand in the dietary and herbal supplements, as well as the botanical drugs in the upstream and downstream segments.

With a unique combination of multi-racial nation, the herbal industry creates a great opportunity for the development of herbal industry. The Chinese with their traditional Chinese medicine, the Indians with their Ayurveda medicines while the Malays with traditional Malay medicines (*jamu*) and Islamic medication system. Based on a one-year survey carried out by the Forest Research Institute of Malaysia (FRIM) in 2014-2015, it was found that the herbal industry is led by the Malays. Out of 5,763 players, 3,287 (57%) are Malays. Meanwhile, a number of 2,219 (39%) Chinese players involved with upstream and downstream activities in the herbal industry. However, only a small group of Indian community (4%) contributed to the herbal supply chain (Refer Table 1). The survey also discovered that the aborigines or the 'Orang Asli' living in remote areas also used herbs in their daily healthcare. Mostly, the herbs were collected from the natural forest or planted around home compounds for their domestic consumption.

Table 1: Players of Herbal Supply Chain by Ethnic

	Malay	Chinese	Indian	Others	Foreigner	Total
Planting material suppliers	34	23	0	7	0	64
Planters	243	38	69	1	0	351
Manufacturers	175	69	5	1	2	252
Wholesalers	68	57	5	0	0	130
Retailers	2,471	1,967	112	23	16	4,589
Combination	296	65	8	6	2	377
Total	3,287	2,219	199	38	20	5,763

Source: FRIM (2014-2015)

According to Aziz et al. (2010), since the last 10 years, there was an increase in the number of local herbal products. In conjunction to the increase, there is a huge demand for natural ingredients derive from herbal plants, compared to artificial chemical-based substance. The most popular herb species used in the Malaysian herbal industry are *Belalai Gajah*, *Dukung Anak*, *Gelenggang*, *Halia*, *Hempedu Bumi*, *Kacip Fatimah*, *Karas*, *Makhota Dewa*, *Mas Cotek*, *Mengkudu*, *Merunggai*, *Misai Kucing*, *Pegaga*, *Peria Katak*, *Rozel*, *Sambung Nyawa*, *Senduduk Putih*, *Serai Wangi*, *Sirih*, and *Tongkat Ali* (FRIM, 2015). Table 2 lists the most common local herbs used in the formulation of herbal products.

Table 2: Most Common Local Herbs Used in the Formulation of Herbal Products

No	Traditional Herbal Medicines	Part used
1	<i>Eurycoma longifolia</i> (Tongkat Ali)	Roots
2	<i>Labisia pumilla</i> (Kacip Fatimah)	Leaves
3	<i>Orthosiphon stamineus</i> (Misai Kuching)	Leaves
4	<i>Centella asiatica</i> (Pagaga)	Leaves
5	<i>Hibiscus sabdariffa calyx</i> (Roselle)	Calyx
6	<i>Andrographis paniculata</i> (Hempedu Bumi)	Plant
7	<i>Garcinia atroviridus</i> (Asam Gelugor)	Fruit
8	<i>Cosmos caudatus</i> (Ulam raja)	Leaves

9	<i>Serenoa repens</i> Saw palmetto (palm tree)	Fruit/ Leaves
10	<i>Ficus deltoidea</i> (Mas Cotek)	Leaves
11	<i>Curcuma longa</i> (Kunyit)	Roots
12	<i>Ginko biloba</i> (ginko)	Plant
13	<i>Camellia sinensis</i> (green tea)	Leaves
14	<i>Ocimum basilicum</i> (Selasih)	Leaves
15	<i>Zingiber officinale</i> (Halia)	Root
16	<i>Triticum aestivum</i> (wheat grass)	Leaves
17	<i>Phyllanthus niruri</i> (Dukong Anak)	Plant
18	<i>Piper betle</i> (sirih)	Leaves

Source: Ismail (2010)

Aziz et al. (2010) also claimed that those herbs and herbal based products still remain in the lower end of the value chain due to the herbs industry priority on primary processing, cultivation and extraction, but not on value-added activities. In addition, the industry has also faced lots of halal related issues which have led consumers to begin questions and have doubt on the halal status of the products (Abdul Aziz et al., 2012). A study done by researchers in Universiti Sains Malaysia (USM) found that 30% of 100 health products tested were not halal as gelatin from bovine was used in making the product capsules (Abdul Aziz et al., 2014). Their study also revealed that most of the medicines and permitted drug supplies in hospitals and clinics are not certified halal. Not only that, most of multivitamins supplements available in the markets are proven to contain animal gelatin made from pork-by-products. Another product which has received great attention from Malaysians is collagen. Collagen is an ingredient used in food and beverages, cosmetics, medical, and health supplements commonly extracted from ungulates (cattle, pig, and sheep) which are not easily available in the Malaysian markets due to religious obligations of *halalan toyyiban* (Mohd. Rizal & Adham, 2010). Despite the fact that medicines are exempted from halal food regulations, a prescription medicine encapsulated in a prohibited gelatin capsule made of porcine gelatin is still considered haram and unacceptable by the Muslims.

