Culinary Arts Research in Focus: Mapping Global Trends, Gaps, and Future Pathways through Bibliometric Analysis

Kajian Seni Kulinari dalam Fokus: Pemetaan Tren Global, Jurang Penyelidikan, dan Halatuju Masa Depan melalui Analisis Bibliometrik

Shahrul Amri Mohamad[1], Rozniza Zaharudin[2*], Nik Mohd Shahril Nik Mohd Nor[3], Amirul Fiqry H Muzzammil [4], Mohd Yahya Fadzli Jusoh[5]

[1,2] School of Educational Studies, Universiti Sains Malaysia, Penang, Malaysia
[3]Faculty of Hotel and Tourism Management, Universiti Teknologi Mara, Penang, Malaysia
[4]School of Hospitality,Integrasi Perkembangan Kemahiran (IPK) TVET College, Penang
[5]Advance Technology College (ADTEC-JTM) Perai Campus, Perai, Pulau Pinang

[*]Penulis Koresponden: roz@usm.my

ABSTRACT

This study offers a thorough bibliometric analysis of the global scholarly activity in culinary research from 2021 to 2024, employing Scopus-indexed publications. The study reveals evolving theme trends, authorship patterns, and international collaboration networks through advanced approaches such as co-authorship mapping, keyword co-occurrence, and co-citation analysis with VOSviewer. The results reveal a significant increase in publication activity peaking in 2023, followed by a pronounced decrease in 2024–2025, necessitating a serious examination of the sustainability of academic momentum.An examination of 283 publications indicates significant interdisciplinary convergence among social sciences, agriculture, humanities, and environmental studies, with thematic clusters encompassing sustainability, cultural heritage, food safety, and health. The survey reveals ongoing shortcomings, especially regarding the representation of marginalized cuisines, underrepresented locations, and emergent digital technologies. The co-citation network underscores the intellectual foundation of the domain in food tourism, sensory studies, and sociocultural frameworks. Co-authorship data reveals regional differences, highlighting predominant contributions from North America and Europe. Terms like "gastronomy," "food preparation," and "culinary education" highlight the practical and cultural aspects of the topic. This bibliometric mapping delineates the intellectual terrain of culinary research while providing strategic insights for enhancing inclusion, interdisciplinarity, and global equity. The paper continues by suggesting future research avenues that incorporate technology innovation and broaden cross-cultural collaboration to augment the relevance and societal impact of culinary scholarship.

Keywords*: bibliometric analysis, culinary art research, interdisciplinarity, sustainability, global collaboration

ABSTRAK

Kajian ini membentangkan analisis bibliometrik menyeluruh tentang penyelidikan seni kulinari secara global dari 2021 hingga 2024, menggunakan penerbitan yang diindeks oleh Scopus. Kajian ini mendedahkan trend tema yang berkembang, corak kepengarangan dan rangkaian kerjasama antarabangsa melalui pendekatan lanjutan seperti pemetaan pengarang bersama, kejadian bersama kata kunci dan analisis petikan bersama dengan VOSviewer. Hasilnya mendedahkan peningkatan ketara dalam aktiviti penerbitan yang memuncak pada 2023, di ikuti dengan penurunan ketara pada 2024–2025, yang memerlukan pemerhatian serius terhadap kemampanan momentum akademik.Penilaian terhadap 283 penerbitan menunjukkan tumpuan antara disiplin yang ketara dalam kalangan sains sosial, pertanian, kemanusiaan dan kajian alam sekitar dengan kelompok tematik merangkumi kemampanan, warisan budaya, keselamatan makanan dan kesihatan. Tinjauan itu mendedahkan kelemahan yang berterusan, terutamanya

mengenai masakan tradisional yang terpinggir, lokasi yang kurang diwakili dan teknologi digital yang muncul. Rangkaian petikan bersama menggariskan asas intelektual domain dalam pelancongan makanan, kajian deria dan rangka kerja sosiobudaya. Data pengarang bersama mendedahkan perbezaan serantau, menyerlahkan sumbangan utama dari Amerika Utara dan Eropah. Istilah seperti "gastronomi," "penyediaan makanan" dan "pendidikan masakan" menyerlahkan aspek praktikal dan budaya topik tersebut. Pemetaan bibliometrik ini menggambarkan rupa bumi intelektual penyelidikan kulinari sambil memberikan cerapan strategik untuk meningkatkan rangkuman, interdisipliner dan ekuiti global. Kertas kerja itu diteruskan dengan mencadangkan jalan penyelidikan masa depan yang menggabungkan inovasi teknologi dan meluaskan kerjasama silang budaya untuk menambah perkaitan dan kesan kemasyarakatan kesarjanaan masakan.

Kata kunci: analisis bibliometrik, penyelidikan seni kulinari, interdisipliner, kemampanan, kerjasama global

INTRODUCTION

Bibliometric analysis has become an indispensable tool for deciphering the dynamics of academic fields, offering a systematic approach to charting research trends, identifying intellectual foundations, and uncovering opportunities for innovation. Within culinary research, this approach reveals a rich and evolving domain that bridges tradition and modernity, addressing pressing societal challenges such as sustainability, cultural preservation, and public health. The interplay between cultural identity, sensory experiences, and technological advancements positions this field as a unique and interdisciplinary area of study.

