Časopis za halal kvalitet i certificiranje (2023) 1 (1) 90 - 101
Journal of halal qualıty and certıfıcatıon (2023) 1 (1) 90 – 101

JOURNAL
OF HALAL QUALITY AND CERTIFICATION

Halal Quality Management And Monitoring Practices For Better Food Accessibility

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A R T I C L E I N F O

Keywords:

Halal Quality, Halal Food Management, Halal Certification, Food Safety Management System

A B S T R A C T

Muslims are devoted of the Islamic religion, and the food they consume must be Halal, Arabic for "judicial" or "suitable." Muslims are permitted to consume nutritious, halal food which has been prepared for muslims. Fizzy drinks, swine meat, blood, dead animals, and animals not butchered in accordance with Islamic law are some of the major taboos. The recent rise in deceptive Halal certificates and physical taint of Halal food products has harmed the industry's legacy. Clients of halal food began to doubt the legitimacy and halal stability of the halal food products they delivered who are living in countries that have less percentage of Muslims rather than other religions. Halal certification is currently in a confusing situation, with different Halal standards that do not agree upon one another. Muslims give much more importance on halalness in regards to their diet and nutritional choices, which has resulted in a dramatic surge in halal research. Throughout most words, the food industry is becoming more sensitive and concerned about the manufacture and origin of halal goods. The basic structure of the study on elements affecting the reliability of the Halal food supply chain, such as monitoring, market structure, quality standards, and customer satisfaction and trust. Onother aim of this review is the possibilities for applying the HACCP method for halal assurance while also examining, if present halal standards share any characteristics with widely recognized food hygiene standards. To reach the highest standards, the halal distribution system can be streamlined and integrated, especially with another Halal Assurance Critical Control Point (HACCP). HACCP is systematized process for evaluating the high difficulties in a food industry, finding the key strategic points whereby a risks may worsen, and figuring out what is necessary to keep the quality of edible halal products. This review mostly consist of food safety and Halal assurance. However, halal food customers have recently been more conscious with the standard of the meals they consume. The purpose was to learn about and describe how Halal certification systems include the methodology to guidelines for food availability. By incorporating halal monitoring results and permit techniques into management collaboration protocols, endurance is increased. By assigning governance in basic distribution, substantiality can be guaranteed along the cycle of Halal food distribution. The provided halal insurance structure is a crucial idea for controlling and running the global halal food industry.

1. Introduction

The food has seen tremendous change in recent years as a result of the growing population and the more complex market demands for food's quality, welfare, and reliability, which put pressure on every stage of the food supply chain (FSC) (Ali and Suleiman, 2018; Manteghi et al., 2021). In actuality, the terms "non-Halal" and "Halal food system" relate to two distinct segments of the sustainable food supply chain (SFSC). Halal food currently makes up 20% of the globel food sector, but demand for it is projected to skyrocket to more about 70% by 2050 as both the Muslim and non-Muslim markets experience rapid expansion (Hosain, 2021). There is still misunderstanding about what this in fact implies and how to preserve the authenticity of these two independent FSC systems in worldwide market, despite the fact that assurance systems have been established to guarantee the halal requirements on manufacturing traceability. This increases the need to investigate particular SFSC indicators for such two SFSCs for use in the real world. In order to regulate every potential source of contamination in supply networks, including particular information from suppliers, a halal certification system is created, which requires product traceability from businesses (Tseng et al., 2022). It was said that this approach helps a company to manufacture goods of a higher calibre and that are more responsive to clients, as well as to cut expenses associated with production and achieve supplier sustainability. (Tan et al., 2017) "Halal" is an Arabic word that denotes something that is acceptable or permitted under Islamic law (Alzeer et al., 2018). Halal food is hence food that has not been contaminated with a component that violates Islamic laws and is acceptable for Muslim people (Fuseini et al., 2021). In the same manufacturing site, numerous food producers make a wide range of food items, which could accidentally contaminate halal food items with non-halal ingredients. Manufacturers occasionally cut production costs by utilising inferior meat in their meat products, like pork, chicken, equine, rat, and dog meats in beef products. Several methods are currently being used to identify and find instances of non-halal animal species contaminating food. Because DNA is very heat resistant and may be found in both raw and cooked meat, DNA-based approaches are the most common. A DNA-based PCR technique called high resolution melting analysis (HRMA) denatures double-stranded DNA (dsDNA) at various temperatures (Denyingyhot et al., 2021). Muslims must abide by strict dietary regulations that specify which items are Halal (acceptable for consumption by Muslims) (1). Muslims are compelled to pay close attention to the food they consume since food chains are getting longer and more complicated (2). As the "halalness" of products cannot be easily verified, many Muslim customers are forced to rely on accreditation and labelling to ensure that products are produced using halal production standards. Around the world, a number of halal standardisation and certification bodies have been created (3). It is insufficient to merely meet the minimum requirements of a quality standard when applying for quality and safety certifications. The accreditation by ISO 9001 confirms that a business has implemented a quality assurance system, but it is not evidence that it is operating as intended (4). Every nation, area, and food chain have a complicated collection of contributing elements (5). Also, there are disparities in the set of determinants among SMEs and large businesses in the food retail and catering industries, food sectors, and subsectors (6, 7). (8). A successful international halal management system also requires the identification and evaluation of essential components. In order to reduce the risk of poor food quality and supply chain vulnerability, the food sector is currently guided by assurance standards such as laws and regulations. Yet, by itself, the mechanism won't be long-lasting or productive. In essence, the novelty of the idea causes the integrity aspects to be excluded from the mechanism even if everyone understands what they are. Moreover, the quality-cost concept trade-off may have an impact on the consistency parameters; some supply chain participants cut corners to decrease their profit (Roth et al., 2008).Furthermore, Study revealed that abiding to Shariah and ensuring product safety are essential two components of halalan toyyiban. (Syed Marzuki et al., 2012). Term of Toyyib implies nutritious, clean, pure, and healthful, and toyyibbah demonstrates wholesome since it is reliable for purchasers' wellbeing, as said by Yusuf Ali (Karim et al., 2020). Nowadays, food producers must abide to Shariah rules for halal foods in relation to their

