

# Global Trends in Halal Research Among Small, Medium, and Micro Enterprises: A Bibliometric Mapping of the Past Two Decades (2004–2025)

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**Abstract:** *The global halal industry has experienced significant expansion over the past two decades, with Small, Medium, and Micro Enterprises (SMMEs) playing an increasingly vital role in driving innovation, inclusivity, and market penetration. Despite this momentum, a comprehensive understanding of scholarly trends in halal-related SMME research remains limited. This bibliometric study offers a longitudinal and quantitative analysis of global publication patterns from 2004 to 2025, using 406 Scopus-indexed articles and VOSviewer for mapping co-authorship, citations, and keyword co-occurrence. Guided by six research questions, the study explores trends in publication volume, author productivity, citation impact, country-level contributions, keyword evolution, and international collaboration networks. The findings reveal a notable rise in publication activity post-2020, reflecting growing scholarly and policy interest in halal-compliant business models. Indonesia leads in total output, followed by Malaysia and Thailand, highlighting Southeast Asia's centrality in this discourse. Author and citation analyses identify a small group of influential scholars and publications that have shaped the field's foundational knowledge. Keyword analysis shows an evolution from early emphases on religious, ethical, and animal welfare topics toward more strategic and operational concerns, including halal assurance, digital traceability, and SMME competitiveness. However, collaboration patterns remain regionally concentrated, with limited engagement from scholars in non-Muslim-majority countries, indicating untapped opportunities for broader global knowledge exchange. This study contributes a structured overview of the halal-SMME research landscape, highlighting its progression, regional dominance, and emerging priorities. The insights offered are valuable for scholars, practitioners, and policymakers seeking to strengthen the halal ecosystem through more inclusive, innovation-driven, and globally connected research efforts.*

**Keywords:** Halal, SMMEs, Bibliometric Analysis, VOSviewer, Halal Certification, Global Trends, Southeast Asia

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## 1. Introduction

Small, Medium, and Micro Enterprises (SMMEs) hold a pivotal role in the global economic landscape due to their substantial contributions to GDP and employment. Collectively, SMMEs

contribute approximately 50% of global GDP and are responsible for employing around 70% of the global workforce, underscoring their economic significance across both developed and developing nations (Ruby et al., 2024). In many developing and transitional economies, SMMEs serve as key drivers of employment, playing a vital role in reducing joblessness and supporting local livelihoods (Reddy & Kumar, 2024; Sharma & Kohli, 2019). Beyond economic output and employment, SMMEs are also instrumental in fostering innovation and development. They are often the source of technical advancements and the creation of new products, which are critical elements in stimulating economic growth and enhancing competitiveness (Ayandibu & Houghton, 2017). Given their extensive impact, SMMEs are essential to any strategy aimed at sustainable development and inclusive economic progress. Building on their vital economic contributions, SMMEs also play a central role in sector-specific industries such as Halal food, where their participation is both critical and complex. Given their extensive impact, SMMEs are essential to any strategy aimed at sustainable development and inclusive economic progress. Their influence extends across diverse industries, including the growing Halal food sector, where they serve as key players in production and distribution.

Across both Muslim-majority and non-Muslim countries, the Halal food landscape for small, medium, and micro food enterprises reveals a complex interplay of challenges and opportunities. The Halal food industry, driven by the growing Muslim population, has expanded significantly, yet SMMEs face numerous hurdles in adopting Halal certification. In Malaysia, for instance, only 4% of SMEs possess Halal certification, despite the government's active promotion (Mat et al., 2020). Key challenges include inconsistent Halal standards, complex certification processes, and barriers in international trade (Saima & Firdaus, 2024). Additionally, SMEs face various uncontrollable external factors, such as economic policies and market conditions, which can hinder their growth and sustainability (Ayandibu & Houghton, 2017; Nxele & Hoque, 2023). Hence, continued support through government policies, technological integration, and strategic financial management practices is essential for their sustained growth and contribution to the economy (Aziz et al., 2024; Azzuhri, 2018; Yanidin et al., 2020).

A clearer understanding of these challenges calls for an exploration of the key factors influencing Halal certification adoption among SMMEs. These factors span technological, organizational, and environmental dimensions. The adoption of Halal certification is influenced by various factors, including technological, organizational, and environmental aspects. Technological factors such as compatibility and perceived benefits play a crucial role, while organizational factors include Halal integrity, awareness, top management support, and organizational readiness (Azmi et al., 2019). Environmental factors like market demand, consumer pressure, and government support also significantly impact the adoption process (Azmi et al., 2019). In Indonesia, the low percentage of Halal certification among MSMEs is partly due to unfamiliarity with the certification process (Ahmadiyah et al., 2022). A self-assessment system has been proposed to help MSMEs detect non-Halal ingredients before starting the certification process, which could streamline adoption and improve compliance (Ahmadiyah et al., 2022).