The temporal distribution of research outputs highlights pivotal moments of growth and decline, reflecting the field's responsiveness to global trends and challenges. Thematic analyses illuminate its intellectual diversity, spanning topics from food heritage and gastronomic traditions to sustainability and consumer behavior. However, these findings also reveal critical gaps, particularly in the underrepresentation of marginalized perspectives and geographic regions, underscoring the need for greater inclusivity.

Authorship and collaboration networks further provide insights into the dynamics of contribution and innovation. While key contributors anchor the field's intellectual progress, broader participation from mid-tier and emerging scholars underscores the collaborative and inclusive nature of culinary research. Co-citation and keyword analyses additionally highlight the interdisciplinary richness of the field, connecting it with adjacent domains such as environmental science, psychology, and sociology.

This article contextualizes these bibliometric insights within the broader scholarly and societal discourse. Drawing from the work of Claudine Sykimte,(2023)who demonstrated that research productivity rankings stabilize significantly over periods exceeding three years, this study applies a reliable timeframe to assess the intellectual trends and collaborations within culinary research. Similarly, the approach aligns with Park & Park, (2025), who emphasized the importance of clearly defined objectives and appropriate temporal scopes in bibliometric analyses. By critically engaging with trends, themes, and collaborative dynamics, this discussion aims to provide actionable recommendations for fostering inclusivity, sustaining scholarly momentum, and amplifying the interdisciplinary impact of culinary research. Ultimately, it aspires to transform bibliometric findings into strategic pathways for meaningful and transformative contributions.

LITERATURE REVIEW

Culinary research continues to evolve as a multidisciplinary field that bridges cultural heritage, sensory experiences, and sustainability to address pressing societal challenges. Studies such as those by Palacios-Fonseca et al., (2025) and Wardana & Setiarto, (2024) emphasize the preservation of traditional food practices, showcasing their pivotal role in cultural identity and community cohesion.Gozali et al., (2024) delve into the gastronomy of Banjar ethnic foods, highlighting the socio-cultural importance of "Mandai" as a symbol of culinary heritage. A recurring issue is sustainability in gastronomy, especially regarding meat production, waste minimization, and ecological consciousness.Yilmaz & Yalcin, (2024) examine traditional meat meals from a sustainability perspective, proposing culturally rooted answers to global

food issues. Comparable apprehensions are apparent in research focusing on food packaging, sustainable culinary methods, and local ingredient procurement.Simultaneously, research by Kaya et al., (2025) explores the influence of emotions on taste perception, offering insights into consumer behavior and the psychological dimensions of gastronomy, which have implications for restaurant strategies and culinary innovation.

Interdisciplinary approaches have further enriched the field, as demonstrated by Di Fraia & di Gennaro, (2025) work, which connects ancient culinary artifacts with modern gastronomy, illuminating the continuity of food practices across time. Moreover, S. C. Hassan & Singh, (2024) underscore the dynamic nature of gastronomy, linking traditional dishes to evolving consumption trends influenced by global and local factors. Although recent progress, substantial gaps persist in the incorporation of digital technologies and computational techniques in culinary research, especially with the inadequate representation of marginalized cuisines and geographic areas. These deficiencies underscore the necessity for enhanced inclusivity and methodological advancement. Innovative technologies like 3D food printing Burke, (2024), the digitalization of culinary education, and the utilization of virtual and augmented reality in gastronomic experiences illustrate a transition towards technologically enhanced gastronomy, wherein materiality, interactivity, and personalization are paramount.

Bibliometric analysis is based on the theoretical frameworks of scientometrics and knowledge mapping, which collectively offer the conceptual foundation for comprehending the development, interaction, and evolution of scholarly areas across time. Scientometrics asserts that publication, citation, and co-citation patterns serve as quantifiable indications of a discipline's intellectual framework and research output (A. Verbeek et al., 2002). This viewpoint posits that scientific knowledge advances cumulatively, enabling researchers to delineate thematic influence and scholarly impact via citation behavior.

The knowledge-mapping paradigm conceptualizes academic discourse as a network of interrelated concepts. Knowledge mapping employs co-authorship, keyword co-occurrence, and co-citation analysis to illustrate the emergence, consolidation, and transformation of research themes across disciplines (N.J Van Eck & L.Waltman, 2007). Theoretical grounds substantiate the application of VOSviewer in this study, as the software implements these frameworks via clustering algorithms and association-strength normalization to generate interpretable representations of a field's conceptual landscape.

Incorporating these theoretical frameworks into culinary research is particularly relevant due to the field's inclusion of various epistemological traditions, including cultural studies, behavioral science, environmental sustainability, and food technology.Scientometric and knowledge-mapping methodologies provide a systematic analysis of the intersections among many elements, uncovering the intellectual catalysts of the discipline, the collaborative dynamics influencing its expansion, and the theme voids that hinder its inclusion. Within this study, these theories inform both the analytical approach and the interpretation of results, ensuring that the bibliometric insights generated are conceptually well-founded, methodologically consistent, and aligned with established scholarly standards.