preparation, manufacturing, warehousing, and distribution (Mohd Janis, 2004). Halalan toyyiban simply refers to things that are legal and acceptable under Islamic rules as long they remain secure and do not cause any damage. Halal is contrasted by haram/non-halal, which stands for forbidding and disallowed. Any food product or beverage that is categorised as "Syubhah," which is another word for "debatable" or "unreliable," that does not clearly fall into the halal or non-halal categorization is considered to be in the gray area. Muslims in this classification should withdraw from enjoying Syubhah food or beverages until the situation is more explicit (Riaz and Chaudry, 2003). Halal certification of food items extends beyond the Islamic approach to animal slaughter. Yet, it is a more comprehensive idea where food producers must follow sanitation and safety rules (Bidin,2013). Although the related study advised integrating Shariah principles and total quality management (TQM) practices into the manufacturing procedure for halal goods. (Din and Daud, 2014).The following requirements must be met for food to be considered halal in accordance with Shariah law:

1. Does not contain any non-Halal components, haram animal products, or items made from animals that weren't killed using Islamic rituals and laws.
2. Does not include any components that are regarded as Najis (unclean)
3. secure and unharmful.
4. not made, processed, or produced with contaminated or Najis- or non-halal-compliant tools or machinery.
5. No human parts are present in the ingredients or byproducts.
6. Physical separation of halal and haram goods is required during production, preparation, packaging, storage, and distribution (Ab Talib and Mohd Johan, 2012).

If information regarding the product's origin and processing is not transparent, consumers who choose halal cuisine may have questions. In addition, halal food may be contaminated with unlawful goods during distribution to customers, and halal slaughtering requirements may not have been followed. To let customers know that food goods adhere to Sharia law and halal standards, a halal mark or certification is displayed on product packaging. Nonetheless, there is still a problem with fraudulent logos and certificates appearing on goods packaging (Rejeb, 2018). Systems for tracking and traceability can be used to keep track of details about the product, including its halal status, supply chain participants, and manufacturing procedures. The capacity to track food, its ingredients, and the supply chain stages, which include product manufacture, processing, and distribution, is known as food traceability (Mohammadian et al., 2015). For the authenticity and trustworthiness of halal food to be ensured, the halal supply chain must be transparent. The inability to deploy halal identification and tracking systems might be hampered by a lack of understanding of halal markets, halal technology, and effective halal input usage. To ensure traceability and transparency tracking methods, particularly for halal food, we therefore require a system and technology (Rohmah et al., 2019).

Objectives

The merits and downsides of halal food management are discussed in this study's reviews. This study offers suggestions for enhancing the management and security features of the halal food business.

2. Management and strategy for halal food

The halal sector can be seen as a brand-new prospect in the modern industrial world, which is cherished by nations all over the world. To truly comprehend the halal sector, one must first understand the halal World(Peristiwo, 2019). Due to the increase of the Muslim population, which today accounts for one-third of the world's population, and the evolving needs of Muslim generations, countries all over the world started entering the halal industrial sector. This could be seen as a hint that there is a big chance to promote better economic expansion and growth on the industry for halal industrial goods. In other words, concerns regarding the methods used to produce and the origins of halal products are becoming more prevalent in the food industry(Bashir et al., 2019). The halal food industry produces the majority of and most well-known halal items(Zulfakar et al., 2014). There are still issues in the food industry, particularly as the supply of halal food is dependent on the shifting demographic of Muslims worldwide. Despite the halal market's growing popularity and potential for rapid expansion, studies on Muslim halal food consumption have mostly

been ignored(Yunus et al., 2014). Halal toyyiban, or the origin of halal food and how its consumption performed, is a notion that must be adhered to in order to comprehend and follow Islamic law. This includes food production, storage, shipping, handling, and distribution. This means that throughout any logistics operation, halal food products cannot be combined with non-halal products to ensure that an item can maintain its halal designation. Kosher food quality is important in the industry of halal food because it helps ensure that sharia and food quality standards are followed while the food is being transported from the supply point to the final consumer. Consequently, there would be no use in manufacturing halal food. Halal is usually prioritised by food manufacturers (Alhabshi., 2013). The discussion about halal products will be very in-depth if the entire manufacturing process is covered, from the starts to the consumers. In this case, the logistical activities or monitoring procedure. The supply chain for halal food is currently expanding and receiving attention on a globel scale. To guarantee and verify the halal integrity of food products along the supply chain, a traceability mechanism is necessary. The traceability system is frequently used by enterprises and the food industry to check on the quality of their food products (food safety). The distinction amongst halal and non halal foods was easy to make when food technology and science were only in their infancy. It is challenging to distinguish between both halal and haram cuisine in the current revolutionary times. It's all a result of the rapidly expanding field of food technology, where food is now made up of more ingredients than just basic materials and likely contains compounds that come from banned foods and their derivatives. Also, the manufacturing and distribution processes do not adhere to Islamic Sharia. For instance, if stuff that is forbidden has entered the process of making food. Owing to these problems, it might be difficult for the typical person to tell the difference between halal and forbidden dietary items. It necessitates both a thorough understanding of Islamic legal ideas and culinary science and technology. The business is more affordable both locally and internationally with the help of certain halal food surveillance tools and apps, both from sites, materials, and so on. This is due to recent advancements in industry, such the modern renaissance that took place during the nineteenth century, which made it simpler for manufacturers and customers to receive halal food employing elastic equipment(Ahmad and Shariff., 2016).People pass on their love of food and the abundance of nutrients it provides to the following generation (Peristiwo, 2019). Customers who purchase halal food, however, have recently grown more concerned about the legality of the cuisine, as seen in Figure 1(Lubis et al., 2016).