While understanding these influencing factors is crucial, ensuring long-term compliance and industry growth also requires addressing operational gaps and enhancing the overall quality of Halal practices. To foster the growth and sustainability of the Halal food industry, it is essential to address the gaps in Halal practices and enhance the quality and safety of Halal food products. Studies have shown that gaps exist in areas such as ingredient sourcing, product storage,

hygiene, and sanitation (Saiman & Yusma, 2022). Recommendations include fostering Halal awareness and education, establishing effective supplier relationship management, and embracing innovation in Halal supply chain technology (Andespa et al., 2024). Additionally, integrating sustainable practices and leveraging e-commerce can position SMMEs for increased Halal food exports (Saima & Firdaus, 2024). By addressing these challenges and implementing strategic improvements, SMMEs can better navigate the Halal food landscape and contribute to the industry's global growth.

Despite the importance of SMMEs and their critical role in Halal food production, there is limited systematic evidence mapping how scholarly research has evolved in this area. Existing studies tend to focus on isolated case studies or localized challenges, lacking a global perspective on publication trends, author collaboration, or thematic focus. This study addresses this gap by using a bibliometric mapping approach to analyze global research trends on Halal-related topics among SMMEs. By visualizing patterns in scholarly output (Figure 1), this paper aims to highlight research hotspots, identify influential contributors, and offer directions for future investigations aligned with policy and industry needs.

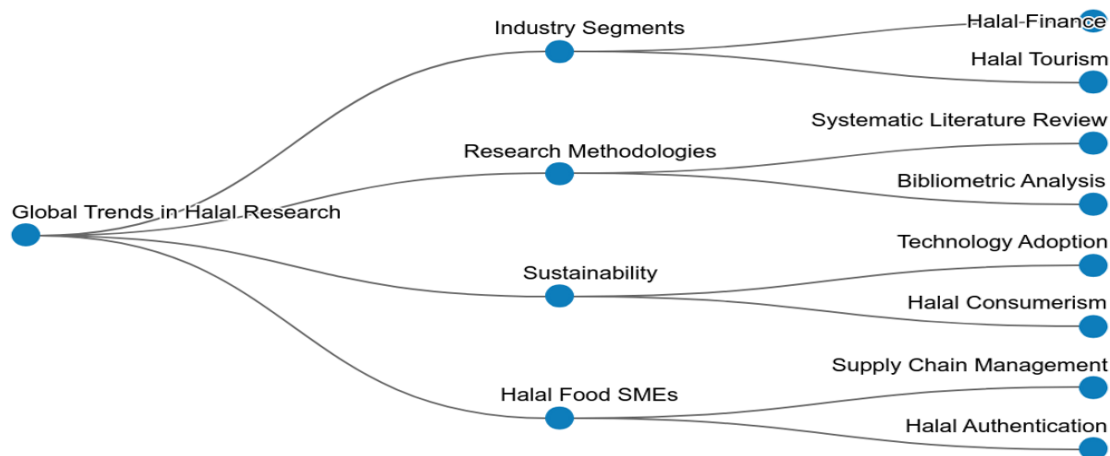


Figure 1: Overview of SMMEs in Halal-Related Studies

## Research Question

1. What are the publication trends in halal-related research involving Small, Medium, and Micro Enterprises (SMMEs) over the past 20 years?
2. Who and how much has been published in the area concerning the author?
3. Who are the top authors based on the research citations?
4. Where are the top 10 countries based on the number of publications?
5. What are the popular keywords in halal and SMME research, and how have these evolved?
6. What is Co-Authorship Countries' Collaboration?

## 2. Methodology

This study adopts a bibliometric approach to systematically explore academic literature focused on halal-related research within the context of SMMEs. Bibliometric analysis supports the structured collection, categorization, and quantitative assessment of scholarly output (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). This method supports the development of a comprehensive and analytically grounded overview of the field (Fahimnia et al., 2015). Beyond identifying publication patterns and prolific contributors, it allows for

deeper exploration using techniques such as co-authorship mapping, keyword co-occurrence, and document co-citation (Wu & Wu, 2017). For this analysis, data were retrieved from Elsevier’s Scopus database, known for its extensive and multidisciplinary coverage. The review spans 20 years from 2004 to December 2025 by capturing the evolution of research interest and thematic development in this field. This two-decade timeframe is particularly valuable, as it reflects the maturing trajectory and sustained academic engagement with halal issues among SMMEs. A rigorous and transparent search protocol was applied using a carefully curated keyword string, as detailed in Table 1.

**Data Search Strategy**

A comprehensive data search was conducted using the Scopus database to identify relevant literature on tax incentives. The search string used was on “halal” and “SMMEs”. The SCOPUS database was selected due to its broad coverage of peer-reviewed literature and robust citation indexing, ensuring a reliable and high-quality dataset (Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste & Paithankar, 2017). The initial search yielded a total of 409 documents, with publication dates ranging from 1992 onward. However, between 1992 and 2003, only three articles were identified (published in 1992, 2000, and 2003, respectively), indicating minimal scholarly activity during that early period. To ensure the review focuses on periods of substantial and growing academic interest, the analysis was restricted to publications from 2004 to 2025. This 20-year timeframe reflects a significant increase in research output and provides a more meaningful basis for identifying patterns, trends, and influential contributions in the field. Although the search was limited to publications between 2004 and 2025 to reflect a two-decade span of potential research activity, the earliest relevant publications within this period only appeared in 2008, with three articles published in that year. This indicates that scholarly interest in the intersection of Halal and SMMEs began to emerge meaningfully only after 2007. The decision to start from 2004 ensures that any early foundational work would still be captured, while the extended period up to 2025 allows for a comprehensive view of evolving research trends and contributions within this growing area of study. Following the application of predefined inclusion of year criteria and title screening, a total of 406 relevant articles were retained for bibliometric analysis. Tables 1 and 2 show the keyword searching and the criteria of inclusion and exclusion.

