

Inculcating Halal Values in Seaweed Production for Competitive Positioning

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ABSTRACT

Seaweed industry is important in several countries including Malaysia, Japan, Indonesia, and the Philippines. The seaweed, *Kappaphycus* is widely used in a variety of food products as an excellent nutritional supplement. There are several stages in producing raw *Kappaphycus* for industry such as cultivation and harvest. Most of these steps follow a traditional way which has been practiced from one generation to another. As seaweed is part of the main ingredients in many final produce, its processing must incorporate cleanliness and quality aspect. Therefore, a focus on Halal is of utmost importance. Halal is a concept that stresses on shariah law and ensuring the utmost quality which benefits most producers especially in food and supplement products. However, the knowledge of Halal is still limited in marine production including seaweed. The seaweed process has gone through numerous stages yet none of them has been checked on its Halalness aspect. This study is to deliberate on the aspect of Halalness for each stage involved, including cultivation and harvesting. To achieve this, observations and literature search were performed and findings showed that there is lack of hygienic practices in handling seaweed production. Therefore, conjoint initiatives among university-industry-government are needed to enhance the value proposition of the seaweed production as it complies with the concept of Halalness. This will contribute towards the development of Halal ecosystem from seed to harvest of quality seaweed production.

KEYWORDS: algae, wholesome, quality of life, Islamic, *Tayyibah*

INTRODUCTION

Seaweeds are marine living renewable source that serves as a primary producer in the marine ecosystem and play a vital role as nursery and food sources for marine organism. The importance of seaweed for human as food and therapeutic application has been recognized.¹To date, seaweeds have been confirmed as highly potential to be used as supplement to promote health. The findings of seaweed as low in calories, rich in vitamin and minerals and dietary fiber² have advocated the importance of the seaweed.

Kappaphycus has been cultivated widely in Asian countries for its carrageenan. The species is known as carrageenophyte and has been enormously used in industry as gelling, thickening and stabilizing agents. The Philippines and Indonesia are among the high producer of *Kappaphycus* worldwide.³ Recent study has shown that *Kappaphycus* contained good nutrition value such as carbohydrates, lipid, protein, fiber and minerals.¹ This will further enhance the importance of *Kappaphycus* as its usefulness has been expanded. In Indonesia, *Kappaphycus* is

cultivated in several parts of the country such as Tarakan, Sulawesi, Nusa Tenggara Barat, Bali and Maluku. According to a report from the Ministry of Marine Affairs and Fisheries, Republic of Indonesia, the production of *Kappaphycus* has reached 9.9 million ton production in 2015 as compared to 5.2 million tones production in 2011. This marked increase indicates the importance of seaweed industry in the country. Cultivation of seaweed in Indonesia can be divided into industry-scale and small-scale. For the small-scale, the cultivation is usually run by a family and the business is passed from one generation to another. Although the price of dried seaweed fluctuated from IDR7000 to IDR17000 per kg, the business is still considered worthy as compared to fishing because seaweed can be harvested all year round.

Kappaphycus cultivation involved several steps which are buying the seeds and preparation materials such as rope and plastic bottle for attachment of seaweed seed. During harvesting, seaweeds are collected and dried under the sun before being sold to the factory for further processing. In common practice, these steps are conducted without considering the aspects on Halalness. Halal is important as it contains the universal value of cleanliness and mindfulness To be more specific, halal is a Quranic term that refers to wholesomeness, purity and permissibility according to the Shariah law. Accordingly, it met the required Muslim standards as specified by Quranic verses under several surah. In Surah Al-

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Baqarah, it mentions:

“O ye who believe! Eat of the good things wherewith We have provided you and render thanks to Allah, if it is He whom we worship (Al-Baqarah 2:172)

And also from Hadith

“What Allah has made lawful in his Book is Halal and what He has forbidden is Haram and that concerning which He is silent is allowed” (Prophet Muhamad SAW)

Therefore food; its processes and production that complies with the concept which abide with the Shariah law is considered as Halal. Halal food or product is not only being judged on its final output. The whole process in producing the products or the service must be in line with the Shariah concept in order for them to be certified as Halal. The Halal ingredients must not mix with haram (prohibited) materials during storage, transport and cooking. Therefore; cleanliness, hygienic elements and prescriptions to utmost quality is highly demanded in certifying Halal products or services.

