Study on Halal Food in Indonesia

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1SMART Indonesia

Indonesia, as a country with the largest Muslim majority population, certainly has great potential in the halal food industry. Indonesia has the potential to develop the halal industry in various sectors, especially halal food, halal tourism, halal fashion, halal pharmaceuticals, and halal cosmetics. This study aims to determine the extent of the development of research on the theme of Halal food in Indonesia. The results of the study indicate that the number of research publications related to this topic is 225 Scopus indexed journal articles. The results show that in the development of research related to Halal food in Indonesia based on bibliometric keyword mapping, the most used words are product, halal certification, halal food, intention, attitude, knowledge, market, and industry. Based on the keywords that are often used, it can then be grouped into 5 research clusters with topics that discuss: (1) Halal Food Safety Standards in Indonesia, (2) Halal Labels on Halal Food in Indonesia, (3) Halal Logistics Services, (4) Halal Awareness among Producers, and (5) Halal Food Products in Indonesia. Topics outside of this are of concern to researchers in the future so that studies related to halal food in Indonesia become more comprehensive.

Keywords: Halal Food; Research Map; Bibliometric; Indonesia
INTRODUCTION

Halal food refers to food that is allowed or lawful in Islam. The concept of halal food is based on the Qur'an and Hadith which outline specific guidelines of what Muslims may or may not consume. The main principles include avoiding carrion, blood, pork, and any food that is invoked in the name of a god other than Allah. Meat must be slaughtered while invoking the name of Allah, and alcohol and other intoxicants are also prohibited. In recent years, public interest in halal food has increased. This is motivated by several factors, one of which is related to the benefits offered to consumers. Khan (2023) explained that consuming halal food provides a safer choice and minimizes the potential for food contamination and associated health risks, and the production of halal food complies with strict hygiene and sanitation standards, thus ensuring food safety.

Carrasco et al. (2022) also explain the benefits that halal food offers, where based on their research halal meat has a healthier lipid profile, which can have a positive impact on body weight, muscle mass, body fat, and antioxidant status in non-Muslim consumers. In addition, halal meat often comes from animals raised without the use of growth hormones or routine antibiotics, thus encouraging a more natural and healthy diet. Then, halal slaughter methods involve a quick and humane process, minimizing animal suffering and reducing the likelihood of stress-related monsters in the meat. It explains that halal food production is carefully monitored to ensure the highest standards of hygiene, animal welfare and ethical treatment (That Fat Cow, 2021). These benefits make halal food a healthier and more sustainable choice for consumers, and encourage welfare and ethical practices in the food industry. This is also what is increasing public interest in halal food.

The halal food industry has experienced significant growth and development globally, driven by factors such as the rising Muslim population and increasing awareness of halal food requirements. The industry has become a major player in the global food market, with a projected growth rate of 11.1%, reaching US$4.1 trillion by 2028 (Asia Pacific Food Industry, 2023). On the other hand, the Muslim population is projected to reach around 3 billion by 2060, which is a significant driving force for the growth of the halal food market. Aneshi & Khadar (2022) also confirmed the same thing where the global halal food industry is expected to experience significant growth due to the increasing Muslim population and large purchasing power. Maulana et al. (2024) also stated that the growth of the Muslim population around the world is the main driver of halal industry growth.

Indonesia, as a country with the largest Muslim majority population, certainly has great potential in the halal food industry. This is also revealed by Izzudin & Adinugraha (2021) that Indonesia has the potential to develop the halal industry in various sectors, especially halal food, halal tourism, halal fashion, halal pharmaceuticals, and halal cosmetics. The Indonesian government has established the Halal Product Guarantee Agency (BPJPH) to promote and regulate the halal industry, because the government aims to make Indonesia the world’s halal center and the pioneer of halal industry globalization (Maulana et al., 2024). To make this happen, Maulana et al. (2024) stated, initiatives and infrastructure that support the halal industry, such as halal industrial zones, distribution centers, and research centers, are considered strategic steps to advance the halal industry and ensure its sustainability. Halal certification is very important for producers and traders to inform and convince consumers that their products are of good quality and suitable for consumption according to religious rules (Peristwo, 2019).