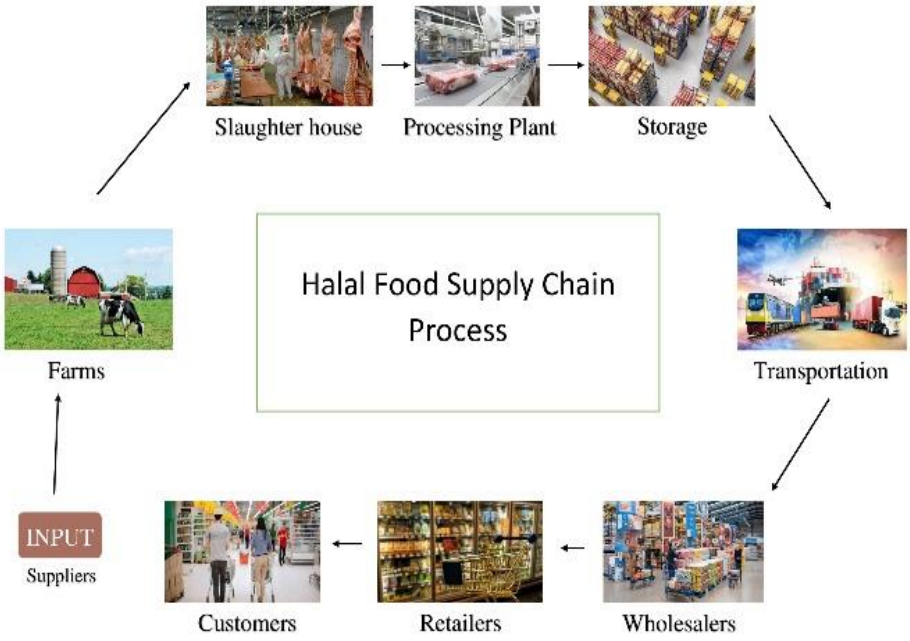

Figure 1. Halal Food Supply Chain Process

The supply chain includes everyone involved in either experiencing or completing a customer request. The pre-, during-, and post-slaughter processes in the supply chain all contribute to satisfying customer demand for halal chicken meat. The raising of the animals (via breeding, infrastructure, and food sources) is part of the pre-slaughtering process, whereas the packaging, labelling, and shipping of the animals are part of the post-slaughtering process. Among other things, the feeding and reproduction practises are halal considerations during the pre-slaughtering stage. The organisations must make sure that only halal food is supplied to the animals. Care must be taken while casting food for animals in order to preserve purity and avoid cross-contamination between the two food processing methods. Pork, bile, and animal carcasses are examples of non-halal foods that are prohibited. Because it is exceedingly difficult to ensure that the sharia protocol is kept whereas the items are being transported, the fact that 3rd logistic providers (3PL) commonly provide logistic services is a big cause for concern. To reach the highest standards, the halal distribution system can be streamlined and integrated, beginning with said Halal Assurance Critical Control Point (HACCP). HACCP is a systematic process for examining the numerous risks in a food chain, pinpointing the key checkpoints where the dangers may worsen, and determining what is necessary to preserve the quality of edible halal products. It was underlined that the primary factors influencing HACCP procedures are food regulation, the industry's participation in government programmes and initiatives, training on hygiene and food safety, and contamination of food or poisoning (Pun and Bhairo-Beekhoo., 2008). The development of Halal into operation and a new direction in supply chain management highlights the significance of personnel accountability, knowledge, and skills for a successful HACCP implementation(Fotopoulos et al., 2011). Similar to a food safety administration system including its food safety control duties and assurance activities, a halal assurance system is necessary with its halal risk controls and iso standards for particular product-market combinations(Luning et al., 2008). Halal management and assurance operations are necessary for the development of a robust supply chain for halal foods with lower halal hazard susceptibility (Vlajic et al., 2012). People are much more curious about food standards, purity, origin, and authenticity as a result of numerous food safety crises and occurrences (Talib et al., 2008). Customer awareness in the context of halal can be defined as a specific interest in or actual skills of a subject and what is going on right now in relation to halal foods, beverages, and products (Ambali and Bakar, 2013).

Also vast Muslim community, prior studies have shown that the Muslim population is becoming more aware of potential obstacles to their halal diet as time goes on (Hashim and Othman, 2011).All halal market patrons, especially Muslims, are becoming more selective about the foodstuff they purchase, including carefully inspecting items to ensure they don't include any dubious or prohibited non-halal ingredients. This is supported by a (Nakyinsige et al., 2012) report that asserts Muslims are more conscious of the need to uphold Islam's religious ideals through dietary practices. Due to their increased spending power, halal consumers are starting to place higher demands on products that are genuinely halal. A study by (Aziz and Chok, 2013)found that consumer knowledge of the shari’ah had a beneficial impact on consumers' intentions to purchase halal products, whether or not they are Muslims. In supply chain relationships, a company's readiness to rely on a merchant upon whom it has confidence is referred to as loyalty (Kwon and Suh, 2005). Trust is essential amongst supply chain partners, especially when sharing sensitive information like volume sales, product, and cost and process data. According to earlier study (Gundlach and Cannon, 2010), strong supply chain partnerships require mutual commitment and enduring trust.

