

Establishing Halal Assurance Systems for Fishery SMEs: A Case Study of Fish Paste Product

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ABSTRACT

A popular fishery product in East Java, Indonesia, is fish paste made from fermented fish. Although the product is marketable, one of the challenges is acquiring it in compliance with halal certification criteria. This study aimed to design a halal quality assurance system for fish paste production in small and medium enterprises (SMEs). The methodology consists of three steps. Initially, the entire fish paste production process was observed using a checklist based on the Halal Assurance System 23000 (HAS 23000). Next, halal critical points in raw materials and product processing were identified. The final step was to develop a halal quality assurance manual for SMEs producing fish paste, based on HAS 23000. The results show that halal quality assurance must meet five criteria: commitments and responsibilities, materials, halal product processes, product in addition to monitoring and evaluation. SMEs producing fish paste succeeded in meeting two of the five criteria. The material and product criteria were met, while commitments and responsibilities, the halal product process, and monitoring and evaluation did not fully satisfy the HAS criteria. Improvements in managerial aspects and governance within SMEs are needed to enhance the product's value and enable it to reach global markets.

INTRODUCTION

Halal certification is an important element in the food industry, specifically in Indonesia, which has the largest Muslim population in the world. It assures consumers that products align with Islamic law principles and is also among the keys to competitiveness in domestic and international markets (Camillo *et al.*, 2014; Kamisah *et al.*, 2018; Bahara *et al.*, 2024). Halal certification is needed by large industries and small and medium enterprises (SMEs), significantly increasing the sales and marketability of

food products (Bahara *et al.*, 2024). SMEs of certified food in Indonesia have shown higher sales than those without certification, potentially increasing the income of business owners (Anggarkasih & Resma, 2022; Bahara *et al.*, 2024). The global market requires many products with halal certification; hence, the opportunities for compliant industries are increasingly open to enter the export market (Krisharyanto *et al.*, 2019; Anggarkasih & Resma, 2022). Through Law Number 33 of 2014 concerning Halal Product Assurance, the government is trying to fulfill these global demands. The halal assurance system is stated in HAS 23000 (Halal Assurance System 23000) set by LPPOM MUI. Furthermore, it is emphasized by Government Regulation No. 39 of 2021 that all food and beverages distributed in Indonesia must have a halal certificate unless the product is made from prohibited ingredients (Krisharyanto *et al.*, 2019). Muslim and non-Muslim consumers need this certification due to the guarantee of high-quality standards (Krisharyanto *et al.*, 2019; Barrion *et al.*, 2022).

SMEs, such as the fishery-based sector, drive the national economy strategically (García-Casal *et al.*, 2016). One of the superior products is fish paste, a typical Indonesian processed product with high market potential locally and globally (Kleih *et al.*, 2013). The quality is determined by the primary raw material in the production process, namely fermented fish (García-Casal *et al.*, 2016). The quality is determined by the primary raw material in the production process, namely fermented fish (Osako *et al.*, 2005; Choksawangarn *et al.*, 2018; Lestari *et al.*, 2024). SMEs producing fish paste face various challenges in fulfilling halal assurance standards. The main challenge is a poor understanding of critical halal points in the production process, including the source of fish raw materials, the types of additives used, processing, and storage methods. Halal certification regulations are often considered complicated by SMEs due to the high cost, time, and effort. Consequently, many SMEs do not have an integrated and effective halal assurance system, which has the potential to reduce the competitiveness of products in an increasingly competitive market (Noman *et al.*, 2019; Sulistyowati *et al.*, 2019). The problems faced in fulfilling assurance standards are very diverse, including inconsistent production process standards, certification complexity, and barriers to international trade and financing (Anwar *et al.*, 2018; Saima *et al.*, 2024). Halal documentation and traceability systems are essential with blockchain technology, but for SMEs, it is challenging to implement (Perdani *et al.*, 2018; Giyanti *et al.*, 2021; Novianti *et al.*, 2022). To overcome these obstacles, the government must play a significant role as a facilitator (Giyanti *et al.*, 2020a, b). Efforts to digitize certification and increase awareness are very important to overcome current challenges and ensure the sustainability of halal-certified products in fisheries industry (Santoso & Rachman, 2023). However, halal certification awareness in SMEs is at a low level and has a significant impact on increasing product sales (Tawil *et al.*, 2015). The government efforts to increase the number of halal products through the halal self-declare program have proven to be effective (Yasin *et al.*, 2023).