By embracing its interdisciplinary nature and addressing the identified thematic and regional gaps, culinary research is positioned to make substantive contributions to global conversations on sustainability, cultural preservation, and food system innovation. Future scholarship should prioritise the integration of emerging technologies, broadened geographical inclusion, and cross-disciplinary collaboration to ensure the continued relevance, intellectual vitality, and societal impact of the field.

RESEARCH QUESTIONS

To gain a deeper understanding of the evolution, focus areas, and collaborative dynamics within culinary research, this study addresses the following research questions. These questions are designed to explore publication trends, authorship patterns, disciplinary distribution, international collaboration, thematic

structures, and emerging areas of interest:

RQ1: What caused the peak in research output in 2023, and why did it decline afterward?

RQ1: How do authorship patterns influence diversity, collaboration, and innovation in the field?

RQ3: How does the distribution of research across disciplines impact the field's ability to address global challenges and innovate?

RQ4: How do international co-authorship networks in culinary research reflect global disparities, cultural synergies, and thematic priorities?

RQ5: What does the co-citation network reveal about the key themes, interdisciplinary connections, and opportunities for growth in culinary research?

RQ6: What do keyword clusters and their connections reveal about how culinary research addresses global challenges and emerging trends?

METHODOLOGY

This study employed a bibliometric approach to systematically explore the development and structure of scholarly research in the field of culinary studies. Bibliometrics indicates the methodology of gathering, structuring, and examining bibliographic data derived from scientific publications (A. Verbeek et al., 2002; Salinas-Ríos & Janneire García-López, 2022). This study utilized descriptive variables such as publication numbers, source titles, and author productivity, with advanced approaches including co-authorship analysis, keyword co-occurrence mapping, and document co-citation analysis (Wu & Wu, 2017). A proficient bibliometric review comprises a systematic approach to discovering pertinent keywords, executing thorough literature searches, and conducting structured analysis to produce dependable and reproducible insights (Jusoh & Ishak, 2024). This study intentionally concentrates on 4 years (2021–2024) to capture the latest advancements and thematic transitions in culinary research, in contrast to some bibliometric studies that utilize extended durations to trace basic information. This time frame is methodologically validated for recognizing new trends and short-term academic dynamics, especially in progressive areas like food innovation and digital gastronomy (Donthu et al., 2021; W. Hassan & Duarte, 2024; Vogel et al., 2024). Recognising the growing relevance of culinary research across multiple disciplines, including education, health, sustainability, and culture, the study sought to uncover key trends, collaborative patterns, and emerging themes that have shaped the field over the past two decades. This study employs a quantitative bibliometric methodology to systematically delineate the evolution, intellectual framework, and thematic progression of research in culinary studies (Wargadalem et al., 2024). To achieve this, Scopus was selected as the primary database due to its comprehensive indexing of peer-reviewed publications and its analytical capabilities.

Data Search Strategy

A structured search was conducted using carefully selected keywords such as "culinary", "gastronomy", and "food preparation", with Boolean operators applied to refine the search across article titles, abstracts, and keywords. The search string used is, TITLE-ABS-KEY (("gastronomy" OR "food studies" OR "gastronomic science" OR "food culture" OR "culinary gastronomy" OR "gastronomic practices" OR "art of food" OR "gastronomic traditions" OR "food heritage" OR "culinary arts" OR "culinary education" OR "professional cooking" OR "culinary techniques" OR "culinary practices" OR "food preparation" OR "cooking arts" OR "culinary skills" OR "culinary craftsmanship")). This resulted in the compilation of 5152 articles. The results were further narrowed to 283 publications when the query was refined to focus on certain study types, including conference papers, book chapters, and articles. The search was limited to journal articles and conference papers published between 2021 and 2024, written in English, and within

relevant subject areas such as Social Sciences, Agricultural and Biological Sciences, and Environmental Sciences. The final dataset, once screened for relevance, was exported in CSV format to facilitate further analysis.

Table 1: The search string

Scopus	TITLE-ABS-KEY (("gastronomy" OR "food studies" OR "gastronomic science" OR "food culture" OR "culinary gastronomy" OR "gastronomic practices" OR "art of food" OR "gastronomic traditions" OR "food heritage" OR "culinary arts" OR "culinary education" OR "professional cooking" OR "culinary techniques" OR "culinary practices" OR "food preparation" OR "cooking arts" OR "culinary skills" OR "culinary craftsmanship"))

Table 2: The selection criterion is searching

Source:Page et al., (2021)

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2021 – 2024	< 2024
Literature type	Journal (Article), Book, Book Chapter and Conference Paper	Review,Note,Short Survey,Erratum

Data Analysis

Initial descriptive insights were obtained using the built-in Scopus Analyzer tool. This enabled an overview of annual publication trends, most cited documents, productive authors and institutions, dominant subject areas, and country-level contributions. These descriptive analytics provided a foundational understanding of how the field has evolved and helped frame more in-depth network analyses.