Despite these efforts, the development of Indonesia’s halal industry still faces challenges such as low awareness of halal, low competitiveness of local products, and problems in implementing the Halal Product Guarantee Regulation (Izzudin & Adinugraha, 2021). Febriati et al (2024) added that the halal food industry in Indonesia faces challenges in managing the supply chain, especially in ensuring the availability of raw materials and maintaining the integrity of food products throughout the supply chain. In addition, there is a need for more skilled workers in the halal food industry, particularly in the areas of production, processing, and certification (Zahra, 2023). Zahra (2023) also explained that other challenges faced by the halal food industry in Indonesia are problems in the certification process, which can hinder the global reach of halal products from Indonesia, limited integration of upstream and downstream industries, lack of cooperation between stakeholders, limited global recognition for halal products, inadequate food safety and quality standards, and limited special economic zones. To overcome these challenges, it is important to address regulatory issues, human resources, institutional
development, services and IT, sharia issues, and public awareness (Irfany & Rusydiana, 2022). This can be achieved through a combination of government support, private sector initiatives, and international cooperation.

Thus, it is important to see the extent of the current development of Halal Food in Indonesia through research, and one method that can be used to see the development of research is bibliometrics using VosViewer. The method is able to create and display author journal maps and research paths based on co-citation data or keyword maps based on shared incident data. A number of recent studies include Handayani et al (2022) providing a brief bibliometric review of previous literature reviews in understanding halal suppliers in the food supply chain to achieve halal standards from upstream to downstream. The study revealed five research clusters: halal supply chain, food supply chain, supply chain integration, halal lifestyle, halal logistics.

Rusydiana & Purwoko (2021) determined the trend of halal food research published by leading journals on Islamic financial economics. The results showed that since 1990 there has been an increase in the number of articles published on halal food and Rohman A., who wrote the most about halal food. The institution that publishes most of the papers related to the theme of halal food is the Faculty of Business and Accounting, University of Malaya, Kuala Lumpur, Malaysia. Conversely, the country that publishes most of the papers related to the theme of halal food is Malaysia. Wahyuni et al (2019) reviewed the literature on food safety and halal food in the supply chain (SC). The results of this study show the main contributing articles, authors, affiliations, and keywords that have been thoroughly reviewed, grouped, and analyzed. Through graphical analysis and systematic clustering, four major clusters of food safety and two clusters of halal food in SC research have been identified as the most promising and potential future research opportunities.

Priantina & Sapian (2021) reviewed articles to map the problems, models, solution approaches and more importantly, the future direction of the halal food topic. The results showed that the visualization of research development mapping on this theme was divided into three clusters. Cluster one consists of 53 topics, cluster two consists of 42 topics, cluster 3 consists of 32 topics. Izzah et al (2023) reduced research articles related to halal food SMEs. The results showed that in the last 10 years, researchers have received positive attention to the study of halal food SMEs. Based on the co-authorship criteria, three groups of authors were obtained. While the co-occurrence criteria using 69 keywords, nine clusters were obtained. The nine clusters are halal food, halal food industry, SMEs, food, logistics, halal, business, performance, and halal food certification.

Based on a number of these studies, this research was conducted to complement existing research and fill the gaps in previous research and to expand the literature related to Halal Food in Indonesia through research paths. Specifically, the purpose of this research is to see the development of "Halal Food in Indonesia" research around the world published by journals with this theme and see future research opportunities by formulating a research agenda.

**METHOD**

In this study, various scientific journal publications related to the theme of Halal food in Indonesia were used as data sources. Data is collected by searching for journal publications indexed in the Scopus database using the keyword "Halal food Indonesia". After that, scientific articles or journals that are relevant to the research theme will be selected based on the publication data that has been collected. There are 225 journal articles published in this theme. The development of publication trends related to the research topic was analyzed using VOSviewer software, which can generate bibliometric maps and allow for more detailed analysis (Maulida, 2023).

In order to build maps, VOSviewer is used to obtain bibliometric visualizations which are then analyzed. Furthermore, VOSviewer is able to create and display author journal maps based on co-citation data or keyword maps based on co-incidence data. Therefore, this research will analyze journal maps related to the theme of Halal food in Indonesia, including author maps, and keywords which are then analyzed for research paths that can be carried out in the future through clusters on keyword mapping.