Fish paste SMEs in West Klampis Village, Klampis Sub-district, Bangkalan Regency, East Java Province, Indonesia, face significant challenges in meeting the increasing market demand. Despite having high demand, this product does not yet have halal certification, which is a significant obstacle in expanding market reach, specifically for consumers who prioritize the halal aspect of the product. The location of SMEs in rural areas provides advantages in terms of access to local raw materials, such as fish and shrimp, which are obtained directly from local fishermen. It supports local fishermen's economic sustainability and ensures fresh and quality raw materials for fish paste production. However, obtaining information and technical support related to the certification process is often constrained. With the high public interest in fish paste, halal certification can be a strategic step to increase product competitiveness while opening up marketing opportunities to a broader market, both at the regional and national levels. The critical points in the production process determine the key aspects of the product's halal compliance. The critical potential lies in applying halal standards in the fish paste production process. Additives and enhancers in processed fishery products can affect the status (**Giyanti *et al.*, 2021; Muneeza & Mustapha, 2021**). Furthermore, the lack of an integrated and specific halal assurance system for fishery-based products is a significant obstacle (**Saima *et al.*, 2024**).

The design of a halal assurance system must consider aspects such as process, packaging, storage, transportation, supporting policies, and technology (**Perdani *et al.*, 2018**). Assurance system has been widely implemented in SMEs products, including bread, crackers, frozen food, and drinks (**Zakariah *et al.*, 2020; Ginantaka *et al.*, 2022; Hamidatun & Pujilestari, 2022; Rohmah *et al.*, 2022; Susanto *et al.*, 2022; Darmalaksana, 2023**). Although many studies have been conducted on the halal assurance system, the application to fishery-based SMEs, specifically fish paste, is still very limited. Several studies emphasized the need to develop a more specific and applicable Halal Assurance System (HAS) framework. Based on the literature and problems in the fishery industry, specifically fish paste SMEs, this study urgently considered the need for a practical halal assurance system that follows the characteristics of fishery-based SMEs. This system is essential because fish paste, one of Indonesia's typical products, must be acceptable to Muslim consumers who prioritize halal food. This assurance system can also increase competitiveness in the global market, supporting the growth of the halal industry in Indonesia. Therefore, this study aimed to design a halal assurance system that is applicable and easy to implement for fish-paste SMEs. The critical halal points in the fish paste production process will also be evaluated to provide recommendations for risk mitigation.

This study contributes to developing a structured and applicable framework for halal assurance systems specifically for fishery product-based SMEs. The framework includes practical guidelines for identifying critical halal points, risk mitigation strategies, and steps to fulfill halal certification requirements. It will aid SMEs in ensuring the

products are halal more quickly and efficiently. Moreover, this study supports the development of halal SMEs in Indonesia by providing solutions that can increase competitiveness in both domestic and global markets. In the long term, the results can make fishery product-based SMEs an essential part of the global halal industry ecosystem.

MATERIALS AND METHODS

The study was conducted at fish paste SMEs in West Klampis Village, Klampis Sub-district, Bangkalan Regency, East Java Province, Indonesia (Fig. 1). Data were collected through observations, interviews, and documentation with the SMEs.