**Table 1: The Search String**

Scopus	TITLE-ABS-KEY ("halal" AND ("small and medium" OR "small" OR "micro" OR sme OR smes OR msme OR msmes OR smme OR smmes)) AND PUBYEAR > 2004 AND PUBYEAR < 2026
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**Table 2: The Selection Criterion Is Searching**

Criterion	Inclusion	Exclusion
Year	2004 to 2025	Below year 2004

**Data Analysis**

To conduct the bibliometric analysis, this study employed VOSviewer, a robust visualization tool developed by Nees Jan van Eck and Ludo Waltman at Leiden University, Netherlands (van Eck & Waltman, 2010, 2017). Known for its intuitive design and powerful visualization capabilities, VOSviewer is widely adopted in scientific research to explore complex bibliometric networks. It excels in mapping relationships through co-authorship, co-citation, and keyword co-occurrence analyses, enabling researchers to uncover structural patterns and thematic clusters within academic literature. What sets VOSviewer apart is its ability to translate large and complex bibliometric datasets into easily interpretable visual networks, such as cluster maps and density overlays. Its strength lies in identifying meaningful linkages among

documents, terms, or authors, thus revealing the intellectual and conceptual landscape of a given research field. With ongoing software enhancements and a user-friendly interface, VOSviewer caters to both beginners and advanced users in the field of bibliometric and scientometric studies.

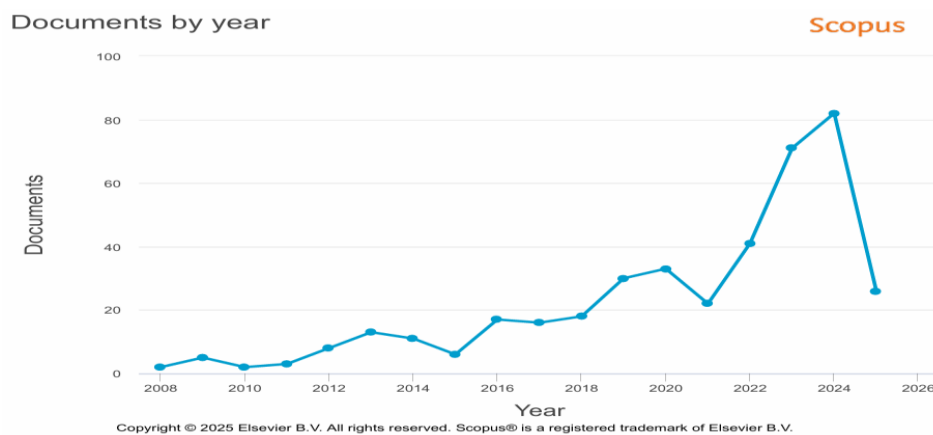
For this study, bibliographic data were retrieved from the Scopus database and were downloaded in plain text format, including publication titles, author details, journal names, publication years, citation counts, and indexed keywords. The dataset was then analyzed using VOSviewer version 1.6.19. The analytical process involved mapping and clustering techniques to visualize the interrelationships among bibliographic elements. VOSviewer utilizes a layout algorithm that situates items within a low-dimensional space, where the spatial proximity between items reflects their strength of association. This is conceptually aligned with Multidimensional Scaling (MDS), but differs in its normalization technique. Rather than relying solely on similarity indices like cosine or Jaccard coefficients, VOSviewer adopts the Association Strength (AS<sub>ij</sub>) method, which better captures the co-occurrence dynamics in bibliometric data (Appio et al., 2014; Van Eck & Waltman, 2007):

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

This value is proportional to the ratio between the actual frequency of co-occurrence of items *i* and *j*, and the frequency that would be expected if their occurrences were statistically independent (Van Eck & Waltman, 2007).

#### 4. Results and Findings

**Q1: What are the publication trends in halal-related research involving Small, Medium, and Micro Enterprises (SMMEs) over the past 20 years?**



**Figure 1: The publication trends in halal-related research involving Small, Medium, and Micro Enterprises (SMMEs) from 2008 to 2025**

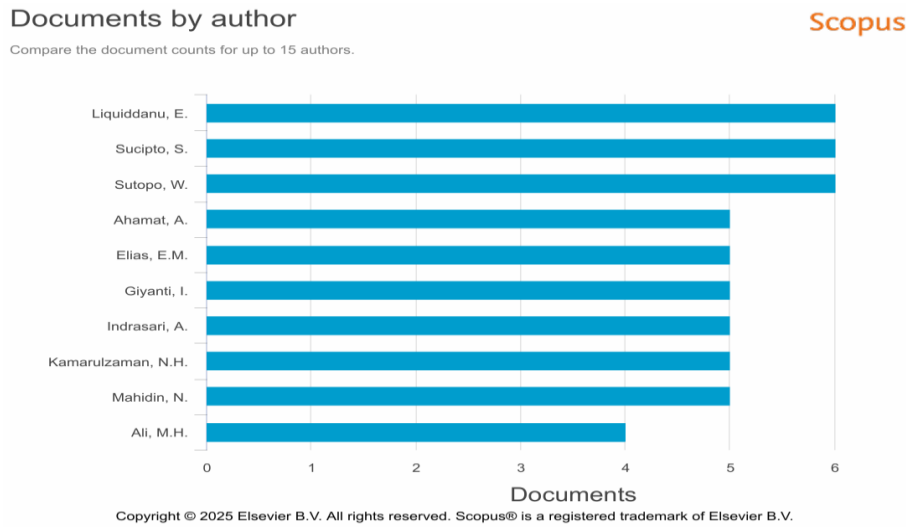
**Table 3: Percentages and Documents by Year**