Building trust between supply chain partners has several benefits. Trust can support future supply network and organizational initiatives by lowering transaction costs, promoting desired behavior, reducing the need for long formal contracts, hastening the resolution of disputes, and encouraging desired conduct (Sahay, 2003).The benefits of trustworthiness in supply chain partnerships, as demonstrated by (Alina et al., 2013),include more recommendations to potential business partners, more steady business dealings, fewer disagreements inside businesses, and greater business shares for both sides. While both Muslim and non-Muslim countries experience the aforementioned problems often in the halal food industry, certain of the latter's

issues are more pervasive. Consider the issues with halal regulation and law enforcement. In contrast to Muslim countries where such matters are under the control of the ruling government, halal governance is handled in non-Muslim countries by private groups (Lodhi, 2009; Shafie and Othman, 2006).As a result, various businesses providing halal certification services have been founded, primarily in Europe and the UK. Since there is no halal legislation in non-Muslim nations, any entity is qualified to offer, affirm to supply halal authorization and monitor facilities for food companies seeking access into the halal market. The different halal requirements and costs set by the various certification bodies' halal authorization facilities frequently confused the consumable producers (Casey, 2010). That results in a growing loss of trust among halal customers and companies in these certifying agencies illustrates this reality (Figure 2).

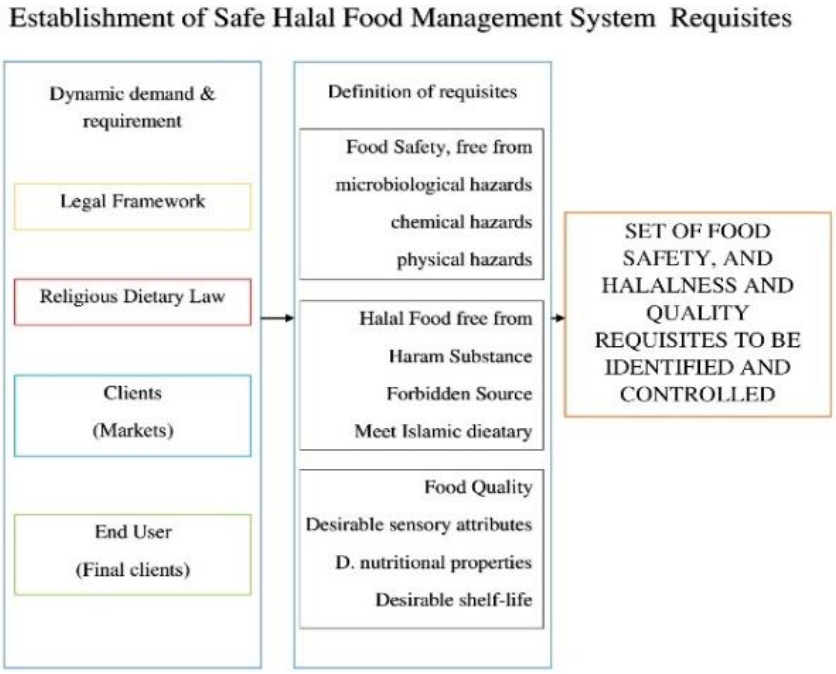

Figure 2. Establishment of Safe Halal Food Management System Requisites

There are two types of food that are blended with non-halal food. The first is the blending of non-halal substances and halal goods (Nakyinsige et al., 2012; Bashir, 2019). This comprises the use of prohibited substances, secret blood products, and the exchange of haram animal protein sources, such as using Muslim along pig in place of edible meat. This can be the outcome of an incorrect interpretation of halal rules. Then, blending also refers to mingling halal and non-halal meat in one storage container, throughout transporting, or on a shelf in a store (Basir,2019; Jaafar et al., 2011). For instance, (Alqudsi, 2014) pointed out that in Tasmania, non-halal meat is displayed alongside the halal meat products for sale. In spite of the fact that this particular industry has been the subject of extensive inquiry and research for more than ten years, some studies have attempted to relate the challenges in handling the halal food chain to great achievements in other industries as well as the halal food distribution network. Preventing direct contact between any non-halal components and halal food is one of the most commonly raised concerns for a full implementation of the halal food industry and supply - chain management in halal segregation. This can be done by physically separating the two; in order to preserve the quality of halal foods, they should not be in contact with each other or with other halal products or components. If halal nutrients are not processed individually during production, shipping, and storage processes, they are very sensitive and in the biggest danger of contamination. Previous studies (Lodhi, 2009;