To visualise and interpret the structural and conceptual landscape of culinary research, the dataset was imported into VOSviewer, a bibliometric software widely used for mapping scientific knowledge (N.J.Van Eck & L.Waltman, 2017). Several types of visual networks were generated. Co-authorship networks highlighted patterns of collaboration among individual researchers, institutions, and countries. Co-occurrence of keywords revealed thematic clusters and conceptual hotspots, shedding light on how research topics are interlinked. Additionally, co-citation analysis was performed to identify influential publications and explore the intellectual foundation of the field. Thresholds for inclusion in visual maps were set based on the frequency of occurrence, ensuring clarity and interpretability. Data from the Scopus database for the years 2021 to December 2024 contained publication details such as year, title, authors, journal, citations, and keywords. The plain-text datasets were examined using VOSviewer (version 1.6.19), utilizing its sophisticated grouping and visualization capabilities to extract significant insights. Unlike conventional Multidimensional Scaling (MDS) techniques, VOSviewer positions things in low-dimensional areas, guaranteeing that their spatial relationships appropriately reflect their similarity and degree of connectedness (N.J.Van Eck & L.Waltman, 2010). This tailored approach, while conceptually akin to MDS Appio et al., (2014), markedly enhances the accuracy of displayed correlations, positioning VOSviewer as an essential instrument for bibliometric analysis. In contrast to conventional methods, VOSviewer prioritizes the normalizing of co-occurrence frequencies through metrics like association strength (ASij), which is based on a distinctive calculation methodology as shown below (N.J Van Eck & L.Waltman, 2007):

$$ASij = \frac{1}{4} \frac{Cij}{\sqrt{WiWj}}$$

This is proportional to the ratio of the actual occurrences of i and j to the expected occurrences of i and j, assuming that the co-occurrences of i and j are statistically independent. Thus, VOSviewer employs this index to reduce the weighted total of the squared distances across all item pairings prior to organizing the items into a map format. Aparicio et al., (2016) indicate that LinLog/modularity

normalization was employed. By utilizing VOSviewer to visualize the dataset, patterns based on mathematical correlations were discerned. This method facilitated the execution of analyses like co-citation studies, keyword co-occurrence mapping, and citation assessments. Through the combined use of Scopus Analyzer and VOSviewer, this study was able to present both a macroscopic and microscopic view of culinary research, offering evidence-based insights into its growth, structure, and future directions.
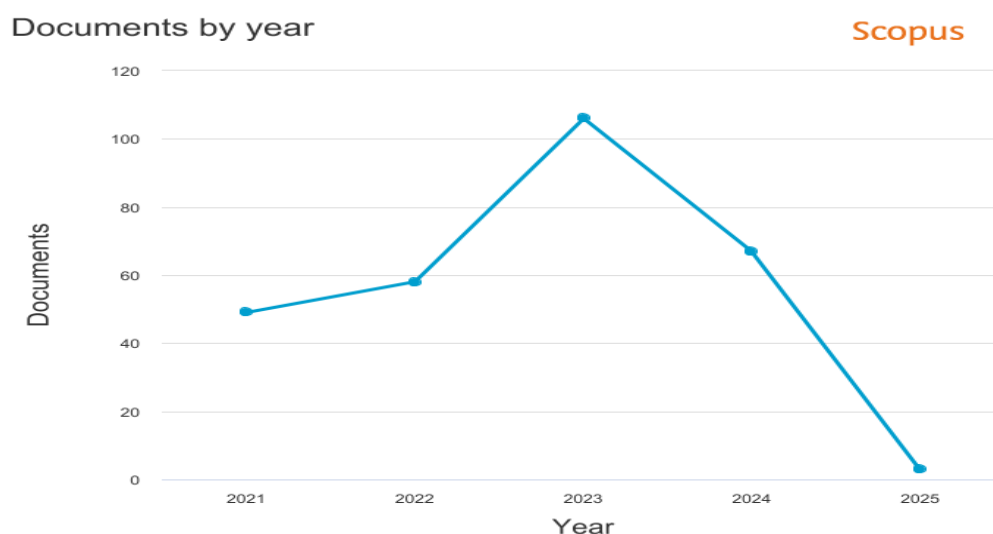
RESULT

The results are organised thematically according to the six research questions, each addressing a distinct analytical dimension of the field:

(a) Research Question (RQ) 1: an exploration of the 2023 publication peak and its subsequent decline.

(b) Research Question (RQ) 2: an investigation into authorship patterns and their influence on diversity, collaboration, and innovation.

(c) Research Question (RQ) 3 : a cross-disciplinary analysis of how the distribution of research across domains impact the field's ability to address global challenges.

(d) Research Question (RQ) 4: an examination of international co-authorship networks and the cultural or geographical dynamics they reflect.

(e) Research Question (RQ) 5: a mapping of the co-citation network to uncover influential themes and interdisciplinary connections.

(f) Research Question 6:   a keyword co-occurrence analysis to reveal how culinary research engages with global challenges and emerging trends.