The precoding discussion indicates that herbs industry is now gaining attention throughout the whole chain of quality control from “seed to shelf”. The growing interest in the market has pushed the industry to move towards the development of global standards. Each stage in the supply chain is controlled by standards such as Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP), ISO (International Standard of Organization) as well as halal standard in order to obtain a consistent quality and reliability of herbs and herbal products. Thus, proper strategies, regulations, and standards set by the regulatory bodies must be to enhance the Malaysian halal herbs and herbal industry. However, ensuring halal integrity still remains the biggest challenge in the halal herbal industry (Tieman, 2014). Thus, the main objective of this paper is to provide a depth review on halal integrity along food supply chain management and issues pertaining to the herbal industry.

## 2. Halal Definition

The word halal is originated from an Arabic term which means allowed, permissible, lawful or legal. The Syariah law specifies that goods and services are considered halal whenever they are not harmful and safe to be consumed. The opposite of halal is haram or non-halal which means forbidden, unlawful or illegal (Tieman, 2011). Thereby, according to the Islamic principles, haram is something that must be avoided (Ibn Abd al-Barr, 2000). In general, halal and haram have become important elements for consideration in a Muslims’ life. The Muslims want the assurance that the products they consume not only comply with the Islamic law, but also *toyyib*, which means pure and good (World Halal Forum, 2009; Anas et al., 2010).

As pointed out in the Syariah guidelines, any food, drink, cosmetics and health supplements must be free from *najs*; or contain things that are *najs* in their processing; or processed using equipment or utensils that are *najs*; or come into contact with *najs* at any time during their preparation, processing, and storing. *Najs* includes meat from inappropriate slaughtered animals, refuse, faeces, alcoholic beverages, carrion, as well as pork and all of its by-product (Sabiq, 2008). Furthermore, according

to the Department of Islamic Development Malaysia (JAKIM), supply chain activities such as processes, manufacturing and packaging, receiving, handling, storing and delivery of products must be verified and certified as *halalan toyyiban* by the authorized persons (JAKIM, 2009).

### 3. Halal Integrity

Nowadays, consumers are worried about food safety, quality, hygiene, and humane approach along the whole food supply chain. Therefore, integrity of halal food supply chains has become a worrying matter (Zailani et al., 2010; Lam & Alhashmi, 2008). A number of reasons influenced the integrity of halal food chains. One of the main reasons is the length and complexity of food supply chains that involve lots of handling as it moved across great distances before reaching the end consumers. The responsibility of ensuring halal integrity along supply chains is definitely a huge task to be managed and monitored. The reality of this situation has raised questions on the credibility of supply chain players on the halal status of herbal products.

With regard to herbs and herbal industry, *halalan toyyiban* supply chain safeguards the industry from processing dangerous herbal plants in herbal and herbal products preparation. Herbal plants such as berberis, valerian, ephandra herbs and foxglove leaf are among prohibited herbal plants as they contain dangerous poisons (Ismail, 2010). In other aspects, some of the herbs have been categorized as intoxicant because the herbs contain *khamar*-like effect. Those herbs are also prohibited because they may affect the human's central nervous system. Therefore, any dangerous or harmful ingredients or substances in the production of herbs and herbal products should be avoided as they are not safe to be consumed. Apart from that, *halalan toyyiban* herbs and herbal products supply chain should also ensure the suppliers and manufactures to comply with the standards related to good agricultural practices (GAP) in farming, post harvesting, extraction and drying, formulation, and good manufacturing practices (GMP), Ismail (2010). On the other hand, the downstream activities including handling, storing and delivering processes should also be carried out in line with the *halalan toyyiban*

concept where the goods should be handled, stored and delivered separately from the non-halal goods to avoid any cross contamination. Therefore, a different pallet, warehouse and truck are required to fully comply with the *halalan toyyiban* concepts. Apparently, the assurance of *halalan toyyiban* should be certified in all stages of the supply chain.

According to Lodhi (2009); Khan (2009); Tieman (2011) and halal integrity is one of the main contributors to developing a well trusted halal food supply chain. The halal integrity of a product, particularly herbal-based products will not be compromised as it moves from upstream to downstream along the herbal supply chain, which starts from the procurement of herbal raw materials until the finished products reach the consumers. Previous literatures revealed that all players in the supply chain should take the responsibility without leaving the huge tasks to a single player (Mohd Hafiz et al., 2014; Melatu Samsi et al., 2011). Past studies on halal indicated that the halal integrity of a product is only intact when the product is still in the custody of an organization (Jaafar et al., 2011). Once a product is moved along the supply chain, the quality assurance depends on the next player who handles that particular product. Thus, the integrity of a product cannot be guaranteed if the other players in the supply chain do not practice similar halal concepts. The halal herbal products supply chain has similar fundamental principles as other food supply chains that is “from farm to fork” concept. The long and complex herbal-based product supply chain still remains an obstacle to ensure halal integrity due to the involvement of many players including suppliers and producers or manufacturers.