Tieman and Ghazali, 2014) and various halal standards have repeatedly underlined the need to physically segregate halal objects in order to prevent any close communication with substances that could accidentally or purposefully damage the halal status. A technique called tracking makes it possible to follow important data regarding an item from its point of origin to the point of sale. As a result, it is possible to track and trace food, feed, equipment, and packaging throughout all stages of manufacturing. Moreover, it is possible to keep track of the techniques employed along the route, such as who used them when, once, and how (Japar Khan, 2008). It should be remembered that the products we obtain from animals, particularly meat, and the records of the animals themselves must be maintained safe for any type of inquiry required for stages related to the food chain. Meat traceability is the process of logging data on animals or meat products in a certain quantity through lots of links in the supply chain for food using a certain numbering system (Shackell, 2008). I n the field of agriculture, similar descriptions of the provenance process were also offered by (Opara, 2003). It can be used to identify any non-halal components in addition to certifying and confirming that the product is really halal (Lodhi, 2009; Rashid et al., 2016). Consumer impression of the halal industry will consequently improve as a result of the improved information that customers may now access (Zakaria, 2008). Even if traceability technologies make it easy to locate the pertinent information about the topic, the reviewing and verification process cannot be ignored or abandoned. A traceability system will reinforce and add to any current inspection system (Japar Khan, 2008). The audit and confirmation process will benefit even more from an efficient traceability system, especially in terms of the process of acquiring the required certification. In this case, traceability will aid in the application process for halal certification. Halal training is essential for the growth of human capital in the halal sector. In order to have an understanding of and appreciate unique halal difficulties in the halal business and market, it is essential that we as consumers have a basic awareness of halal. For example, unapproved or dubious halal logos has to be treated cautiously with adequate understanding and knowledge about the halal logo; if we are workers, we ought to offer the action plan on how to tackle it and effectively fix it. As consumers, it is our responsibility to be informed about the most current halal trends and requirements for such food and products we buy. Nowadays, the long-term survival of the Halal industry depends on the management's ability to integrate the supply chain component with Islam or Islamic law. To better compete in the contemporary global halal market, businesses and employees working in the pharma, cosmetology, and healthcare, as well as the shipping, need specialized halal education and training (Rashid et al., 2016). Furthermore, there are differences in the scope, complexity, and duration of halal training. No halal training programs are accredited by or have their quality verified by a body. Make sure the people in charge of the butchering are competent and able to carry out their responsibilities for the Halal business, especially for the slaughterhouse. This will stop mishaps from happening while they are working and doing their jobs (Rashid et al., 2016). An emphasis on product attributes, which should reflect halal products in terms of proper cleaning, safety, health, and nutrition, is part of the complete approach to halal (Mohamad and Hassan, 2011). Hygiene, sanitary, and product safety are the cornerstones of halal food preparation, and all three have been extensively discussed in halal food research. Halal can also be used as the next benchmark for quality due to the products' high level of sanitation, hygienic production environment, and adherence to a quality of nutrition and safety. Halal logistics management has become one of the most popular areas of halal research in recent years. The length and complexity of the halal food supply chains has increased along with the size and reach of the global Muslim population. In a halal food chain, it is now very challenging to adhere to all halal requirements, and there is a big chance of cross-contamination. Modern culinary technology and global distribution have made a variety of synthetic foods and ingredients available to Muslim consumers. So, in order to give clients, trust and credibility, halal product manufacturers must set up a halal supply chain. Until now, all of these studies about the chain and supply of halal food are still very recent (Figure 3) (Bonne and Verbeke, 2008).

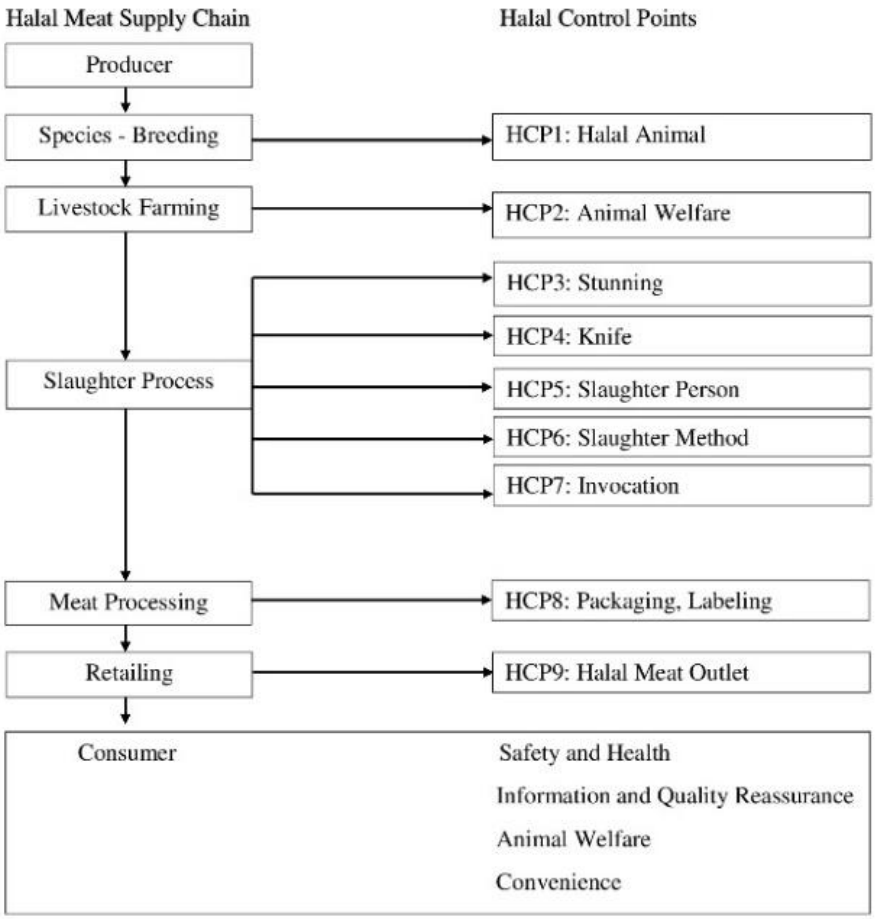

Figure 3. Diagram of Halal Food Chain

3. Conclusion

Because halal procedures lack integrity, it is plainly clear from the literature research that there are many issues and challenges in the process of creating food. The halal market is experiencing heightened competition. This is due to the fact that other countries, especially those in the China like Thailand, the East indies, Brunei, Hong Kong, and China, have begun to seriously threaten their capacity to meet the requirements for halal food by launching a number of initiatives and utilizing their comparative advantages. Global interest in halal food goods is rising. Halal food supply networks and management research are still in their infancy. The demand for halal food is growing, nevertheless, and so is the field of study. Shari'ah, halal licensing, halal product features, public knowledge of halal, halal advertising, information technology use in halal, sharia integrity, and management of the supply chain for halal food were among the eight separate categories into which the research was broken after a thorough analysis of existing studies on halal food. We found that the study on the supply chain for halal foods is rather limited and mostly focused on halal concept, supply chain effectiveness, and logistics. As a result, we propose several areas for additional study, such as conceptual model development, links amongst halal, lean, and green, integrity of halal packaging, empirical research, and development of halal workers' skill sets and competences. Halal food is preferred by both Muslims and non since it is guaranteed to be hygienic and healthy. In conclusion, training was one of the issues raised by prior studies. In relation to halal training classes and halal training programmes, this article aims to highlight the key issues and challenges that the islamic sector as a whole is presently experiencing and will probably face in the near future. The implementation of the Halal Program in the Muslim Industry is highly crucial due to the significance of current consumers' understanding of Halal foods and the Halal sector. There may be the answers to the issues and challenges that had been with on.Further

research into this might learn more about the problem and lead to more exciting findings. The need for education in the Halal industry is now more critical than ever because the industry is now capable of satisfying the appetite for Halal services and products on a worldwide scale.