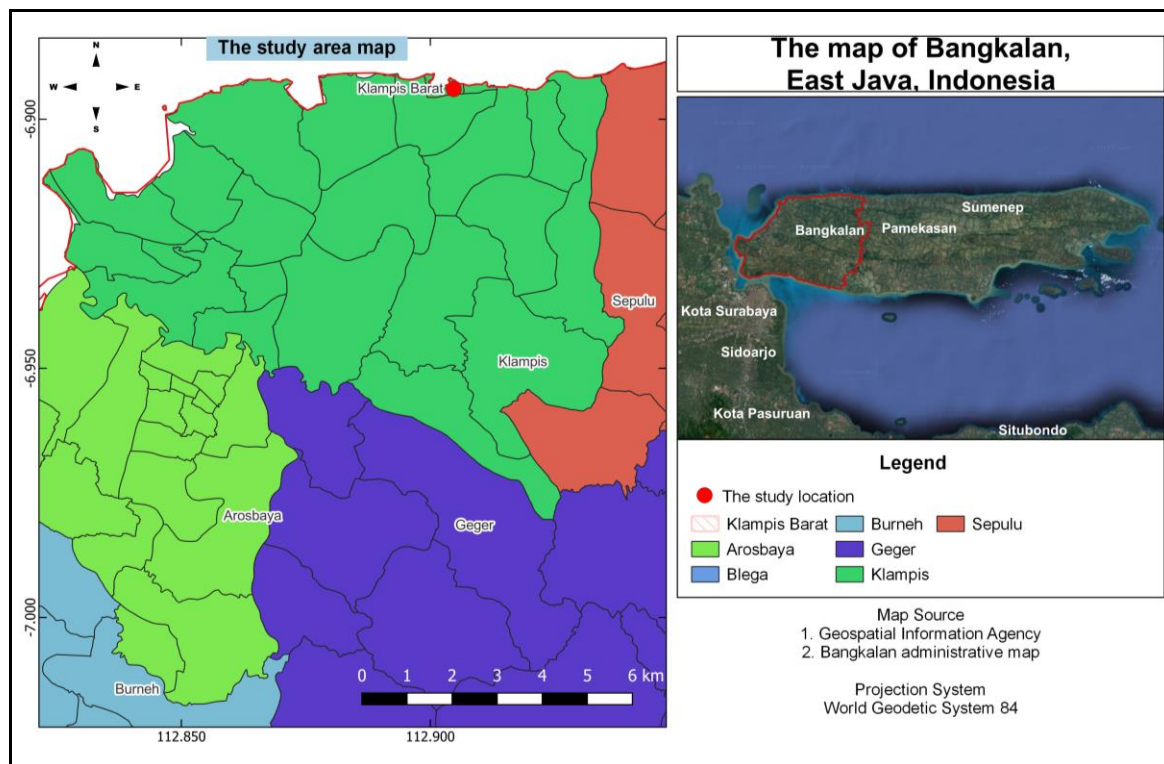


Fig. 1. The study area is located in Bangkalan, Indonesia

A descriptive observational method was used by adopting a checklist form containing 5 halal pillars, including commitment and responsibility, materials, halal product process, products, monitoring, and evaluation (LPPOM, 2008). The assessment was carried out on each criterion by calculating the percentage of suitability and non-suitability with the halal assurance system (Azizah, 2017; Jubaedah *et al.*, 2023; Purwanto *et al.*, 2023). Analysis was also conducted on potential hazards in fish paste SMEs raw materials and production processes. Furthermore, the critical control points for

halal raw materials and production processes were determined using HAS 23000 (Zakariah *et al.*, 2020; Jubaedah *et al.*, 2023; Muin & Tahir, 2023). HAS 23000 are used to establish critical control point monitoring procedures, determine prevention procedures, and correct critical control points. The final stage was designed as a manual for the Halal Assurance System based on HAS 23000, known as the five halal pillars, including commitment and responsibility, materials, halal product process, products, monitoring, and evaluation.

RESULTS

The Halal Product Assurance System is a guideline prepared, implemented, and maintained by companies holding related certificates to maintain the continuity of the production process. It ensures that products produced are halal guaranteed (Rejeb, 2018; Harini *et al.*, 2022; Puspitawati *et al.*, 2022; Putri *et al.*, 2022; Yuwana & Wahyuni, 2024). Industries without the certification are expected to design halal assurance systems for improvements to necessary aspects. The Halal Assurance System (HAS) 23000 is a document containing the LPPOM MUI certification requirements, which has the five pillar criteria: commitment and responsibility, materials, halal product process, products, and monitoring and evaluation.

1. Commitment and responsibility

Commitment and responsibility are manifested through a written statement from the company management confirming the seriousness of consistently producing halal products. It includes consistent procurement and use of raw, additional, and auxiliary materials while ensuring the production process follows standards. Furthermore, commitment is reflected in forming a halal management team, implementing socialization activities, and training all parties engaged in the production process. The suitability of implementing commitment and responsibility is shown in Table (1).

The fish paste SMEs have not fulfilled all indicators of commitment and responsibility in the halal assurance system, with a suitability percentage of 0%. The main obstacles are the absence of halal policy documents, management teams, and training and socialization.