**RESULT AND DISCUSSION**

This research discusses "Halal Food in Indonesia" by utilizing 225 publications of journal articles indexed in Scopus. Bibliometrics is a method used to measure and evaluate scientific performance by taking into account factors such as citations, patents, publications, and other more complex indicators. Bibliometric analysis is conducted to evaluate research activities,
laboratories, and scientists, as well as the performance of countries and scientific specializations. Some of the steps in bibliometric analysis include identifying the background of the research, collecting the databases to be used, and determining the main indicators to be used in the research (Khairunnisa & Rusydiana, 2023).

This section will deepen the meta-analysis results by showing a visual mapping chart that illustrates 225 journals related to "Halal Food in Indonesia". In this research, mapping is done by analyzing keywords and important or unique terms contained in journal articles. Mapping is a process to identify knowledge elements, configurations, dynamics, dependencies, and interactions among these elements. The results of network visualization of 225 journals with the theme "Halal Food in Indonesia" will be explained in more detail in the next section.

**Bibliometric Author Mapping**

By using bibliometric analysis using VOSviewer software, a mapping of authors contributing to the field of "Halal Food in Indonesia" is obtained. The resulting image provides a visual representation of the mapping, the bigger and brighter the point marked in yellow, the more the number of journal publications related to the theme "Halal Food in Indonesia" that have been published by that author.

![Figure 1. Author mapping](image)

The figure above explains that the cluster density in the bibliometric map depends on the intensity of the yellow color shown. And the yellow color on the map depends on how many items are related to other items. For this reason, this section is very important to get an overview of the general structure of the bibliometric map that is considered important to analyze. From this, it is possible to identify the authors who publish the most works.

In general, each author or researcher has different tendencies in each publication of their work. On some occasions, an author appears as a single author, but on other occasions the author can write together with other authors or researchers, so that it will affect the density of the cluster and some clusters show different densities. However, authors who have a large enough cluster density identify that the author has published the most research on the theme "Halal Food in Indonesia", when compared to authors whose cluster density is lower, so the results found can be a reference for other researchers in the future. From the results of the analysis, it was found that the authors who published the most publications related to the topic "Halal Food in Indonesia" were Azizah, S. N; Busyra S.H.I.; Ardi R.; Usman H.; Chairy C.; Projo N.W.K.; and Rishelin N.; Ardi R.
Research Map

The figure below describes the trend of keywords that appear in research on the theme "Halal Food in Indonesia" and the larger shape is the most used word in journal publications with the theme "Halal Food in Indonesia".

![Keywords cluster on Indonesia halal food](image)

Figure 2. Keywords cluster on Indonesia halal food

As for the mapping, the keywords that appear most in the publication "Halal Food in Indonesia" include product, halal certification, halal food, intention, attitude, knowledge, market, and industry, which are then divided into 5 clusters, as follows:

Cluster 1: Halal Food Safety Standards in Indonesia

In the first cluster there are 16 keywords, namely; Application, development, government, halal industry, halal supply chain, halal tourism, industry, Islam, market, person, problem, process, regulation, risk, safety, and standard. Based on these keywords, one of the relevant research topics or research maps is related to halal food safety standards in Indonesia. Muflih & Juliana (2021) explained in their research the impact of spirituality on halal-labeled food shopping behavior and found that although there is no direct relationship, spirituality indirectly affects behavior through image, trust, and satisfaction. This study confirms that image, trust and satisfaction are factors that influence the increase in shopping behavior of consumers who choose halal-labeled food, where the halal label is one of the government's efforts to maintain the safety of halal food in Indonesia.

Putri et al (2022) studied the food safety and halal assurance system in a small-medium food industry producing mozzarella cheese. The system is based on the principles of Good Manufacturing Practice (GMP) and Hazard Analysis Critical Control Point (HACCP) and includes six critical control points. The results can be used by SMEs to obtain recommendations and certification from regulatory agencies. All food businesses are required by law to implement and maintain a food safety management system based on Codex Hazard Analysis Critical Control Points (HACCP) principles. However, more than half of small and medium-sized enterprises (SMEs) in Indonesia have difficulty complying with these regulations. This study designed a food system by identifying the implementation of Good Manufacturing Practices (GMP) and HACCP in Dairy SMEs based on surveys, in-depth interviews, and review of standard documents. The food safety system was implemented using HACCP, and six Critical Control Point (CCP) processes were identified, including milking (raw materials), storage,
pasteurization, curd filtration, and cheese packaging. A halal assurance system was implemented at the SME Dairy Farm by identifying and refining the company’s business processes and mozzarella cheese production process. In addition, Standard Operating Procedures (SOPs) were developed that include food safety systems and halal assurance systems.