The term Halal within Indonesia law system is derived from several sources such as Food Law No 18/2012; Government Regulations on food labeling and advertising No. 69 and Health Law No 23/1992 (to name a few). Indonesia has introduced its Halal assurance system, HAS 23000 which indicates that it follows the Halal certification process by Bureau of Food, Drugs and Cosmetics Research (LPPOM) and Ulama Council of Indonesia (MUI). Hence, the term Halal is not a new concept to Indonesian manufacturers.

Many factors drive the halal economy. PEW Research center (a non-partisan American company based in Washington that inform publics on issues affecting global phenomena through research) predicted that Muslim population continues to grow to 27.5% of world population in 2030 as compared to 24.2% in 2010. In addition, the estimated emergence of Muslim population in Indonesia is 204.6 million, followed by Pakistan and India with 178.1 million and 177.3 million respectively. These included the increase in the growth of middle income consumers among the Muslims who has more purchasing power. Hence the world demand for Halal supply is expected to increase with time and protecting the Halal integrity is a main concern for many Muslims.

Most Halal studies were centered on Halal certification, Halal restaurants, Halal manufacturing, Halal tourism and Halal logistics.^{4,5,6,7} Several has discussed on the limitations and problems encountered by Indonesian entrepreneurs in complying with Halal aspects.⁸ Among the issues are the high risks and costs incurred, limited suppliers, inconsistent standards and few value chain activities that adhered to the Halal standards. As few has investigated the Halalness in marine products, this

study attempts to contribute to the body of knowledge by exploring the issues on Halalness of seaweed processing at its source.

MATERIALS AND METHOD

This is an exploratory study where observations and interviews were done to understand the phenomena. Observations on seaweed *Kappaphycus* cultivation were done at Pantai Amal, Tarakan in August 2016. Each step of cultivation including preparation of the materials (nylon rope, plastic rope, used plastic bottles), tying the seeds to the rope and planting the seeds in the sea were observed. Then, the process of harvesting the seaweed is done that is separation of the seaweed from the rope, cleaning the rope and bottles, drying and packaging the seaweed. Furthermore, interviews were also done on several seaweed cultivators on the problems faced and income generated. A detailed process will be discussed under the next section. The places and methods of cultivating and harvesting seaweed were also explored. The data was compiled and discussed along the framework of Shariah-compliant manufacturing processes.

RESULTS AND DISCUSSION

This section will present the results and discussion through each stage of the production. It begins with cultivation, harvesting and packaging.

The observation begins during the cultivation stage. During this stage of cultivation, the men prepared the material, which is tying the used bottles to a 25 m long nylon rope where the rope acts as the foundation to tie the seaweeds to. Women were then hired to tie the seeds using plastic rope to the nylon rope. The total number of rope the women were able to complete was 15-20 ropes per day and they were paid IDR 5000-9000 per rope. These ropes containing the seeds were then planted in the open sea (Celebes Sea) about 1 km from shore.

After 40 -50 days of cultivation, the seaweeds were harvested and brought to shore. The seaweeds were separated from the ropes before being dried under the sun. The seaweeds were covered with plastic to enhance the process of drying. Depending on the weather, it takes about 3-4 days for the seaweeds to completely dry. Finally the seaweeds were packed in gunny sacks before sending it to the factory. The used ropes and bottles were then cleaned using water from the river or drain for the next cycle.

Each of these processes was studied under the lens of Halalness (cleanliness and quality processing). During the whole process, the cultivators used the procedures that they inherited from their parents. According to one Mr Mat *“I learned the process from my parents. I followed them to the sea when I was small and my father taught me how to culture seaweed”*

The process of cleaning the rope after each harvesting indicates that seaweed requires clean environment to grow. However, once the products were harvested, the process does not consider the hygienic factors. From the authors' observation, the whole process was conducted under an open space with open surroundings. There was no specific attire for the workers and the environment was subjected to many contaminations that might affect the quality of the seaweed. As can be seen under Picture 1, the seaweeds were being dried in the open space with lots of commotions around it.

Picture 1



Fig 1(a) A man checking on his seaweeds



Children

Fig 1(b) Children are seen playing on top of the bundled dried seaweeds

were seen playing near the platform where they dried the seaweed under the sun. In fact, domestic animals such as cats, cows and goats were seen lingering at these places. There were also cultivators who dried their seaweed on plastic mats on the ground which are exposed to more contamination. The processes definitely did not incorporate any cleanliness aspects.