Together, these six strands of inquiry provide a structured and comprehensive overview of the evolution, collaboration, and thematic development within culinary research.

a. RQ 1 : What are the research trends in online learning studies according to the year of publication?
Research trends from 2021-2025 (Sources: Scopus)

Over the years, bibliometric analysis has become a cornerstone for understanding the evolution of research

within a given field. By examining the temporal distribution of documents from 2021 to 2025, it is possible to uncover critical trends, interpret underlying dynamics, and evaluate the vitality of academic discourse within this domain. The findings from the dataset reveal a compelling narrative about the research trajectory, characterized by growth, a peak in productivity, and a subsequent decline. This narrative invites a deeper inquiry into the factors influencing these patterns and their implications for future research.

From 2021 to 2023, the field witnessed a steady and then exponential rise in research output, culminating in a peak of 106 documents in 2023. This growth represents an increase of over 100% compared to the 49 documents published in 2021. Such an upward trajectory is not uncommon in burgeoning areas of study, where initial curiosity and subsequent breakthroughs drive a rapid escalation in scholarly contributions. This period of growth may reflect the convergence of several factors, including increased funding opportunities, heightened societal or industrial relevance, or technological advancements that lowered barriers to entry for researchers.

The year 2023, standing as the zenith of this trend, appears to be a particularly pivotal moment for the field. Peaks in bibliometric analyses often signal either significant breakthroughs or moments of heightened academic focus. For instance, it is plausible that 2023 saw major conferences, collaborative initiatives, or the publication of influential works that galvanized subsequent research efforts. Examining the thematic composition of publications from this year may reveal key areas of interest or breakthroughs that commanded scholarly attention. Moreover, this peak might also signify a critical juncture where foundational research in the field matured, setting the stage for future innovations.

However, what follows this high point is equally notable. The decline in output beginning in 2024, with a publication count of 67 documents, represents a marked decrease in scholarly activity. By 2025, this trend becomes more pronounced, with only 3 documents recorded. Such sharp declines may be interpreted in multiple ways. On the one hand, they could indicate a natural tapering off of research activity as the field transitions into a phase of consolidation. On the other hand, this reduction could stem from external factors, such as shifts in funding priorities, reduced academic interest, or a redirection of efforts toward interdisciplinary or emerging areas. Additionally, the apparent scarcity of documents in 2025 could be partly attributed to the inherent lag in indexing and the time it takes for research to move through the publication pipeline, particularly for works completed in the most recent years.

The observed trends underscore critical implications for researchers and policymakers. The dramatic rise and fall of research output call for a closer examination of the factors driving productivity in this domain. Researchers aiming to contribute meaningfully to the field must consider how foundational studies from peak years like 2023 can inform future inquiries. Similarly, policymakers and funding agencies might find it valuable to explore whether the observed decline is symptomatic of diminishing returns in the field or whether opportunities exist for reigniting interest through targeted initiatives.

To further contextualize these findings, a thematic analysis of the documents from 2023 could yield valuable insights into the key drivers of this productive period. Were there specific subfields, methodologies, or theoretical frameworks that dominated the discourse? Did the alignment of academic efforts with societal or industrial priorities play a significant role? Similarly, understanding the reasons behind the sharp decline post-2023 could guide strategies to sustain scholarly engagement and innovation.
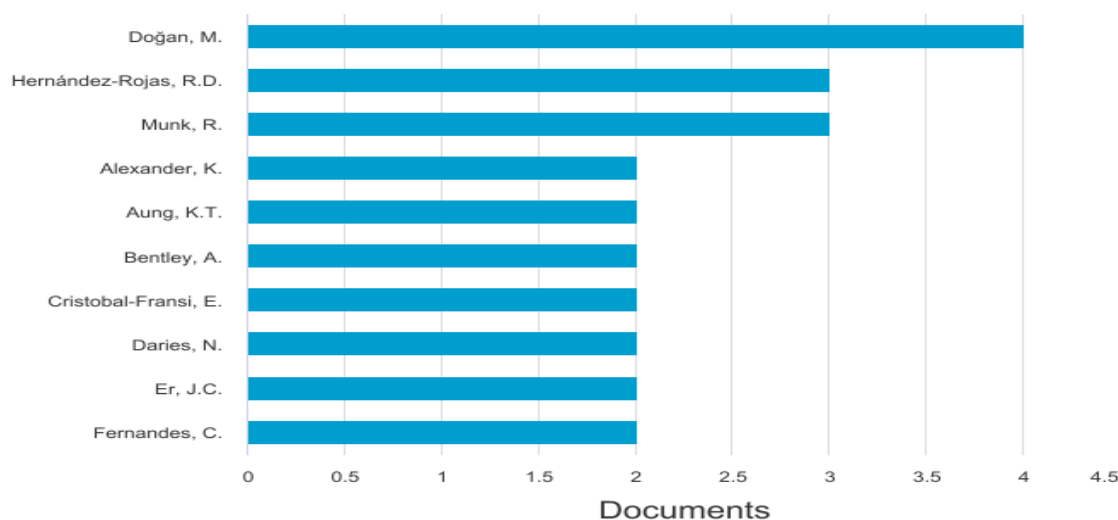
In conclusion, the bibliometric data provides a narrative of dynamic growth, peak productivity, and subsequent decline, reflecting the lifecycle of academic inquiry within this field. While the peak of 2023 represents a landmark moment for research, the decline in subsequent years raises important questions about the sustainability and trajectory of scholarly contributions. By delving deeper into the factors underpinning these trends, the academic community can ensure that the insights gleaned from this analysis are not only descriptive but also prescriptive, guiding future efforts in a manner that fosters enduring innovation and impact(Hema Kothari, 2024).

b. RQ 2: Who writes the most cited articles? and where do they work?