Table 1. Suitability of implementing commitment and responsibility

No	Indicators	Suitability		Description	Percentage of suitability
		Yes	No		
Halal Policy					
1	Availability of halal policy	√		There is no	0
2	Socialization of halal policy in the company	√		document on halal policy	0
3	Availability of written evidence of halal policy	√			0
Halal Management Team					
4	Determination of halal management team	√		There is no determination of the	0
5	The team covers all parts of critical activities.	√		halal management team	0
6	The team has the appropriate duties, responsibilities, and authorities.	√			0
Training and Socialization					
7	Training procedures written in the SJPH Manual.	√		There is no training and socialization	0
8	Evidence of the implementation of HAS 23000 socialization	√			0
9	The implementation of external training is attended by the team leader/members at least once every two years.	√			0
10	Internal training is carried out at least once a year	√			0
11	Internal training involves all employees involved in critical activities, including new employees.	√			0
12	Internal training materials have covered HAS 23000.	√			0
13	Evidence of internal training evaluation is available.	√			0
Total Percentage of Suitability					0

2. Materials

The criteria include raw, additives, auxiliary, packaging materials, and lubricants for machines that may come into direct contact with products. Others include sanitizers, cleaning materials for sanitizing facilities/equipment, and facility washing validation media that come into direct contact with products. The criteria for materials are divided into the positive list and the critical list. A positive list is a list of ingredients that are not critical from the halal aspect and can be used directly in production. The list is based on a study by LPPOM MUI and considers the source of materials used on a commercial production scale. Positive lists can make it easier for business actors to license the halal certification process. A critical list is a substance that has the potential to originate, contain, or be mixed with illegal substances. Critical materials can be used if they already have a halal certificate. The halal critical point refers to the potential for the product to become haram at one of the food production stages. Determinants of halal food include the absence of alcohol or intoxicating substances and being not sourced from wild animals, fangs, long hooves, or pigs. Food ingredients from plants and fish are generally halal, with the critical point in equipment, additional ingredients during processing, and packaging. Meanwhile, food ingredients from halal animals have a critical point in the slaughter process, as well as tools and materials used or added during processing and packaging. The materials used in making fish paste are shown in Table (2).

3. Halal product process

The halal product process is a series of stages designed to ensure that products produced continue to meet standards, covering all aspects from providing raw materials, processing, storage, packaging, distribution, sales, and presentation (**LPPOM, 2008**). The product's status depends not only on the halalness of the ingredients used but also on the conditions and procedures applied during production. The Halal Product Assurance System outlines detailed and strict guidelines for meeting these criteria, which include the selection of locations, facilities, and equipment, as well as the procedures followed at each production stage. Additionally, the system regulates the equipment and devices supporting the Halal Product Process and monitors every step of production to ensure that there is no contamination or pollution that could affect the product's halal status. Identifying critical haram points in materials and production processes is a crucial aspect that must be carefully analyzed and strictly followed according to established guidelines. The identification of these critical haram points for materials and production processes is presented in Table (3).

Table 2. Suitability of material criteria implementation

No	Material Name	Brand and Manufacturer	Material Criteria		Certificate Number	Date of issue
			Positive list	Critical list		
1	Fresh fish	Fishermen from Sepulu Sub-district and Klampis Sub-district	√		-	-
2	Salt	"Anak Pintar" PT. Budiono Madura Bangun Persada		√	ID 35410000082790221	2021- 04-20
3	Water	PDAM (Regional Drinking Water Company)	√		-	-
4	Sugar	Gulaku Regular Cane PT. Sweet Indolampung		√	ID 00410000201600321	2021- 06-17
5	Plastic packaging	Unbranded		√	-	-
6	Washing soap	SUNLIGHT Dishwashing Liquid, Hygienic PT Mitrapak Eramandiri.		√	ID 00410000054520920	2021- 04-07

Table 3. Identification of critical points on haram materials and production processes

