

Halal Practices vs Food Heritage: A Case Study of *Keropok Lekor* Operators in Terengganu, Malaysia

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Abstract: As global demand for halal food continues to grow, Terengganu's food heritage must navigate the modern requirement for halal certification, especially for products, such as *Keropok Lekor*, which are exported beyond local markets. Hence, this study aims to examine the sustainability of halal practices in the context of food heritage, specifically focusing on *Keropok Lekor* operators in Terengganu, Malaysia. While existing literature has primarily addressed halal certification and supply chain management, there is limited exploration of how traditional foods like *Keropok Lekor* fit within the broader halal framework and cultural heritage. Therefore, a semi-structured interview was conducted with two *Keropok Lekor* operators in Terengganu. Hence, the interview process has been recorded, and then the recording has been transcribed using the NVIVO software. The theme has then been identified throughout the transcript. The themes used to analyze the transcript have been food heritage, halal practices, and challenges. By exploring *Keropok Lekor* as food heritage, investigating the halal practices among the operators, and understanding the challenges they face in maintaining these practices, the study provides insights into the intersection of cultural preservation and halal compliance. With the increasing global demand for halal-certified products, it is crucial to explore how traditional food producers navigate the delicate balance between heritage and halal standards. This study contributes to the growing body of knowledge about the sustainability of halal practices in the food industry.

Keywords: *Keropok Lekor*, Food Heritage, Halal Practices, Sustainability, Terengganu

1. Introduction

Keropok Lekor is a renowned traditional Malaysian dish, commonly available in hawker stalls, night markets, canteens, and restaurants, and is regarded as local heritage and a tourism emblem for the State of Terengganu, Malaysia. The dough is created by combining minced fish flesh with sago starch, ice, salt, and monosodium glutamate, and then shaped into a sausage or cylinder form and boiled before it is eaten. *Keropok Lekor* is predominantly manufactured by small- to medium-sized firms (SMEs) and serves as a principal economic activity for local communities, while also being recognized as a tourist attraction. *Keropok Lekor* is an easily perishable product that may become organoleptically undesirable after being maintained at room temperature for more than a day, so even with the great demand throughout Malaysia, the distribution procedure can be difficult (Tang & Tan, 2014).

Traditional food practices in Terengganu are more than just a means of sustenance, as they are intertwined with the community's social fabric and collective identity. In particular, *Keropok Lekor* has become a key element in the state's food tourism, contributing significantly to local economies by attracting visitors seeking authentic culinary experiences (Shariff et al., 2023). As a traditional food, *Keropok Lekor* plays a vital role in preserving regional knowledge and food craftsmanship, with many producers emphasizing their heritage in their marketing and production processes (Chew et al., 2022). However, as global demand for halal food continues to grow, Terengganu's food heritage must navigate the modern requirement for halal certification, especially for products like *Keropok Lekor* that are exported beyond local markets. While the preservation of food heritage remains a priority, halal certification has become essential to meet religious dietary requirements and cater to the Muslim consumer base (Hashim et al., 2022). Nonetheless, this evolving landscape has presented both challenges and opportunities for local food producers, as they balance the preservation of traditional methods with the need for halal compliance in a globalized market. As Muslim travellers increasingly seek authentic culinary experiences that align with their dietary requirements, the prominence of *Keropok Lekor* in Terengganu's food scene has exemplified how traditional foods can attract gastronomy tourism (Saffinee et al., 2024). Research has highlighted that factors like halal awareness, subjective norms,

Islamic identity, and food quality significantly influence Muslim tourists' decisions, with halal food enhancing satisfaction and driving repeat visits (Albattat & Norhidayah, 2022). Countries like Malaysia have successfully integrated halal gastronomy into their tourism strategies, showcasing local halal cuisines to attract both Muslim and non-Muslim tourists while boosting economic growth (Saffinee et al., 2024). The global demand for halal-certified food reflects a broader trend of food as a primary travel motivator, offering destination opportunities to innovate and cater to diverse dietary needs.

The research gap concerning halal practices and food heritage, particularly regarding *Keropok Lekor*, highlights the need for a more integrated approach that combines cultural significance with current halal standards. While existing literature has primarily addressed halal certification and supply chain management, there is limited exploration of how traditional foods like *Keropok Lekor* fit within the broader halal framework and cultural heritage. Studies have identified consumer perceptions of *Keropok Lekor* as a unique Malaysian snack, yet they have often overlooked its historical and cultural context about halal practices (Haleem et al., 2020; Omar et al., 2014; Omar et al., 2011). Thus, this gap suggests a potential area for interdisciplinary research that not only examines the halal compliance of *Keropok Lekor* but also emphasizes its role in preserving food heritage and promoting sustainable practices within the halal-food sector.