Year	Number of Publications	Percentages (%)
2025	24	8.65
2024	84	30.27
2023	71	25.58
2022	41	14.76

2021	22	7.93
2020	33	11.89
2019	30	10.79
2018	18	6.47
2017	16	5.75
2016	17	6.12
2015	6	2.16
2014	11	3.96
2013	13	4.68
2012	8	2.88
2011	3	1.08
2010	2	0.72
2009	5	1.80
2008	2	0.72
2004 - 2007	0	0.00

The bibliometric analysis of publications related to "Halal and SMME" from 2004 to 2025 reveals a fluctuating but overall increasing trend in scholarly interest over the years. The field has experienced remarkable growth, evolving from its early, nascent stages into a vibrant and well-established area of scholarly research. During the early years (2008-2014), publications remained modest, with only 2-13 papers published annually, indicating halal SMME research was still in its formative stage. A notable shift occurred between 2015-2019, when the field experienced steady expansion, growing from 6 publications in 2015 to 30 in 2019, a five-fold increase that signaled growing academic interest. This growth accelerated substantially during 2020-2023, with annual publications ranging from 22 to 71, despite global challenges presented by the COVID-19 pandemic. The most dramatic surge has occurred in recent years, with 82 publications recorded in 2024 and 26 already documented in the partial data for 2025. The period of 2023-2024 alone accounts for approximately 38% of all publications in the dataset, underscoring the remarkable intensification of scholarly attention. This publication trajectory, with an estimated compound annual growth rate of 25%, demonstrates that halal-related research in the SMME context has gained significant mainstream academic traction. The consistent upward trend likely reflects the increasing economic importance of the global halal market and growing recognition of small and medium enterprises' crucial role within this sector. Based on these patterns, halal SMME research appears poised to remain a dynamic and expanding field in the foreseeable future as the halal economy continues to gain prominence worldwide.

**Q2: Who and how much has been published in the area concerning the author?**



**Figure 2: Top 10 Most Productive Authors and Their Contribution to Halal and SMME Research**

**Table 4: Details of Primary Data for the Top 10 Highest Citation**

No.	Author Name	Number of Documents	Percentage (% / 406)
1	Liquiddanu, E.	6	1.48%
2	Sucipto, S.	6	1.48%
3	Sutopo, W.	6	1.48%
4	Ahamat, A.	5	1.23%
5	Elias, E.M.	5	1.23%
6	Giyanti, I.	5	1.23%
7	Indrasari, A.	5	1.23%
8	Kamarulzaman, N.H.	5	1.23%
9	Mahidin, N.	5	1.23%
10	Ali, M.H. I. Budiman, F. Lestari, S. Marjudi, Nazaruddin, and D. Wahyuni	4	0.99%

Figure 2 and Table 4 highlights the leading authors based on the number of publications within the field of halal and small, medium, and micro-enterprise (SMME) research. It showcases their relative contribution to the scholarly discourse, reflecting authorial influence and research productivity in this emerging domain. The bibliometric analysis of Scopus data reveals significant patterns in authorship contributions to halal-related research among small, medium, and micro enterprises. Leading this scholarly domain are E. Liquiddanu, S. Sucipto, and W. Sutopo, each with six publications, establishing them as the most prolific contributors to the field. Close behind are A. Ahamat, E.M. Elias, I. Giyanti, A. Indrasari, N.H. Kamarulzaman, and N. Mahidin, each with five publications, form a core group of researchers consistently advancing knowledge in this area. Another researcher has contributed four publications each including M.H. Ali, I. Budiman, F. Lestari, S. Marjudi, Nazaruddin, and D. Wahyuni, demonstrating sustained engagement with halal SMME research.

Another notable tier comprises seventeen scholars who have each published three papers, including researchers such as M.E. Ali, I. Jaswir, M.M. Mostafa, S. Mustafa, and S. Zailani, indicating established research programs in this field. The data further reveals a substantial

cohort of 139 researchers who have each published two papers, suggesting an expanding and diversifying research community engaged with halal SMME topics. This distribution pattern, with a small number of highly productive scholars and a larger base of contributors with fewer publications, is characteristic of an evolving research field gaining momentum. The geographical diversity of researchers, spanning institutions across Southeast Asia, the Middle East, Europe, and beyond, highlights the global relevance of halal SMME research. The collaborative nature of publications in this field is also evident, with many researchers co-authoring papers across institutional and national boundaries, fostering knowledge exchange and interdisciplinary approaches. This authorship landscape suggests that halal SMME research has developed a core community of dedicated scholars while simultaneously attracting growing interest from a broader academic audience, positioning it as a dynamic and increasingly significant area of scholarly inquiry with potential for continued expansion and deeper exploration of its multifaceted dimensions.