No	Description	Hazard Points of Haram	Status	Precautions
Main Ingredients				
	Fresh fish	Fish received in rotten condition, using formalin	Halal Critical Point	Fish selection ensures that the fish used are fresh.
Additional materials				
	Water	Water mixed with impure materials	Halal Critical Point	Using clean water
	Salt	Does not have halal certification	Halal Critical Point	Using halal-certified salt
	Sugar	Does not have halal certification	Halal Critical Point	Using halal-certified sugar
	Plastic packaging	Does not have halal certification	Halal Critical Point	Using halal-certified salt
	Washing soap	Does not have halal certification	Halal Critical Point	Using halal-certified salt
Process Stages				
1	Receiving fresh fish	Fish are received in dirty conditions because fishermen send them directly to the home industry location.	Halal Critical Point	Conducting careful and gradual inspections of fish received from fishermen.
2	Storing fresh fish	Before production, the fish is stored first in the refrigerator (special fish freezer), and the storage is mixed with non-halal products.	Halal Critical Point	The storage temperature is -18°C, and the storage process is separate from non-halal products.
3	Washing fish.	Fresh pindang fish, after being stored in a frozen state, is washed with running water to melt and clean the fish.	Halal Critical Point	Fish washing is not entirely washed clean because there are still remnants of dirt (soil, blood, etc.)
4	Salting	Salting the fish is carried out by sprinkling salt evenly over the fish using uncertified salt.	Halal Critical Point	The salt used uses a certified salt brand (salt brand " <i>Anak Pintar</i> ")
5	Fish arrangement	Arranging the fish is carried out in an unclean baking pan.	Non- Halal Critical Point	The tray used for arranging the fish is

				cleaned regularly.
6	Boiling 1	The fish is boiled by replacing the unclean water, and the boiling is carried out 3 times to get the fish essence.	Halal Critical Point	Using water in a tub, which is not necessarily clean or not
7	Sugar addiction	The sugar is given using sugar that is not halal certified.	Halal Critical Point	Sugar is given using intermediary tools such as spoons. The sugar used is the Gulaku brand.
8	Boiling 2	Cooking the fish essence using contaminated water until it thickens and turns brown.	Halal Critical Point	Using clean water
9	Thickening	Thickening is carried out from the second boiling point until it thickens, and during the thickening process, dirt enters the equipment.	Non- Halal Critical Point	Equipment and worker cleaning processes need to be carried out.
10	Filtering	Filtering fish paste thickened and cooled using a filter contaminated with dirt.	Non- Halal Critical Point	The filter used must be cleaned regularly.
11	Packaging	Use of packaging that is not halal certified and sometimes even using used packaging.	Halal Critical Point	Using plastic bottle packaging that has been certified halal.
12	Distribution	The distribution process is mixed with non-halal goods.	Halal Critical Point	The process must be separate from non-halal products.

Production facilities comprise all the media used in manufacturing, including physical infrastructure such as buildings and production rooms, primary machines, and other supporting equipment supporting smooth operations. Identification of production facilities status in fish paste SMEs includes an assessment of the condition concerning the standards required to maintain quality and compliance with the requirements for cleanliness, halalness, and safety. Identification of production facilities status in fish paste SMEs is shown in Table (2).

Table 4. Production facilities

No	Name	Status	Critical (Yes/No)	Percentage of suitability
1	Container/Tray	No contamination	No	100
2	Freezer box	No contamination	No	100
3	Knife	No contamination	No	100
5	Salting tub	No contamination	No	100
6	Water storage tub	No contamination	No	
7	Cooking stove	No contamination	No	100
8	Bottle	No contamination	Yes	100
9	Production room	No contamination	No	100
10	Raw material storage	No contamination	No	100

4. Product

Product quality is another key criterion in halal certification. Halalness must be ensured for the raw materials, production process, and finished product. The submitted product must not have characteristics that resemble haram products, in terms of taste, aroma, or physical appearance, including shape, name, packaging, and labeling. These aspects must align with halal values and avoid elements that contradict Islamic law (LPPOM, 2008). The suitability of implementing product criteria in fish paste SMEs is shown in Table (5).

Table 5. Suitability of product criteria implementation

No	Indicator	Suitability		Percentage of suitability
		Yes	No	
1	The shape and name of the product, the shape of the packaging, and the label used do not depict erotic, vulgar pornographic properties.	√		100
2	The product does not tend to smell or taste, leading to haram products.	√		100
Total percentage of suitability				100

5. Monitoring and evaluation

Monitoring and evaluation criteria are carried out to ensure that products produced are halal and meet the established standards. This activity is carried out when applying for certification and must also be a routine part of the production process. One way to maintain consistency is through an internal audit by a company-appointed team to check whether all established procedures and systems are running according to the rules. This audit is usually carried out at least once a year. When any discrepancies or problems are

found, the company must determine the cause and make improvements immediately. These improvements must be planned to ensure that similar problems do not reoccur.