The sustainability of traditional food practices in the face of current certification systems has become an important area of research, particularly in Muslim-majority countries, where halal certification is a significant aspect of food production. In Malaysia, *Keropok Lekor*, a popular fish-based snack from Terengganu, stands as an iconic food heritage that is deeply embedded in the local culture. As the halal market grows, food operators in Terengganu must balance their cultural traditions with the need for halal compliance, which has implications for both local heritage and business sustainability. Hence, this study seeks to put its focus on understanding the sustainability of the halal practices among the *Keropok Lekor* operators in Terengganu, Malaysia, and the challenges they face in preserving both their food heritage and halal integrity.

2. Literature Review

Food Heritage as a Cultural Element: *Keropok Lekor* serves as an integral part of cultural identity representing historical practices, local traditions, and regional ingredients that shape a community's way of life. In Terengganu, *Keropok Lekor* is more than just a popular snack, as it is deeply rooted in the social fabric of the state, serving as a symbol of local culinary heritage (Ng et al., 2021). Food heritage contributes to the preservation of cultural practices, regional identity, and historical continuity (Blankenberg et al., 2020). As a traditional food, *Keropok Lekor* is prepared using techniques passed down through generations, such as the use of minced fish flesh, tapioca flour, and spices, which distinguish it from current mass-produced snacks. Apart from that, the preservation of food heritage involves more than just the methods of preparation, as it also encompasses the story behind the food, the relationship between producers and consumers, and its role in local economies (Siti et al., 2022). Research by Chew et al. (2022) has shown that traditional food products, such as *Keropok Lekor*, play a significant role in attracting tourists and preserving local traditions, which helps to sustain regional economic development. In other words, the sustainability of food heritage is vital for both cultural preservation and the economic viability of local food producers (Shariff et al., 2023).

Halal Practices in Food Production: Halal food practices are essential in ensuring that food products meet the dietary requirements of Muslim consumers. In the context of Malaysia, halal certification serves as a guarantee that food products comply with Islamic law, which governs the sourcing, handling, and preparation of food (Abdullah et al., 2023). The halal certification process is crucial for food businesses, as it provides an assurance of quality and authenticity that appeals to the Muslim consumer market, both locally and internationally (Hashim et al., 2022). For *Keropok Lekor* operators in Terengganu, the need for halal compliance is critical, as it ensures that their products meet the religious and ethical requirements of Islam. Halal practices in food production include ensuring that ingredients are sourced from halal-certified suppliers, maintaining proper food-handling techniques to avoid contamination, and avoiding the use of prohibited substances, such as alcohol or non-halal meats (Ibrahim & Nordin, 2020). Fundamentally, the halal-certification process in Malaysia is overseen by the Department of Islamic Development Malaysia, better known as JAKIM, and the certification is often seen as a mark of quality assurance for both local and international markets (Loke et al., 2023).

Challenges in Sustaining Halal Practices: While maintaining halal practices is essential for compliance with religious and ethical guidelines, it also presents several challenges for food operators, particularly small-scale producers like those of *Keropok Lekor* operators in Terengganu. One of the key challenges is the cost associated with obtaining and maintaining halal certification. This is because the certification process typically involves fees, audits, and regular inspections, which can be burdensome for small-scale producers who may lack the resources to comply with these requirements (Hashim et al., 2022). Additionally, the sourcing of halal-certified ingredients can be more expensive compared to that of non-halal alternatives, which further increases the financial burden on food producers (Abdullah et al., 2023). Another significant challenge is the need to balance traditional food-production methods with the current requirements of halal certification. For example, the traditional preparation of *Keropok Lekor* may involve processes that are not easily aligned with the stringent requirements of halal certification, such as the use of traditional preservatives or certain cooking methods that may not be permissible under halal standards (Yahya et al., 2021). In some cases, the operators may face difficulties in ensuring that their production facilities meet the hygiene and cleanliness standards required for halal certification (Ibrahim & Nordin, 2020). The challenge of balancing food heritage with halal practices has been discussed in previous studies, with researchers emphasizing the importance of innovation and adaptation in preserving both heritage and compliance (Yahya et al., 2021). In the case of the *Keropok Lekor* operators in Terengganu, food-heritage preservation requires them to retain the traditional characteristics of the product, such as taste and texture, while adhering to halal-certification standards (Siti et al., 2022). Research by Chew et al. (2022) has suggested that one of the ways food producers can address this challenge is through collaborative partnerships with halal-certifying bodies and other stakeholders, such as suppliers and local communities. Such collaborations can help to ensure that the traditional methods are adapted in ways that align with the current halal standards without compromising the authenticity of the product. Moreover, embracing technology, such as current food-processing techniques or digital traceability systems, can also help small-scale producers to maintain halal compliance while improving the efficiency and sustainability of their operations (Loke et al., 2023).