### Q3: Who are the top authors based on the research citations?

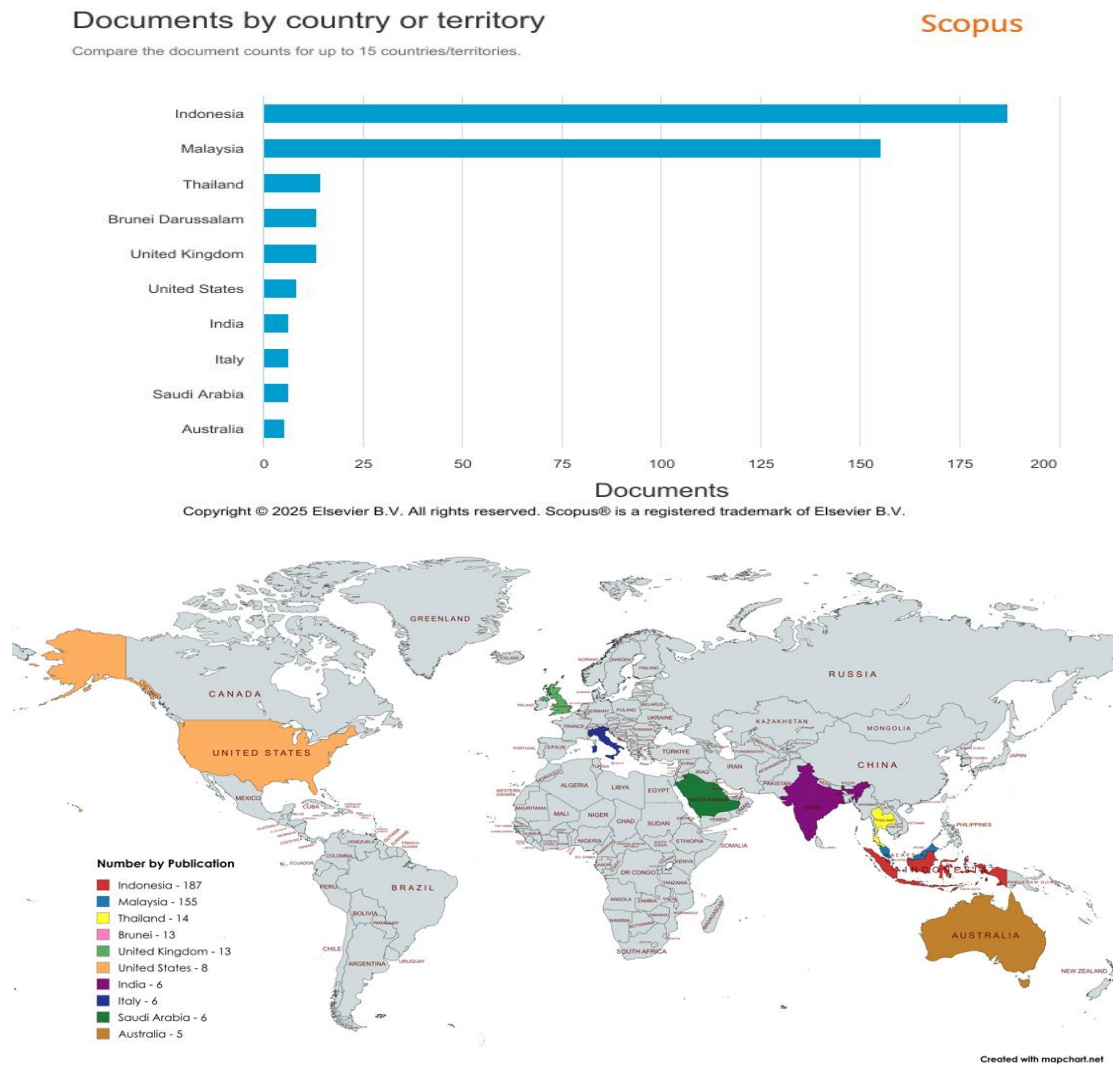
**Table 5: Key Publications on Halal and SMME Research (Scopus Indexed)**

No.	Author(s)	Title	Year	Source Title	Cited by
1	Shah Alam, S., Mohamed Sayuti, N.	Applying the Theory of Planned Behavior (TPB) in halal food purchasing (Shah Alam & Mohamed Sayuti, 2011)	2011	<i>International Journal of Commerce and Management</i>	<b>503</b>
2	Lada, S., Harvey Tanakinjal, G., Amin, H.	Predicting intention to choose halal products using theory of reasoned action (Lada et al., 2009)	2009	<i>International Journal of Islamic and Middle Eastern Finance and Management</i>	<b>394</b>
3	Ali, M.H., Chung, L., Kumar, A., Zailani, S., Tan, K.H.	A sustainable Blockchain framework for the halal food supply chain: Lessons from Malaysia (M. H. Ali et al., 2021)	2021	<i>Technological Forecasting and Social Change</i>	<b>199</b>
4	Ahmed, A.	Marketing of halal meat in the United Kingdom: Supermarkets versus local shops (Ahmed, 2008)	2008	<i>British Food Journal</i>	<b>131</b>
5	Demirhan, Y., Ulca, P., Senyuva, H.Z.	Detection of porcine DNA in gelatine and gelatine-containing processed food products-Halal/Kosher authentication (Demirhan et al., 2012)	2012	<i>Meat Science</i>	<b>97</b>
6	Ali, M.E., Kashif, M., Uddin, K., Hashim, U., Mustafa, S., Che Man, Y.B.	Species Authentication Methods in Foods and Feeds: The Present, Past, and Future of Halal Forensics (M. E. Ali et al., 2012)	2012	<i>Food Analytical Methods</i>	<b>95</b>
7	Ali, M.H., Suleiman, N.	Sustainable food production: Insights of Malaysian halal small and medium sized enterprises (M. H. Ali & Suleiman, 2016)	2016	<i>International Journal of Production Economics</i>	<b>91</b>