#### **4. Halal Supply Chain**

Recent development in halal had heightened the need for supply chain approach (Lada et al., 2009; Wilson & Liu, 2010; Ibrahim & Mokhtarudin, 2010). Many researchers (Zakaria & Abdul Talib, 2010; Alserhan, 2010) have argued that halal should focus on the religious needs of the Muslim consumers as well as created an Islamic market orientation. From the perspective of supply chain management, *toyyiban* or wholesomeness which means safe, clean, nutritious and

quality, become an important determinant in assuring halal. According to the Islamic school of thought, if there is cross contamination between halal and haram, the halal will become non-halal. Muhammad Rahim et al. (2016) also pointed out that any cross contamination should be avoided to ensure halal status throughout the whole supply chain processes and to protect the integrity of the product. It means that, the products must be halal from the point of origin until they reach the point of consumption. Hence, all the supply chain players need an indepth knowledge in halal food supply chain in order to develop and maintain a well trusted halal supply chain in the competitive market.

In a supply chain, there are multi stages involved in managing the product from the beginning until it reaches final destination. The supply chain players which consist of suppliers, manufacturers, distributors, retailers, and consumers may located at various locations. This may lead to the possibility of a mix with non-halal materials such as the sharing of transportation and storage (Muhammad Rahim et al., 2016; Tieman, 2011). Therefore, the possibility of halal products becoming non-halal products is greater when the products need to travel a long distance whereby a lot of handling points will be involved. This should be avoided in halal supply chain. All the logistics activities which consist of transportation, warehousing, and retailing should be halal (Ahmad Tarmizi et al., 2014).

In fact, numerous past studies (Tieman, Jack, & Ghazali, 2012) discovered that halal certified product status can be revoked if halal delivery and transportation procedures are not practiced (refer figure 1). As a consequence, the product will be at risk and its integrity will be questioned.





Figure 1: Product Approach to Halal

To ensure the state of halal in the whole supply chain as well as to preserve the integrity of the products, halal and non-halal products should not be mixed together on a load carrier such as through trolley, pallet or in a container without considering the halal status of the products. Furthermore, halal and non-halal products should not share the same shelves, racks or pallet. In the warehouse and retail locations, both halal and non-halal products should be segregated. Therefore, it is important to organize transportation, storing, and handling throughout the supply chain to protect and maintain the halal integrity. Figure 2 shows all activities along the supply chain are halal.

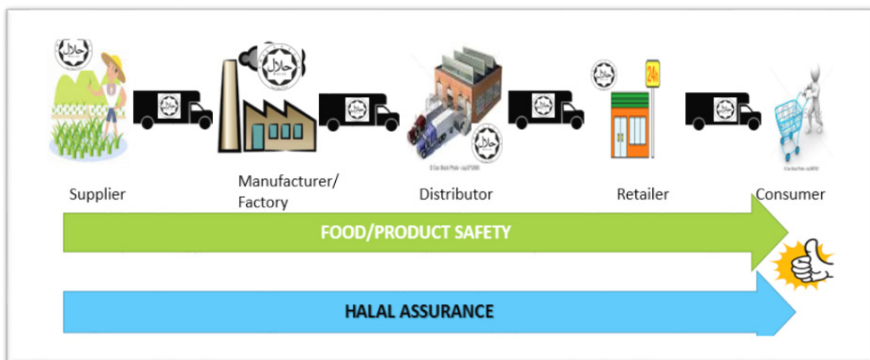


Figure 2: Supply Chain Approach to Halal

According to Zulfakar et al. (2012), if the supply chain players are lacking of awareness and understanding on the concept of halal integrity, the status of halal products can be jeopardized. Thus, it is important for all especially to those who are involved directly or indirectly in the operational handling activities to be aware and to understand the halal concept which is to maintain and guarantee the halal integrity.

## 5. Conclusion

Consumers require high assurance of halal products in spite of the fact that halal supply chain emphasizes on the segregation between halal and haram elements. Therefore, it is important for halal certified firms to look beyond their production and ingredients, as well as extend the concept of halal to the entire supply chain in ensuring their transportation, storage, and handling are in compliance with Shariah and meet the requirements of their target markets. Although it is very challenging for firms to ensure the integrity of halal products, the opportunity of halal products to penetrate halal market is huge and it becomes a fast growing and profitable industry. Besides, the demand for halal food products is expected to grow even bigger in the near future. Therefore, the halal risks must be given serious attention in order to ensure the needs and well-being of the halal herbs and herbal products consumers. The major players in the halal industry especially the suppliers, producers, logistics service providers, wholesalers, traders, and government must play a significant role and give high consideration to the factors that influence the integrity of halal herbal food supply chain which could improve and enhance the competitiveness of the Malaysian halal herbal industry.

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