3. Research Methodology

This study has employed a qualitative method to investigate the perspectives of the *Keropok Lekor* producers in Terengganu, Malaysia, regarding the sustainability of the halal practices. Semi-structured interviews have been conducted with two operators of the famous *Keropok Lekor* businesses in Terengganu. These two operators have been chosen based on their involvement in the production and sales of *Keropok Lekor* for more than ten years. The reason why only these two have been selected is because they have reached the saturation phase, where both the informants' responses have followed a similar pattern. Compared to studies with complicated subjects, fewer research informants are needed if the subject is obvious and the interview provides sufficient information (Bekele, & Ago, 2022). For this investigation, these two informants are sufficient, as their responses have indicated a consistent pattern. The face-to-face interviews with the management of these *Keropok Lekor* operators were conducted in August 2024 at their respective factories in Kuala Terengganu. During the interviews, the researchers engaged in a process known as 'probing', which involves asking questions and conducting further research based on answers provided by the interviewees. The researchers have developed the questions based on the research objectives, which aim to understand the operators' perceptions of *Keropok Lekor* and their approaches to the halal practices. Hence, the interviews have been recorded and the recordings have then been transcribed using the NVIVO software. The theme has been identified throughout the transcript. The themes used to analyze the transcript have been food heritage, halal practices, and challenges. The two producers of *Keropok Lekor* involved are listed below:

Table 1: Profile of the Informants

No.	Name of Keropok Lekor Brand	Year of establishment	Generation
Informant 1	Keropok Lekor 888	1995	1
Informant 2	Keropok Lekor Cap Nelayan	2010	1

4. Results and Discussion

Keropok Lekor as Food Heritage in Terengganu, Malaysia: *Keropok Lekor* is also referred to as *Keropok Batang* or *Keropok Tongkol* in Kelantan and Pahang, respectively, and originated from Terengganu. Informant 1 is the first generation in his family to run a *Keropok Lekor* business, driven by his deep interest in the dish. He has endeavored to establish 888 *Keropok Lekor* shops, experimenting with various *Keropok Lekor* recipes until he discovered a delectable one. Until now, he has been contributing to the local economy by employing workers living nearby, including his family members. In the meantime, Informant 2 has been making *Keropok Lekor* with her husband for the past fourteen years. Before being active in the *Keropok Lekor*-making business, Informant 2 has been involved in the production of *Keropok Keping* for only three years. This has been because the *Keropok Keping* process has been time-consuming and influenced by the unpredictable weather in the State of Terengganu more than *Keropok Lekor*, which can be frozen.

Both informants have agreed that, although there are various methods of making *Keropok Lekor*, the traditional way of making them is still maintained until now. A wide range of fish species, such as mackerel, purple-spotted bigeye, yellow goatfish, sardine, threadfin bream, and sea bass, are still being utilized in the production of *Keropok Lekor*. In addition to minced fish, the primary components include tapioca starch, sugar, salt, crushed ice, sago flour, and a permissible flavor enhancer, which are ingredients that have been discussed by previous scholars, including Jamilah et al. (2024), Asby et al. (2024), and Abdullah et al. (2024). Meanwhile, the making of *Keropok Lekor* often entails several steps, such as preparing the fish, combining the ingredients, making the dough, shaping it, boiling it, and deep-frying it. This tradition is still being maintained to ensure that the quality of *Keropok Lekor* is still the same and delicious to eat. The interviews have also shown that *Keropok Lekor* has long been a part of Terengganu's well-branded food heritage, as mentioned in the statement below:

"Every school holiday or weekend, this shop must be packed with tourists who come to buy Keropok Lekor. The Keropok Lekor market no longer needs to be introduced because it's already well-known to its fans. (Informant 1)

"The production was unable to conduct an online promotion due to the high demand for Keropok Lekor, from both residents and outsiders who came to wholesale Keropok Lekor". (Informant 2)

Hence, the distinctiveness of each *Keropok Lekor* in the State of Terengganu lies in the fact that, despite the presence of numerous operators, the taste and texture vary slightly. This is one of the reasons Terengganu's *Keropok Lekor* has so many different brands, depending on the manufacturers or operators. Based on the statements uttered above by both Informants 1 and 2, this phenomenon is caused by the unique recipe and cooking technique of *Keropok Lekor* itself. While the main ingredients remain the same, the selection of fish and flour mixture plays a crucial role in distinguishing the taste and texture of *Keropok Lekor*.