8	Ab Rashid, N., Bojei, J.	The relationship between halal traceability system adoption and environmental factors on halal food supply chain integrity in Malaysia (Ab Rashid & Bojei, 2020)	2020	<i>Journal of Islamic Marketing</i>	86
9	Hamdan, M.A., Ramli, N.A., Othman, N.A., Mohd Amin, K.N., Adam, F.	Characterization and property investigation of MCC and CMC filler on carrageenan-based biocomposite film (Hamdan et al., 2021)	2019	<i>Materials Today: Proceedings</i>	74
10	Abd Rahman, A., Singhry, H.B., Hanafiah, M.H., Abdul, M.	Influence of perceived benefits and traceability system on the readiness for Halal Assurance System implementation among food manufacturers (Abd Rahman et al., 2017)	2017	<i>Food Control</i>	74

The citation analysis of the top 10 Scopus-indexed publications in halal and SMME research from Table 5 reveals a clear trajectory from behavioral theory toward technology, traceability, and operational readiness. Collectively, these works underscore the multidimensional nature of halal research and highlight key authors who have shaped the field. Leading the list is Shah Alam, S., and Mohamed Sayuti, N. (2011), whose application of the Theory of Planned Behavior to halal food purchasing garnered 503 citations, reflecting the foundational influence of consumer psychology. Similarly, Lada, S., Harvey Tanakinjal, G., and Amin, H. (2009) made a major contribution with their work grounded in the Theory of Reasoned Action (394 citations), reinforcing the early dominance of intention-based behavioral models. Technological innovation is notably championed by Ali, M.H., a recurring figure with multiple high-impact publications. His 2021 blockchain framework for halal supply chains (199 citations) and his 2016 study on sustainable halal production in SMEs (91 citations, co-authored with Suleiman, N.) highlight a research shift toward digital traceability and sustainability. Ahmed, A. (2008) contributed insights on halal meat marketing in the UK (131 citations), reflecting geographic and retail-based perspectives in early studies. The scientific validation of halal status also appears as a strong theme, particularly in Demirhan et al. (2012) and Ali, M.E. et al. (2012), both of whom explored DNA-based halal authentication with 97 and 95 citations, respectively. Recent applied studies, such as Ab Rashid & Bojei (2020) on halal traceability systems (86 citations) and Abd Rahman et al. (2017) on readiness for Halal Assurance System (HAS) adoption (74 citations), indicate increasing scholarly concern with organizational and policy-level challenges among SMMEs. Finally, Hamdan et al. (2019), though more technical in scope, contributed to the material science aspect of halal packaging and compliance (74 citations), reflecting a niche but growing area. Overall, these top authors illustrate a field that has progressed from theoretical consumer insights to data-driven, science-backed, and system-oriented approaches, signifying the maturing and expanding scope of halal and SMME research.