Purwanto et al (2021) analyzed the factors that influence consumer interest in buying halal processed food. Specifically, this study aims to analyze brand image, perceived quality, perceived value, halal certification, health, halal awareness, and halal marketing as factors that influence customers’ halal purchase intentions. The results concluded that halal awareness, brand image, halal certification, health reasons, and perceived value have a positive and significant effect on purchase intentions. In addition, research from Wahyuni et al (2018) examines food safety and halal food risks, critical points, critical processes, and integration between food safety and halal food issues in chicken meat products. Food safety and halal food are important for food quality. Food safety has an impact on human health, while halal has an impact on Islamic territory.

Cluster 2: Halal Labels on Halal Food in Indonesia

In the second cluster, there are 12 research keywords with the topic of halal food in Indonesia, namely: Attitude, cosmetic, halal cosmetic, halal food, halal food product, halal label, indonesian, influence, intention, Muslim consumer, purchase intention, religiosity, and satisfaction. One of the relevant research topics based on these keywords is related to halal labeling on halal food in Indonesia. Among the studies that examine similar topics include Maison et al (2018) examining the impact of explicit (halal labeling) and implicit (country of origin) cues on product perceptions among Muslim consumers in Indonesia. The results showed that although the halal label alone had a limited effect, exposure to non-Islamic COO information along with the label decreased positive perceptions among those with strong religious purchasing behavior. This suggests that Muslim consumers may not trust halal-labeled products from non-Islamic countries.

Millatina et al (2022) examined the impact of halal labeling on halal food purchasing decisions in Indonesia. The results found that the halal label significantly influenced purchase intentions and ultimately purchasing decisions. The awareness of halal among Indonesians is increasing, making it a lifestyle choice. Fasih et al (2020) investigated the practice of labeling haram (forbidden) food as halal (allowed) in Makale Toraja. The study found problems with fake halal labels, mixing unlawful ingredients, and weak supervision of halal-labeled food. The halal certification process is also considered convoluted.

Efendi (2020) analyzed the factors that influence Muslim students’ intention to buy halal-labeled food. The results showed that subjective norms, perceived behavioral control, and religiosity had a positive and significant effect on intention. Together, these factors explain 36.8% of the intention to buy halal-labeled food. Fahmi (2017) analyzed the effect of the halal label on Muslim consumer attitudes and behavior. The halal food market in Indonesia has great potential where 88% of the population is Muslim. The halal logo of the Indonesian Ulema Council (MUI) is a certification of the halalness of products listed on food products, and non-food products. The MUI halal logo has global access, where export and import products traded in Indonesia must have it. Muslims in Indonesia are very concerned about halal issues, because in Islam it is forbidden to consume haram products, including food that is unhygienic and contaminated with haram ingredients. Therefore, this research is relevant and important to do. The results of the analysis found that attitudes towards halal labeling and subjective norms have a positive and significant influence on intention variables.

Cluster 3: Halal Logistics Services

The main keywords in cluster 3 include, beverage, business, certification, company, demand, factor, halal certification, halal logistics, impact, implementation, performance, and service. As for the relevant research topic, namely halal logistics services. Among the relevant studies, Susanty et al (2021) identified and ranked barriers to the implementation of halal logistics in food, beverage and ingredient companies in Indonesia. The results found that the lack of support for logistics service providers and the lack of customer demand and reluctance to pay for halal logistics occupied the top level. These barriers are influenced to a lesser extent and have less influence than other barriers. In addition, lack of management commitment is a major barrier to the implementation of halal logistics. Then, this study shows some managerial implications to overcome the
barriers that hinder the implementation of halal logistics.