Acknowledgment

The authors are thankful to Department of Food Hygiene and Technology Faculty of Veterinary Medicine Selcuk University Konya, Turkiye for support during data gathering and analysis. The authors are grateful to National Institute of Food Science and Technology, University of Agriculture, Faisalabad, 38000, Pakistan and Department of Anatomyand Histology, University of Veterinary and Animal Sciences, Lahore for their kind support in data provision.

References

(1) Al-Mazeedi, H.M., Regenstein, J.M., Riaz, M.N. (2013): The issue of undeclared ingredients in halal and kosher food production: A focus on processing aids, *Compr. Rev. Food Sci. Food Saf*. 12(2), 228-233.

(2) Bonne, K., Verbeke, W. (2008): Religious values informing halal meat production and the control and delivery of halal credence quality, *Agric. Hum. Values*. 25, 35-47.

(3) Van der Spiegel, M., Van der Fels-Klerx, H.J., Sterrenburg, P., Van Ruth, S.M., Scholtens-Toma, I.M.J., Kok, E.J. (2012): Halal assurance in food supply chains: Verification of halal certificates using audits and laboratory analysis, *Trends Food Sci. Technol*. 27(2), 109-119.

(4) Alfonso Rodríguez-Escobar, J., Gonzalez-Benito, J., Rafael Martínez-Lorente, A. (2006): An analysis of the degree of small companies' dissatisfaction with ISO 9000 certification, *Total. Qual. Manag. Bus. Excell*. 17(04), 507-521.

(5) Sallam, K.I. (2007): Antimicrobial and antioxidant effects of sodium acetate, sodium lactate, and sodium citrate in refrigerated sliced salmon, *Food control*. 18(5), 566-575.

(6) Kirezieva, K., Nanyunja, J., Jacxsens, L., van der Vorst, J.G., Uyttendaele, M., Luning, P.A. (2013): Context factors affecting design and operation of food safety management systems in the fresh produce chain, *Trends Food Sci. Technol*. 32(2), 108-127.

(7) Eves, A., Dervisi, P. (2005): Experiences of the implementation and operation of hazard analysis critical control points in the food service sector, *Int. J. Contemp. Hosp. Manag*. 24(1), 3-19.

(8) Taylor, E., Kane, K. (2005): Reducing the burden of HACCP on SMEs, *Food control*. 16(10), 833-839.

(9) Ali, M.H., Suleiman, N. (2018): Eleven shades of food integrity: A halal supply chain perspective, *Trends Food Sci. Technol*. 71, 216-224.

(10) Manteghi, Y., Arkat, J., Mahmoodi, A., Farvaresh, H. (2021): Competition and cooperation in the sustainable food supply chain with a focus on social issues, *J. Clean. Prod*. 285, 124872.

(11) Hosain, M.S. (2021): Branding "Halal": application of a certain religious emotion to attract a specific customer segment, *PSU Research Review*. 5(3), 195-200.

(12) Tseng, M.L., Ha, H.M., Tran, T.P.T., Bui, T.D., Lim, M.K., Lin, C.W., Helmi Ali, M. (2022): Data-driven on sustainable food supply chain: a comparison on Halal and non-Halal food system, *J. Ind. Prod. Eng*. 39(6),430-457.

(13) Tan, K.H., Ali, M.H., Makhbul, Z.M., Ismail, A. (2017): The impact of external integration on halal food integrity Supply Chain Management, *An International Journal*. 22(2), 186-199.

(14) Alzeer, J., Rieder, U., Abou Hadeed, K. (2018): Rational and practical aspects of Halal and Tayyib in the context of food safety, *Trends in Food Science & Technology*. *71*,264-267.

(15) Fuseini, A., Hadley, P., Knowles, T. (2021): Halal food marketing: an evaluation of UK halal standards, *Journal of Islamic Marketing*. *12*(5), 977-991.

(16) Denyingyhot, A., Phraephaisarn, C., Vesaratchavest, M., Dahlan, W., Keeratipibul, S. (2021): A new tool for quality control to monitor contamination of six non-halal meats in food industry by multiplex high-resolution melting analysis (HRMA), *NFS Journal*. *25*,31-40.

(17) Roth, A.V., Tsay, A.A., Pullman, M.E., Gray, J.V. (2008): Unravelingthefoodsupplychain: strategicinsightsfromChinaandthe 2007 recalls, *J. Supply Chain Manag*. 44(1),22-39.

(18) Syed Marzuki, S. Z., Hall, C. M., Ballantine, P. W. (2012): Restaurant manager and halal certification in Malaysia, *J. Foodserv. Bus. Res*. 15, 195-214.

(19) Karim, R.A., Mahmud, N., Marmaya, N.H., Hasan, H.F.A. (2020): The use of total quality management practices for halalan toyyiban of halal food products: exploratory factor analysis, *Asia Pac.*

J. Manag. *15*(1),1-20.

(20) MohdJanis, Z. (2004): Halal food-production, preparation, handling and storage, *Standard & Quality News*. 11, 2-3.