#### Q4: Where are the top 10 countries based on the number of publications?

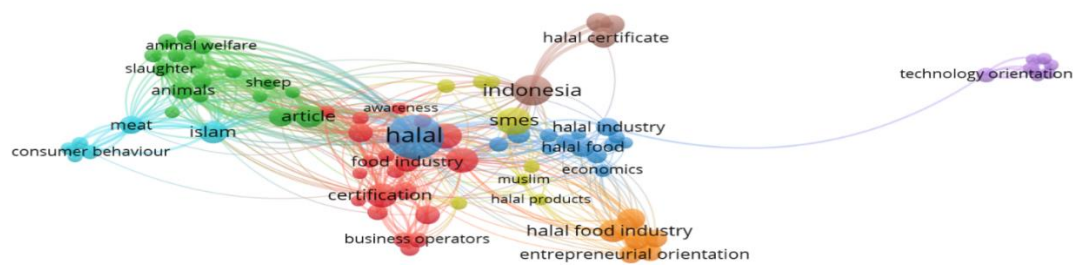


**Figure 5: Top 10 Countries by Number of Publications (Scopus-Based and World Map Graphic)**

An analysis of Scopus-indexed publications on halal and SMME research from Figure 5 reveals that the majority of scholarly contributions originate from Southeast Asia, underscoring the region's strong socio-economic and cultural ties to the halal sector. Indonesia leads with 187 publications, accounting for the highest output globally. This dominance reflects Indonesia's position as the world's largest Muslim-majority country, where halal-related research aligns closely with national economic agendas, halal certification expansion, and SME development policies. Following closely is Malaysia, with 155 publications. As a pioneer in halal certification and regulation, Malaysia's robust research infrastructure and government initiatives, particularly through institutions like JAKIM and the Halal Industry Development Corporation (HDC), have contributed significantly to the country's academic output. The country's focus on becoming a global halal hub is mirrored in its scholarly efforts. Outside of these leaders, there is a steep drop in volume, with Thailand (14 publications) and Brunei Darussalam (13 publications) emerging as notable contributors. Their participation reflects growing national interest in halal tourism, food exports, and SME engagement, particularly in response to regional market demand. Among non-Muslim-majority and Western countries, the United Kingdom (13 publications) and the United States (8 publications) demonstrate a moderate research presence, likely driven by multicultural market dynamics and global trade

interests in halal-certified products. India, Italy, and Saudi Arabia each contribute 6 publications, while Australia follows with 5 publications. These figures suggest emerging interest from diverse geographical and cultural contexts, potentially linked to export ambitions, religious minority needs, and international halal standards alignment. In sum, the geographical distribution of halal and SMME-related publications reflects both demographic relevance and strategic national positioning within the global halal economy. The concentration in Southeast Asia signals a regional leadership in scholarly engagement, while contributions from other parts of the world hint at the globalization of halal research and industry collaboration.

**Q5: What are the popular keywords in halal and SMME research, and how have these evolved?**



**Figure 6: Network Visualization Map of Keywords' Co-Occurrence**

**Table 6: Keywords' Co-Occurrence in Tax Incentives Study**

Keyword	Occurrences	Total Link Strength
Halal	70	206
article	19	113
certification	21	99
human	14	98
Islam	19	95
Indonesia	35	89
Animal welfare	9	83
animals	12	81
animal	8	77
Nonhuman	13	77

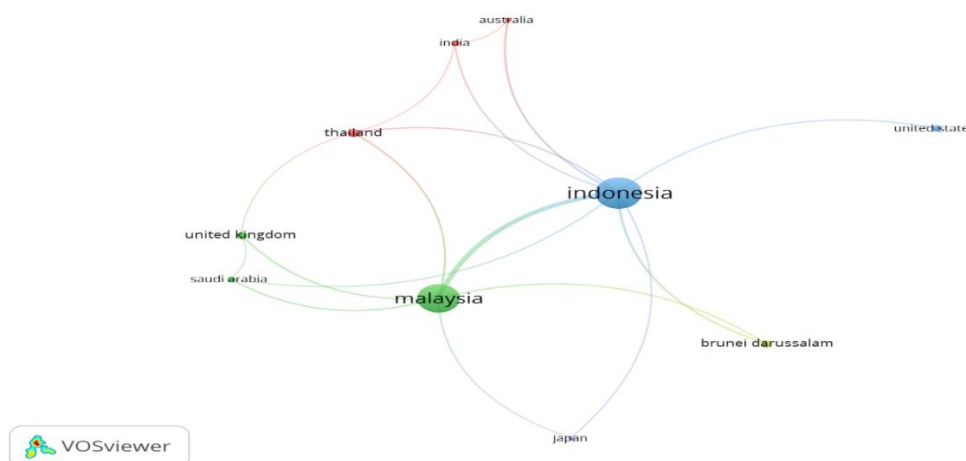
Based on the VOSviewer keyword co-occurrence analysis (Figure 6 and Table 6), “halal” emerges as the most prominent and central keyword, with 70 occurrences and a total link strength of 206. This reflects its dominant role in shaping the thematic structure of the literature, where it frequently co-occurs with a wide array of keywords related to certification, religious principles, consumer behavior, and market dynamics. The keyword “certification” (21 occurrences, 99 link strength) is closely associated with halal, highlighting the significant research focus on regulatory frameworks and compliance mechanisms within the halal industry. Other key terms such as “Islam” (19 occurrences, 95) underscore the religious

foundation of the halal concept, while the term “article” (19 occurrences, 113) may point to academic or methodological aspects within the literature. Interestingly, “Indonesia” (35 occurrences, 89) appears prominently, suggesting a regional research concentration, possibly due to the country’s active role in halal market development and certification implementation. Ethical concerns are also evident, as shown by the frequent appearance of terms related to animal welfare, including “animals” (12), “animal” (8), and “animal welfare” (9), all of which display strong link strengths. This indicates a sustained scholarly interest in the ethical dimensions of halal practices, particularly in the context of slaughtering procedures. The keyword “human” (14 occurrences, 98) further broadens the discourse to include consumer perspectives, cultural practices, and possibly rights-based interpretations.

Building on the analysis of these keywords, the co-occurrence map further identifies several thematic clusters that structure the research landscape. The red cluster centers on halal certification and industry, emphasizing compliance and regulatory aspects. The blue cluster focuses on the halal economy and SMEs, signifying growing interest in how halal practices influence small and micro-enterprise development. The green cluster addresses religious and ethical concerns, especially to animal welfare and Islamic dietary laws. The orange cluster captures entrepreneurial themes, including innovation and strategic growth within halal-oriented businesses. A brown cluster points to a geographical focus, particularly on Southeast Asian countries like Indonesia. A smaller purple cluster hints at emerging interest in technological adoption in halal processes, such as traceability and blockchain, while the light blue cluster reflects research on consumer behavior and perception.