The situation portrays ignorance on the hygienic aspects. According to Islamic manufacturing practices, safety and cleanliness are important from the source of raw materials to the final production process. This includes the cleanliness on the place of operation, the people who work there and the environment where it operates must be properly maintained. The entrepreneurs are also required to ensure the operation follows a quality procedure. Islamic work practices is not only limited to the final

product, but the operations and the environment are covered too because Halal indicates holistic coverage covering the whole process. It calls for good relationship with the Al-Mighty Allah the creator, the people and the environment. Using recycled plastic bottles are good but disposing those bottles after being used for several times must be in accordance to some recycling method. Otherwise, it affects the environment.

Nevertheless, University Borneo Tarakan with the cooperation of Pertamina, a government agency, has developed seaweed drying cubicles to assist in drying the seaweeds as they understand the importance of hygienic values. These cubicles are set as a platform for a better and a cleaner method of drying the seaweeds. The cubicles can dry the seaweed in 24 hours and most importantly, these cubicles disallowed contamination from the environment. It is therefore strange that these cubicles are not well used. Perhaps there is lack of encouragement from respective bodies regarding the usage of them. The authors believed that these cubicles will become very useful for the cultivators in practicing a standardized quality aspect of seaweed production.

The benefit of practicing Halal standards in the upstream portion of the industry is important as it contributes to the value chain. Studies on several producers in Malaysia who used quality seaweed bring tremendous effects on sales and profit.⁹ This producers import seaweed from various places such as Korea, Philippines and some source it from Sabah. Their products achieved Halal Malaysian logo and the seaweed are being exported to many places globally. Hence it shows that the seaweeds they used have been being inspected for its Halalness aspect in accordance to principles of Islamic Manufacturing practices.

However, the Halal issues in Indonesia face many interrelated complexity. Sulistyono et al.⁸ suggested that the development of Halal industry in Indonesia is slow. The geographic location of the country, the dispersion of ethnicity and dynamicity of the industry made the situation difficult especially with limited government support. In order to educate seaweed entrepreneurs to understand the requirements for Halal, dissemination of knowledge is important. Previous study⁸ has suggested that lack of socialization and information are among the reasons Indonesian entrepreneurs are reluctant to apply for Halal certification. There is lack of information on the procedures which requires further training. Ahmad and Kalsom¹⁰ suggested training, education and motivation which will benefit the obtainment of Halal certification. They argued on the importance of sharing the knowledge in order to expand ones' knowledge which will be translated into entrepreneurs' motivation for achieving Halalness in their products and services.

CONCLUSIONS

This study conducted in Tarakan Indonesia discovered that the awareness among the seaweed cultivators on the importance of Halal is low. From a business viewpoint, Halal certificate is important as it benefits the cultivators to capture a better market. As seaweed is one of the main ingredients in final cosmetics and food industry, it is vital for them to have the Halal certificate. With that certification, it enables the subsequent producers to gain Halal certificate for their final products. Hence, it reflects the total production flow from raw materials, process and production that complies with the Halal concept “from farm to plate”.

It is most pertinent for all food producers to abide by the Halal concept as it brings tremendous benefits for the future. Halal certificate is no longer of religious issues but benefits companies for a better positioning; all parties that involve in production and manufacturing of products must acknowledge the benefits of hygienic and universal value of Halal. Moreover, in view of the growth in Muslim population and the increase of awareness on Halal, it is expected that companies that have Halal logo is in a better position to compete.

Government support is required to enhance awareness and commitment among cultivators and producers of seaweed. Laws, policies and standards that are passed but not enforced will not help the industry. There are many arguments on certifiers' bodies that use their own standard as it will undermine the credibility and customer's confidence. Thus, government must play an active role to encourage, promote and regulate the standard criteria of Halal.

Therefore, a triple helix concept helps all parties to ascertain the Halalness of seaweed production. As Halal products promise safety and add value to its marketability, the tripartite involvement of university-industry-government is important in educating entrepreneurs in seaweed production. These parties must work together to inform, educate and practice the Halal concepts.

Several limitations of this study include the number of sample who participated in the interviews and observation. As it is limited to only a few families operating at Pantai Amal, the result must be interpreted with cautions. More studies need to be carried out to ascertain the challenges these entrepreneurs face in gaining Halal recognition.

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