(21) Riaz, M.N.,Chaudry, M.M. (2003): Halal food production: New York, USA: CRC Press, pp. 57-69.

(22) Bidin, J. (2013): Malaysian halal market serving the global halal market with a difference, *Malaysia Halal Industry Directory 2013*. 33-36.

(23) Din, R.C., Daud, S. (2014): Critical success factors of MS1500: 2009 implementation, *Procedia Soc Behav Sci*. 121, 96-103.

(24) Ab Talib, M.S., Mohd Johan, M.R. (2012): Issues in halal packaging: a conceptual paper, *Int. Bus. Manag*. 5(2),94-98**.**

(25) Rejeb, A. (2018): Halal meat supply chain traceability based on HACCP, blockchain and internet of things, *Acta tech. Jaurinensis*. 11(1).

(26) Mohammadian, F., Hajipour, B., Beheshti, S. (2015): Halal cosmetics supply chain-a conceptual modelInt, *J. Supply Chain Manag*. 5(1),33-43.

(27) Rohmah, D., Maharani, S., Kholis, M., Taqwa, S., Setyaningrum, H. (2019): October. Traceability and tracking systems of halal food using blockchain technology to improve food industry competitiveness, *In Proceedings of the 1st International Conference on Business, Law and Pedagogy, ICBLP (2019): 13-15 February (2019): Sidoarjo, Indonesia.*

(28) Peristiwo, H. (2019): Indonesian Halal Food Industry: Development, Opportunities and Challenges on Halal Supply Chains, *Int. J. Islam. Stud. Humanit*. 4(2), 218-245.

(29) Bashir, A.M., Bayat, A., Olutuase, S.O., Abdul Latiff, Z.A. (2019): Factors affecting consumers' intention towards purchasing halal food in South Africa: a structural equation modelling, *J. Food Prod. Mark*. 25(1), 26-48.

(30) Zulfakar, M.H.,Anuar, M.M., Ab Talib, M.S. (2014): Conceptual framework on halal food supply chain integrity enhancement, *Procedia Soc. Behav. Sci*. 121, 58-67.

(31) Yunus, N.S.N.M.,Rashid, W.E.W., Ariffin, N.M., Rashid, N.M. (2014): Muslim's purchase intention towards non-Muslim's Halal packaged food manufacturer, *Procedia Soc. Behav. Sci*. 130, 145-154.

(32) Alhabshi, S.M. (2013): Halal food dilemmas: Case of muslims in British Columbia, Canada, *Int. J. Asian Soc. Sci*. 3(4), 847-870.

(33) Ahmad, N., Shariff, S.M. (2016): Supply chain management: Sertu cleansing for halal logisitics integrity, *Procedia Econ. Financ*. 37, 418-425.

(34) Lubis, H.N.,Mohd-Naim, N.F., Alizul, N.N., Ahmed, M.U. (2016): From market to food plate: Current trusted technology and innovations in halal food analysis, *Trends Food Sci. Technol*. 58, 55-68.

(35) Pun, K.F.,Bhairo-Beekhoo, P. (2008): A 14-step strategy of haccp system implementation in snack food manufacturing, *APETT*. 37(1), 48-59.

(36) Fotopoulos, C., Kafetzopoulos, D., Gotzamani, K. (2011): Critical factors for effective implementation of the HACCP system: a Pareto analysis, *Br Food J*. 578-597.

(37) Luning, P.A.,Bango, L., Kussaga, J., Rovira, J., Marcelis, W.J. (2008): Comprehensive analysis and differentiated assessment of food safety control systems: a diagnostic instrument, *Trends Food Sci. Technol*. 19(10), 522-534.

(38) Vlajic, J.V., Van der Vorst, J.G., Haijema, R. (2012): A framework for designing robust food supply chains, *Int. J. Prod. Econ*. 137(1), 176-189.

(39) Talib, H.A., Ali, K.M., Jamaludin, K.R., Rijal, K. (2008): May. Quality assurance in halal food manufacturing in Malaysia: A preliminary study, *ICME*. 21-23.

(40) Ambali, A.R., Bakar, A.N. (2013): Halal food and products in Malaysia: people's awareness and policy implications, *Intellectual Discourse*. 21(1), 7.

(41) Hashim, A.H.,Othman, M.N. (2011): November. Halal food consumption: A comparative study between Arab Muslims and non-Arab Muslims consumers in Malaysia. In: Australian and New Zealand Marketing Academy (ANZMAC) Conference, Perth, Australia, November.

(42) Nakyinsige, K., Man, Y.B.C., Sazili, A.Q. (2012): Halal authenticity issues in meat and meat products, *Meat science*. 91(3), 207-214.

(43) Aziz, Y.A.,Chok, N.V. (2013): The role of Halal awareness, Halal certification, and marketing components in determining Halal purchase intention among non-Muslims in Malaysia: A structural equation modeling approach, *J. Int. Food Agribus. Mark*. 25(1), 1-23.

(44) Kwon, I.W.G.,Suh, T. (2005): Trust, commitment and relationships in supply chain management: a path analysis, *Int. J. Supply Chain*

Manag. 10(1), 26-33.

(45) Gundlach, G.T.,Cannon, J.P. (2010): "Trust but verify"? The performance implications of verification strategies in trusting relationships, *J. Acad. Mark. Sci*. 38, 399-417.

(46) Sahay, B.S. (2003): Understanding trust in supply chain relationships, *Ind. manage. data syst.* 103(8), 553-563.

(47) Alina, A.R.,Rafida, A.N., Syamsul, H.K.M.W., Mashitoh, A.S., Yusop, M.H.M. (2013): The academia's multidisciplinary approaches in providing education, scientific training and services to the Malaysian halal industry, *Middle East J. Sci. Res.* 13, 79-84.