Over time, there has been a notable evolution in the focus of halal and SMME research. Earlier studies concentrated heavily on religious, ethical, and animal welfare concerns. However, more recent literature demonstrates a shift toward strategic and managerial aspects, such as entrepreneurial orientation, business sustainability, and the economic roles of SMEs. Most recently, the research field appears to embrace modern integration themes involving digital technologies, traceability systems, and innovation. This transition signals the field’s progression from traditional religious and ethical roots toward a more dynamic, technology-driven, and business-oriented halal ecosystem, particularly relevant for the global competitiveness of SMMEs.

**Q6: What is Co-Authorship Countries’ Collaboration?**



**Figure 7: The Countries Whose Authors Collaborate on SMMEs in the Halal Industry**

The VOSviewer data highlights the patterns of international collaboration in a specific research area by analyzing document counts, citation metrics, and total link strength (TLS), which indicates the frequency of co-authorship between countries. From the data, Indonesia (183 documents, TLS: 49) and Malaysia (154 documents, TLS: 43) emerge as the most active and interconnected contributors. These two countries show strong collaboration patterns, particularly within the Southeast Asian region, reflecting their mutual interest in the topic. Malaysia's high citation count (3012) compared to others also suggests that it plays a leading intellectual role, producing research that is both collaborative and influential.

Other Southeast Asian countries like Brunei Darussalam and Thailand, although contributing fewer documents, still show notable collaboration (TLS: 8 each), likely through partnerships with larger contributors like Malaysia and Indonesia. Saudi Arabia also appears with moderate co-authorship activity (TLS: 6), which may reflect growing interest from Middle Eastern countries in this research domain. These patterns indicate a regional network of academic cooperation, likely facilitated by shared cultural, religious, or policy-driven research agendas.

In contrast, Western countries such as the United Kingdom (TLS: 5), Australia (TLS: 5), and the United States (TLS: 2) show limited co-authorship engagement. Despite high citation counts for the UK (417), the lower TLS suggests their research is often conducted independently or cited more than co-authored. Japan, Italy, and India also show minimal collaboration patterns (TLS  $\leq$  4), indicating that international engagement is less intensive beyond the Southeast Asian and Middle Eastern regions. This data suggests that while the research field is gaining global recognition, the most frequent and meaningful collaborations remain regionally concentrated in Southeast Asia.

## 5. Discussion and Conclusion

This bibliometric mapping study provides a panoramic view of the intellectual structure and evolving research dynamics at the intersection of halal and SMMEs from 2004 to 2025. The findings demonstrate that this domain has transitioned from a niche scholarly interest to a rapidly expanding field of global academic inquiry. Through the application of rigorous bibliometric tools and visualization techniques, the research reveals a dynamically evolving scholarly domain that has matured significantly in the past decade. The growth trajectory is marked by a 25% compound annual growth rate and a substantial increase in publication volume post-2020, which reflects a heightened global recognition of halal SMMEs as both economic and socio-cultural agents of change.

The evolution of the field is characterized by three interrelated trends. First, there has been a marked shift from early conceptual explorations rooted in religious obligation and consumer behavior theories to more applied and operationally focused themes such as halal assurance systems, digital traceability, and supply chain integrity. This thematic expansion mirrors broader developments in the halal industry, where compliance, innovation, and globalization have become critical strategic imperatives for SMMEs.

Second, the analysis of authorship and institutional affiliation highlights the increasing influence of a geographically diverse and collaborative research community. While Southeast Asia, particularly Indonesia and Malaysia, continues to dominate in terms of publication output and scholarly leadership, there is growing interest from other regions, including the Middle East, Europe, and parts of the Global North. These patterns indicate both the demographic

centrality of Muslim-majority countries and the expanding relevance of halal as a global market construct, transcending religious boundaries.

Third, the intellectual structure of the field illustrated through keyword co-occurrence and thematic clustering demonstrates a rich convergence of disciplines. Clusters focusing on halal certification, economic growth, religious ethics, entrepreneurial innovation, and technological solutions reflect the field's increasing complexity and interdisciplinarity. These developments suggest that halal SMME research is no longer confined to religious studies or marketing domains but is actively engaging with broader issues of governance, digitalization, international trade, and sustainability.

Despite this momentum, the study also reveals certain gaps and asymmetries that warrant further investigation. For instance, while publication volume is growing, in-depth theoretical integration and longitudinal empirical studies remain limited. Similarly, collaboration remains largely regional, with untapped potential for stronger South–South and North–South academic partnerships. These gaps point to future research opportunities in developing integrative frameworks that encompass religious, economic, and technological dimensions, particularly in underrepresented contexts such as Africa, South Asia, and emerging Muslim-minority markets. In essence, this bibliometric study not only maps the existing body of knowledge but also establishes a critical foundation for the advancement of halal SMME research. As global markets become more ethically conscious and digitally connected, the intersection of halal values and entrepreneurial ecosystems is likely to gain further scholarly and practical significance. Future studies must continue to build on this momentum, bridging theory and practice, advancing global inclusivity, and supporting the sustainable integration of SMMEs into the expanding halal economy.

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### Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this study.

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