The company must also conduct periodic management reviews to assess product compliance with the halal assurance system. The results of this review will be the basis for management to take the necessary corrective actions. The evaluation must be submitted to all responsible parties to increase the effectiveness of the halal assurance system (LPPOM, 2008). The suitability of implementing monitoring and evaluation criteria in the fish paste production process is shown in Table (6).

Table 6. Suitability of monitoring and evaluation criteria implementation

No	Indicators	Suitability		Percentage of suitability
		Yes	No	
1	Internal meetings are held to discuss the evaluation of business development.	√		100
2	Internal meetings are held to evaluate the halal assurance system for the business.		√	0
Total percentage of suitability				50

DISCUSSION

Based on Table (1), for fish paste SMEs without halal certification, the criteria for commitment and responsibility in the Halal Assurance System (HAS) are essential initial steps. This commitment involves the willingness of the business owners to actively support the implementation of halal principles in all aspects of production, from raw material selection to processing (Rejeb, 2018; Darmalaksana, 2023). One effective approach is to raise awareness through socialization, such as using banners in various production areas (Ali, 2016), reminding workers and fish suppliers to consider halal aspects at every stage of the production process.

SMEs must appoint a responsible person who understands halal procedures and regulations and ensures that the production process aligns with established standards. Forming a halal management team is crucial for fish paste SMEs. This team should be led by the business owner and include production workers who are knowledgeable about the critical points of prohibition in both raw materials and production processes. The main goal is to ensure the implementation of the Halal Assurance System, including correcting errors or rejecting raw materials that do not meet LPPOM MUI standards. In the early stages, SMEs should also formulate a clear halal policy and document the entire process to serve as a foundation for continuous evaluation and improvement (Kamaruddin *et al.*, 2012; Kurniawan, 2017). By fulfilling these criteria, fish paste SMEs can take strategic steps toward comprehensive implementation of the Halal Assurance System. Routine training, both internal (annually) and external (every two years), is necessary to enhance

knowledge and skills related to halal practices. Collaboration with relevant agencies, such as the Health Service, is also vital to ensure that materials and production processes comply with halal standards and maintain product quality.

Table (2) illustrates that fresh fish and water ingredients are on the positive list (Bergqvist & Gunnarsson, 2013; Gökoğlu & Yerlikaya, 2015; Al-Mazeedi *et al.*, 2020), indicating that they come from halal-compliant sources. Ingredients like salt, sugar, and washing soap are also on the positive list and have valid certification numbers, supporting a transparent assurance process in line with applicable regulations. However, the fish paste production process uses plastic packaging that is unbranded, raising doubts about its halal status.

Furthermore, the production process uses fresh Pindang fish delivered every three days by fishermen. Refill water is used for fish washing and production equipment. Both materials are generally categorized as non-critical from a halal perspective and are commonly used in the processing industry (Gaddamwar & Rajput, 2012; Andoni *et al.*, 2021; Maksimova *et al.*, 2021). The use of these materials in the process can be classified according to the criteria of the halal assurance system.

Several key ingredients, such as fresh fish, water, salt, sugar, plastic packaging, and washing soap, can become haram if not properly managed. For instance, fresh fish might contain formalin or be spoiled, water may be contaminated with impurities, and salt, sugar, or packaging may lack halal certification. To address these issues, recommended preventive measures include ensuring that fish are fresh, using clean water, and replacing non-halal-certified materials in accordance with certification requirements (Dwiyitno *et al.*, 2023).

Table (3) highlights critical points in the production process, including receiving fresh fish, storing and washing fish, salting, and packaging. For example, storing fish alongside non-halal products or using unclean equipment can result in contamination (Riaz & Chaudry, 2004; Shafii & Wan, 2012; Al-Busaidi *et al.*, 2016; Samikwa *et al.*, 2019; Shuib *et al.*, 2021; Saeed, 2023; Ibrahim *et al.*, 2024). Therefore, it is essential to separate halal from non-halal products, use halal-certified tools and materials, and maintain cleanliness in equipment and production facilities. These precautions ensure that the final product aligns with halal principles at each stage of production (Al-Mazeedi *et al.*, 2020; Saeed, 2023).

According to Table (4), the status of production facilities in fish paste SMEs emphasizes cleanliness conditions and potential contamination of various equipment. Data shows that most facilities, such as containers, freezer boxes, knives, salting tubs, water storage tubs, cooking stoves, production rooms, and raw material storage rooms, meet halal standards with 100% compliance. However, one facility, namely bottles, showed contamination, although it was still in compliance at the "Yes" level. This suggests that most production facilities meet the required cleanliness and halal standards, except for packaging, which requires further attention.