(48) Kawabata, A., Azhar-ul-Haq Lodhi. (2009): Understanding Halal Food Supply Chain. London; HFRC Ltd, *Islamic World Studies*. 4(1-2), 622-625.

(49) Shafie, S., Othman, M.N. (2006): September. Halal certification: an international marketing issues and challenges. International IFSAM, Kuala Lumpur: University of Malaya Press, (Vol. 28,30).

(50) Casey, S. (2010): Halal: a growing market with a caveat, *Poultry World*. 164(6), 23-23.

(51) Bashir, A.M. (2019): Effect of halal awareness, halal logo and attitude on foreign consumers' purchase intention, *Br Food J*. 121(9), 1998-2015.

(52) Jaafar, H.S.,Endut, I.R., Faisol, N., Omar, E.N. (2011): Innovation in logistics services, *Halal logistics*. 844-851.

(53) Alqudsi, S.G. (2014): Awareness and demand for 100% halal supply chain meat products. Procedia Soc, *Behav. Sci*. 130, 167-178.

(54) Tieman, M., Ghazali, M.C. (2014): Halal control activities and assurance activities in halal food logistics, *Procedia Soc. Behav. Sci*. 121, 44-57.

(55) JaparKhan, F.J.M. (2008): Halal traceability: the assurance of safety, quality and authenticity, *The Halal Journal*. 46-47.

(56) Shackell, G.H. (2008): Traceability in the meat industry–the farm to plate continuum, *Int. J. Food Sci*. 43(12), 2134-2142.

(57) Opara, L.U. (2003): Traceability in agriculture and food supply chain: a review of basic concepts, technological implications, and future prospects, *J. Food Agric. Environ*. (1), 101-106.

(58) Rashid, W.W.,Muda, M., Wibowo, M.W., Ahmad, F.S. (2016): e fifth international conference on marketing and retailing (5th INCOMaR) 2015Non-muslim consumers' halal food product acceptance model, *Procedia Econ. Financ*. 37, 276-283.

(59) Zakaria, Z. (2008): Tapping into the world halal market: some discussions on Malaysian laws and standards, *Jurnal Syariah*. 16(3), 603-616.

(60) Mohamad, A.B., Hassan, H. (2011): The influences of halal integrity on product adaptation strategy for global trade, *Int. Bus. Manag*. 5(6), 421-426.

(61) Bonne, K., Verbeke, W. (2008): Religious values informing halal meat productionandthecontrolanddelivery of halal credence quality, *Agric. Hum. Values*. 25, 35-47.

Prakse upravljanja i praćenja halal kvalitete za bolju dostupnost hrane

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P O D A C I O R A D U

Ključne riječi:
Halal kvaliteta, upravljanje halal hranom, halal certifikacija, sustav upravljanja sigurnošću hrane

S A Ž E T A K

Muslimani su posvećeni vjeri, a hrana koju konzumiraju mora biti halal, što na arapskom znači "dozvoljeno" ili "korisno". Muslimanima je dozvoljeno da konzumiraju nutritivno korisnu i halal hranu. Određene vrste pića, svinjsko meso, krv, strv i životinje koje nisu zaklane u skladu s islamskim propisima neke su od glavnih zabrana. Nedavni porast lažnih Halal certifikata i fizičke kontaminacije halal prehrambenih proizvoda naštetili su imidžu industrije.
Potrošači halal hrane počeli su sumnjati u legitimnost i stabilnost halal proizvoda koje su uvozili iz zemalja sa procentualno manjim brojem muslimana u odnosu na druge religije. Certificiranje halal proizvoda trenutno se nalazi u zbunjujućoj situaciji, sa različitim halal standardima koji se međusobno razlikuju. Muslimani pridaju sve veću važnost halalu u pogledu svoje prehrane i izbora prehrane, što je rezultiralo dramatičnim porastom istraživanja halala. Ukratko prehrambena industrija postaje sve osjetljivija i zabrinutija za proizvodnju i porijeklo halal robe. Osnovna struktura studije o elementima koji utiču na pouzdanost lanca opskrbe halal hranom, kao što su praćenje, tržišna struktura, standardi kvalitete, te zadovoljstvo i povjerenje kupaca. Još jedan cilj ovog rada su mogućnosti primjene HACCP metode za osiguranje halala, dok također ispitujemo, ako postoje, halal standardi dijele zajedničke karakteristike sa široko priznatim standardima higijene hrane. Kako bi se postigli najviši standardi, sistem distribucije halal proizvoda može se uskladiti i integrisati posebno s još jednom Kritičnom kontrolnom točkom Halal Assurance (HACCP). HACCP je sistematizirani proces za procjenu velikih prepreka u prehrambenoj industriji, identificiranje ključnih strateških točaka pri čemu se rizici mogu povećati i utvrđivanje što je potrebno za očuvanje kvalitete jestivih halal proizvoda. Ovaj rad se uglavnom sastoji od sigurnosti hrane i osiguranja halal. Međutim, potrošači halal hrane u posljednje vrijeme sve su svjesniji standarda za proizvodnju hrane koje konzumiraju. Svrha je bila naučiti i opisati kako sistemi halal certificiranja uključuju metodologiju i smjernice u dostupnosti halal hrane. Uključivanjem rezultata halal praćenja i odobrenih tehnika u protokole suradnje menadžmenta povećava se pouzdanost. Pomoću upravljanja u osnovnoj distribuciji može se zajamčiti održivost duž ciklusa distribucije halal hrane. Pružena struktura osiguranja halal kvaliteta je ključna ideja za kontrolu i vođenje globalne industrije halal hrane.