Author and productivity (source: Scopus)

In the realm of scholarly research, authorship patterns serve as an insightful lens through which the dynamics of contribution, collaboration, and leadership can be analyzed. The bibliometric data on authorship distribution not only sheds light on the individuals who are driving the intellectual discourse within the field but also reveals the underlying structures that sustain and shape its progress. This analysis aims to critically interpret these patterns, drawing attention to both the strengths and potential areas for development in the scholarly ecosystem.

Centrality of Key Contributors
The findings indicate that Doğan, M. emerges as a pivotal figure in the field, with a total of four publications. Following closely are Hernández-Rojas, R.D. and Munk, R., each contributing three publications. These prolific authors likely hold influential roles within the research landscape, serving as intellectual leaders who are setting research agendas, shaping thematic directions, and fostering collaborative networks. Their consistent productivity may reflect their established presence in the field, access to critical resources, or alignment with pressing research trends. These authors, by virtue of their contributions, likely act as anchors of innovation, helping to advance key areas of inquiry.

Collaborative Contributions and Inclusivity
Beyond the leading contributors, a broader group of authors including Alexander, K., Aung, K.T., and Bentley, A. has made consistent contributions, with each producing two publications. This distribution suggests a collaborative and inclusive research culture that values shared intellectual effort. The presence of mid-tier contributors highlights the importance of collective participation, where researchers contribute through partnerships, interdisciplinary approaches, or as part of larger teams led by senior scholars.

The relatively even spread of contributions among the mid-tier authors points to a supportive research environment, where early-career and emerging researchers are able to actively participate and publish. Such inclusivity is crucial for maintaining a healthy research ecosystem, as it ensures the continuous infusion of new ideas and perspectives into the field.

Leadership and Collaborative Structures
The dominance of certain key contributors underscores their leadership roles, which are likely complemented by their involvement in collaborative networks. These networks often include a diverse range of researchers, from experienced scholars to those at the beginning of their academic journey. Such

structures not only facilitate the mentorship of junior researchers but also allow for the pooling of expertise and resources. Understanding the nature of these networks whether they are localized within specific institutions or span multiple organizations could offer valuable insights into the mechanisms driving productivity in the field.

Challenges and Risks

While the prominence of leading contributors is a strength, over-reliance on a small number of authors could pose risks. The concentration of output among a few individuals may limit the diversity of perspectives within the field and create potential bottlenecks in knowledge production. To mitigate these risks, it is essential to cultivate a broader authorship base, encouraging contributions from underrepresented groups, interdisciplinary researchers, and those working in emerging areas of inquiry.

Opportunities for Growth

The field's vitality lies in its ability to balance the contributions of established leaders with the active participation of a diverse research community. Strategies to achieve this balance could include:
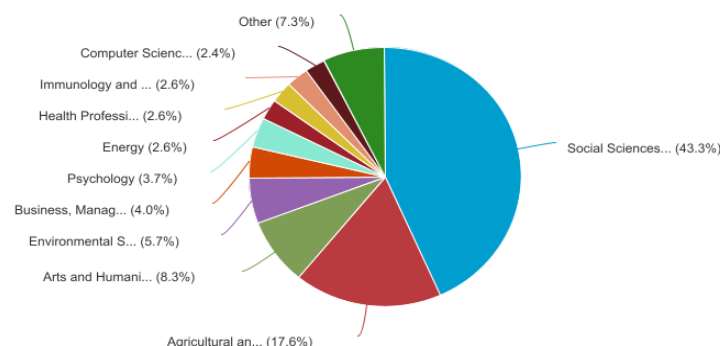
I.   Strengthening Mentorship: Encouraging senior researchers to mentor early-career scholars can help build a sustainable pipeline of contributors.

II. Fostering Collaboration: Promoting interdisciplinary and international collaborations could diversify the field's intellectual foundations.

III. Addressing Gaps: Exploring the thematic focus of the leading contributors could identify areas where further research is needed, guiding emerging scholars toward impactful opportunities.

In conclusion, the analysis of authorship patterns reveals a field characterized by a dynamic interplay of leadership and collaboration. While key contributors like Doğan, M., Hernández-Rojas, R.D., and Munk, R. play a central role in advancing the field, the broader participation of mid-tier authors reflects a research culture that values inclusivity and shared effort. To sustain its trajectory of innovation, the field must continue to foster collaboration, mentorship, and diverse participation. By addressing potential risks associated with concentration and leveraging the strengths of its collaborative ecosystem, the field is well-positioned to achieve enduring growth and impact. This narrative underscores the importance of both individual excellence and collective effort in the pursuit of scholarly advancement.

c. RQ 3: What is the type of document by subject of research?