Table (5) indicates that the fish paste product complies with halal product criteria, including shape, name, packaging, labels, and sensory characteristics such as smell and taste. This compliance demonstrates that the product does not resemble haram products in any of these aspects (Jašić *et al.*, 2007; Azam, 2016; Eldaw & Osman, 2023). The excellent result reflects the manufacturer's commitment to producing genuinely halal products. The evaluated product meets standards in terms of visual appearance and sensory attributes. Based on these evaluations, the fish paste has great potential for halal certification, confirming its suitability for Muslim consumers.

The implementation of monitoring and evaluation criteria, as shown in Table (6), reveals that the halal assurance system in fish paste SMEs is not yet fully developed. While internal meetings are held to discuss business development, there is no evidence of periodic evaluation of the halal assurance system. These meetings primarily address sales and raw material procurement. This gap in monitoring and evaluation signals that the halal assurance system is not yet operating optimally. Only one indicator was fulfilled, and the overall suitability percentage was only 50%. To address this issue, the monitoring and evaluation system must be improved. Potential solutions include incorporating halal assurance discussions into routine meetings, covering all aspects of the system from raw materials to production processes and documentation.

To improve the implementation of commitment and responsibility criteria, fish paste SMEs should establish a halal vision and mission related to halal products. A committee comprising owners and employees can oversee the decision-making process and monitor the assurance system's implementation. Routine training is essential to emphasize the importance of the halal assurance system and ensure the success of fish paste SMEs in fulfilling their halal responsibilities.

Additionally, creating a database for raw and additional materials, including their source, halal certificates, and technical specifications, is necessary. For packaging, it is important to avoid used bottles and ensure halal certification. Raw materials should be sourced from trusted local suppliers. To ensure the authenticity of purchased products, evaluating the source of raw and additional materials is recommended.

For product criteria, fish paste SMEs should implement several key steps in the production process: (1) Standardizing procedures at each stage, from receiving raw materials to packaging, to establish clear and detailed Standard Operating Procedures (SOPs). These SOPs will guide employees and ensure consistent product quality. (2) Ensuring a clean production environment to prevent contamination from non-halal materials and guarantee the safety of the final product. (3) Regular maintenance of production equipment to maintain optimal function and minimize the risk of cross-contamination.

The final product must be genuinely halal and meet product standardization requirements. This includes detailed specifications for raw materials, proportions, the production process, and physical and chemical characteristics such as taste, aroma, color,

and texture. These specifications serve as a reference for production and quality control. To build consumer trust in the halalness of the product, SMEs should pursue halal certification. This labeling will increase consumer confidence and potentially boosting sales. Additionally, periodic testing of the product's microbiological, chemical, and physical properties is essential to ensure quality and safety, while sensory testing will confirm the product's taste, aroma, and texture align with specifications.

Periodic monitoring and evaluation can be conducted by establishing Key Performance Indicators (KPIs), such as the percentage of products passing the halal audit, the number of consumer complaints related to halalness, and the costs involved. Regular internal audits are also important to identify non-conformities and areas for improvement. Periodic management reviews of the halal assurance system's performance will provide a comprehensive picture of its effectiveness and serve as a basis for continuous improvement. SMEs should document raw material receipts, sales data, evaluation results from internal meetings, and consumer complaints. This documentation system is critical for the halal certification process.

CONCLUSION

In conclusion, fish paste SMEs have not fully met all the criteria of the halal assurance system. The system's implementation has been excellent in terms of materials, production facilities, and product criteria. However, improvements are needed in the areas of commitment and responsibility, as well as the monitoring and evaluation system. Specifically, the monitoring and evaluation criteria require enhancement through periodic internal audits and proper documentation of the results.

The analysis indicates that fish paste SMEs have the potential to obtain halal certification. However, to achieve this, several key improvements must be made, including the development of a comprehensive halal policy, the formation of a dedicated management team, employee training, the use of halal-certified packaging, the adoption of product names that align with religious norms, and an increase in the frequency of internal audits and performance evaluations.

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CONFLICT OF INTEREST

The author declares that there are no conflicts of interest regarding the authorship or publication of this research

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