Halal Practices and Challenges among Keropok Lekor Operators in Terengganu, Malaysia: Based on the results of the investigation on the halal practices by the *Keropok Lekor* operators, it has been revealed that Informant 1 has not received a halal stamp from SIRIM. Despite this, he has continued to maintain high standards of cleanliness and hygiene when producing *Keropok Lekor*. For many *Keropok Lekor* operators, the halal stamp is not necessary for now because tourists or consumers still trust and believe that *Keropok Lekor* is halal, thus, it can be eaten by all. This is due to the long-standing belief and culture that *Keropok Lekor* is halal, as they do not use any raw materials or ingredients that are forbidden according to their respective religious beliefs. Even though Informant 2 has applied for halal practices and received the stamp, she has not used it to package *Keropok Lekor* and other related products. Like Informant 1, she also has faith in tourists' and consumers' confidence, ensuring that *Keropok Lekor* remains halal, even without a halal stamp.

In addition, according to information received from Informant 1, he has applied for halal certification approval but has failed and needs to be improved. There is another challenge in terms of obtaining the halal stamp, which is related to facilities available in a setting where *Keropok Lekor* is manufactured that must meet certain specifications set by SIRIM. Furthermore, Informant 1 has also informed that enhancing the facilities would require a significant financial investment, which he could not afford due to his primary focus on maintaining smooth business operations. Most of the operators of *Keropok Lekor* run small- and medium-sized enterprises (SMEs). In the meantime, the challenge for Informant 2 in applying the halal certificate has stemmed from the

high cost of printing out the packaging with the halal stamp, which is not justified by the price of *Keropok Lekor*. This means that if the *Keropok Lekor* operators decide to print the halal stamp, they will have to incur some losses, and it will take time for them to break even, given the business conditions in the SME category.

In the interim, both informants have also agreed that the halal-certificate application procedure is very fussy and cannot be fulfilled by the SME operators. In addition, they have also stated that, even without a halal certificate, they could still turn a profit and continue to operate. It is clear that both operators continue to cater solely to domestic demand; however, unlike the current sales trend, they do not engage in online sales. This is due to their emphasis on quality over quantity, as well as their ability as the SME operators to sustain the *Keropok Lekor* enterprise and maintain its resilience in the market. Meanwhile, they have recommended that the entity issuing the halal certificate should streamline the procedure and adhere to the current business category. Typically, operators who have halal certificates are the ones who are self-aware, whose cognizance is raised by awareness campaigns. However, if there is no stringent enforcement or consideration made by JAKIM in the application, many operators will not apply for it as long as it would not affect their businesses. Some have even blamed expensive printing costs as a culprit behind the idea of why they have not renewed their halal certificates. This aligns with the findings of Dashti et al. (2024), who have highlighted the challenge of monitoring and enforcing halal practices by entities issuing halal certificates due to the absence of a traceability system at local and regional levels.

5. Conclusion

In conclusion, the findings have revealed that *Keropok Lekor*, which is among the key components of Terengganu's food heritage, faces significant challenges in maintaining halal practices. It is known that food heritage and halal practices are both critical components of local food identity, yet they must coexist in a way that preserves cultural values while meeting the needs of current certification standards. The challenges of sustaining halal practices, particularly in small-scale production settings, include financial constraints, sourcing halal ingredients, and aligning traditional production methods with current certification requirements. There are some similarities between this study and the one done by Said et al. (2024), which are the fact that both studies have looked at the guidelines for halal practices that say that the food industry should improve the halal processes to make sure that the rules and standards are clear. By looking into these food heritage and challenges, this study has shown how business owners can protect heritage while also following the halal rules. This will help *Keropok Lekor* to stay around for a long time as both the food heritage and a halal-certified product, which are in line with the Malaysia Halal Industry Master Plan 2030 (Halal Development Corporation, 2021).

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