Document by Subject Area (sources: Scopus)

In scholarly research, understanding the distribution of contributions across subject areas provides a

window into the thematic priorities and interdisciplinary nature of a field. Such analyses not only highlight the areas of intellectual focus but also reveal opportunities for cross-disciplinary collaboration, innovation, and growth. The dataset under review, which examines documents by subject area, offers insights into the diverse intellectual terrain of the field and its alignment with contemporary global challenges.

The Dominance of Social Sciences

A significant proportion of the research output, 43.3% (283 documents), originates from the Social Sciences, underscoring its centrality in the research domain. This dominance likely reflects the field's engagement with issues related to human behavior, societal challenges, and cultural dynamics. Social sciences often serve as a bridge between theoretical inquiry and practical application, enabling researchers to address complex, multifaceted problems. The robust representation of social sciences suggests that this field is deeply attuned to societal needs, whether through exploring policy implications, understanding cultural shifts, or examining the social dimensions of technological and environmental change.

Agricultural and Biological Sciences: A Key Player

The Agricultural and Biological Sciences category accounts for 17.6% (115 documents) of the total research output, establishing itself as the second-largest contributor. This indicates a strong focus on natural systems, ecological sustainability, and agricultural innovation. The prominence of this subject area is particularly relevant given global concerns around food security, climate change, and biodiversity loss. Moreover, the intersection of agricultural sciences with social sciences points to a holistic approach, where human systems and natural ecosystems are studied in tandem to address challenges like sustainable food systems and rural development.

Arts and Humanities: A Critical Perspective

With 8.3% (54 documents), the Arts and Humanities play an important role in the intellectual framework of the field. This representation highlights the recognition of cultural, ethical, and philosophical dimensions in addressing modern challenges. Arts and humanities bring a depth of understanding that complements scientific and technical approaches, ensuring that research does not overlook the human and cultural factors that shape societal outcomes. The involvement of these disciplines underscores the importance of creativity, ethical inquiry, and historical context in advancing knowledge.

Environmental Science: Addressing Global Priorities

The contribution of Environmental Science (5.7%, 37 documents) reflects the growing importance of ecological concerns in the field. This subject area's presence signals a commitment to addressing pressing issues such as climate change, sustainability, and the preservation of natural resources. The overlap between environmental science, agricultural research, and social sciences is particularly notable, suggesting an integrated approach to solving ecological and societal problems.

Broader Diversity Across Disciplines

Smaller contributions from fields such as Business, Management, and Accounting (4%), Psychology (3.7%), Energy (2.6%), and Computer Science (2.4%) reflect the field's broader engagement with diverse areas of expertise. Business and management's presence may relate to economic models and organizational strategies, while psychology likely contributes insights into human behavior and decision-making processes. Energy and computer science, though underrepresented, suggest emerging opportunities to integrate technological and infrastructural solutions into the field's broader research agenda.

Discussion

Interdisciplinary Leadership: The dominance of social sciences and agricultural sciences illustrates the field's interdisciplinary strengths. By combining insights from human and natural systems, researchers are well-positioned to tackle complex global issues. The integration of arts and humanities further enriches this interdisciplinary approach, ensuring that ethical and cultural dimensions are not overlooked.
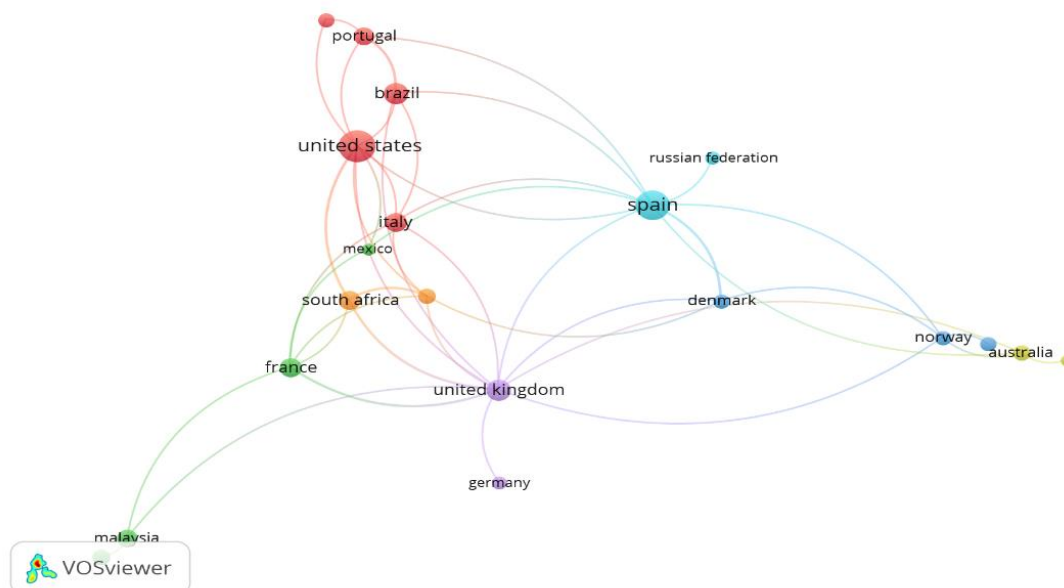
Alignment with Global Challenges: The subject area distribution reflects a strong alignment with contemporary global priorities such as sustainability, food security, and social equity. This alignment