Alhamudi et al (2023) analyzed the competitiveness and halal logistics of small and medium-sized beverage industries in Indonesia. This study found that the COVID-19 pandemic has caused a decline in sales in these industries. Using the SOAR analysis method, marketing strategies were designed to increase sales and overcome the challenges faced by SMEs related to halal logistics. The study also identified barriers in implementing halal practices, such as lack of education and government constraints. Masudin et al (2020) investigated the relationship between employee readiness to adopt technology in the halal meat retail and manufacturing industry and halal supplier service quality on halal logistics performance. The results of this study indicate that halal logistics performance is significantly influenced by the readiness to adopt technology in the halal meat retail industry and the quality of halal service suppliers. While the moderate effect occurs in the relationship between the technological readiness of the halal meat manufacturing sector and halal logistics performance.

Cluster 4: Halal Awareness among Producers

There are 6 keywords in this cluster, namely awareness, halal awareness, halal certificate, knowledge, perception, and producer. Based on these keywords, relevant research topics include halal awareness among Indonesian producers. As for a number of relevant studies, Nur'aini et al (2022) examined the relationship between human capital and the desire to become a halalpreneur, with halal awareness as a moderating variable, among micro entrepreneurs in Indonesia. The results of the analysis indicate a direct relationship between human capital and the decision to become a halalpreneur, with halal awareness moderating this relationship. This highlights the need for government support and policies to improve the knowledge and expertise of micro-entrepreneurs in producing halal products.

There are still very few studies that examine halal awareness among producers. The majority of research focuses more on halal awareness among consumers. In fact, it is important to study among producers, considering that producers are the makers and play a role in product distribution to consumers.

Cluster 5: Halal Food Product in Indonesia

In this cluster, there are three umata keywords, namely food product, pork, and product. Based on these keywords, one of the relevant research topics is halal food products in Indonesia. Quite a lot of research has examined this topic, among the relevant research is Ratanamaneichat & Rakkarn (2013) discussing the important issues of halal food producers in accordance with changes in food import/export requirements and regulations to Indonesia. It is known that the largest market for halal food products in Asia is Indonesia, so the quality assurance of halal products in this country was developed as part of the Food Security Strategy and Non-Tariff Barriers (NTBs). Halal requirements and regulations emphasize on the Halal manufacturing process. The Indonesian Ulema Council (MUI) has verified and accepted that the many organizations of Halal certification bodies around the world create a lot of confusion in how to properly follow quality assurance for producers/exporters.

Vanany et al (2020) investigated the factors that influence halal food consumption in Indonesia, using the theory of the extended planned behavior model. The results showed that attitude, religious identity, and moral obligation were significant predictors of intention to consume halal food. Septiani & Ridlwan (2020) studied the effect of halal certification and halal awareness on purchase intention of halal food products in Indonesia. The results showed that both factors have a positive influence on the purchase intention of halal food products.

Vanany et al (2019) proposed a multi-phase QFD model to improve halal food production. The model was applied in a chicken processing plant in Indonesia and identified key processes and critical factors, resulting in a prioritized improvement program. Rakhmawati et al (2021) proposed LODHalal, a Linked Open Data system of halal food products, to overcome the lack of information on the LPPOM MUI website. The system uses halal vocabulary and connects data from various sources, providing recommendations on the halal and nutritional status of a food product through web and Android applications. Usman et al (2023) examined the difference between halal awareness and halal-certified awareness among Muslim consumers in Indonesia. It also explores the relationship between knowledge about halal and halal-certified products and their impact on awareness. The results show that halal awareness has a significant effect on halal certified awareness, and exposure and religious commitment play a role in increasing knowledge and awareness.
CONCLUSION

This study aims to determine the extent of the development of research on the theme of Halal food in Indonesia. The results of the study show that the number of research publications related to this topic is 225 Scopus indexed journal articles. Furthermore, based on the results of the analysis on bibliometric author mapping, it shows that Azizah, S. N; Busyra S.H.; Ardi R.; Usman H.; Chairy C.; Projo N.W.K.; and Rishelin N.; Ardi R. are the authors who have the most publications with the theme of Halal food in Indonesia. Furthermore, in the development of research related to Halal food in Indonesia based on bibliometric keyword mapping, the most used words are product, halal certification, halal food, intention, attitude, knowledge, market, and industry. Based on the keywords that are often used, it can then be grouped into 5 research clusters with topics that discuss: (1) Halal Food Safety Standards in Indonesia, (2) Halal Labels on Halal Food in Indonesia, (3) Halal Logistics Services, (4) Halal Awareness among Producers, and (5) Halal Food Products in Indonesia.

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