enhances the field's relevance and impact, as it directly addresses the most pressing concerns of our time. Opportunities for Expansion: While the field demonstrates breadth, underrepresentation in areas such as energy and computer science highlights opportunities for growth. Expanding contributions in these fields could enhance the field's ability to address technological and infrastructural challenges, such as renewable energy solutions or the application of data analytics.

Strengthening Cross-Disciplinary Collaboration: The diversity of subject areas offers fertile ground for collaborative innovation. Strengthening connections between social sciences, environmental sciences, and technological fields could yield transformative solutions to complex problems.

Integrative Scholarship: The balanced representation of scientific, technical, and humanistic disciplines demonstrates a commitment to integrative scholarship. This approach ensures that research is not only technically robust but also culturally and ethically grounded.
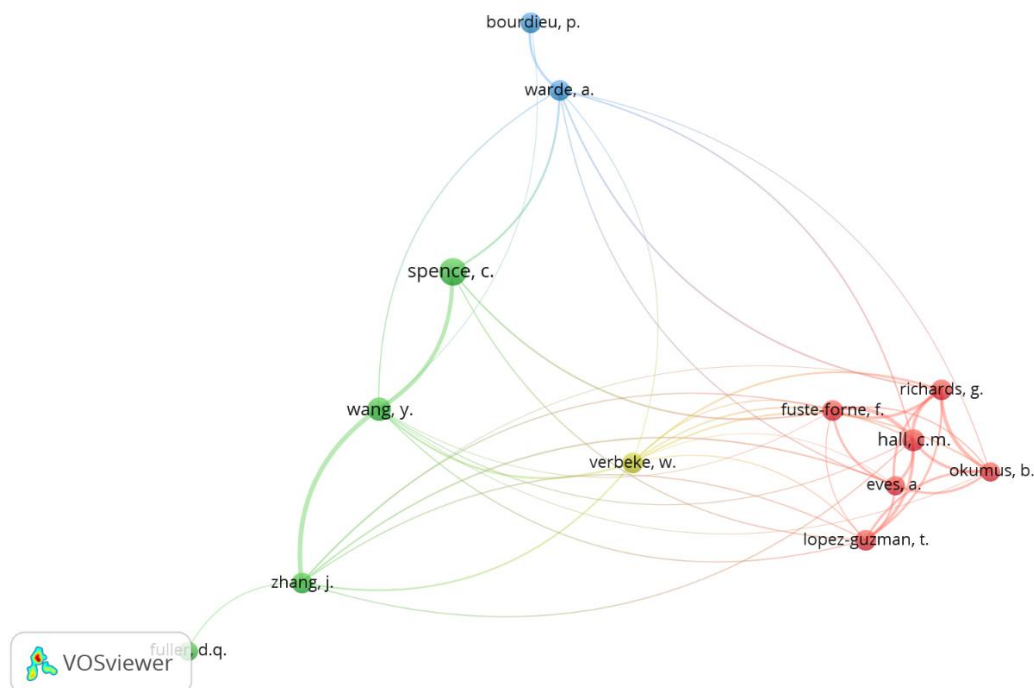
d. RQ 3: What are co-authorship countries' collaboration?

The analysis of international co-authorship networks in culinary research reveals a complex interplay of collaboration patterns, regional clusters, and global disparities. The United States, Spain, and the United Kingdom are central to the global co-authorship network, likely due to their strong academic infrastructure and historical engagement in culinary and food studies. Spain's centrality is linked to its renowned culinary traditions and gastronomic innovation, while the United Kingdom's position reflects its historical ties with Commonwealth nations and strong academic institutions dedicated to food science and gastronomy. The network also reveals distinct regional clusters, such as Spain and Latin American countries, highlighting shared research agendas around sustainable food practices, agricultural innovation, and indigenous cuisines. Portugal's clustering with Brazil and Spain underscores the influence of shared language and cultural heritage, providing fertile ground for joint studies on the sociocultural dimensions of food, culinary traditions, and gastronomic history. However, the network also highlights the underrepresentation of countries like Malaysia and South Africa, which reflect broader challenges of inclusion in global research. This highlights the importance of initiatives to support and integrate scholars from underrepresented regions into the global research ecosystem. The analysis carries important implications for the future of culinary research, including addressing global disparities in research participation and exploring the thematic focus of collaborations.

e. RQ5: What does the co-citation network reveal about the key themes, interdisciplinary

connections, and opportunities for growth in culinary research?

The intricate connections between food, culture, and society are examined in the multidisciplinary area of culinary studies. A rich tapestry of scholarly contacts is revealed by the co-citation analysis of cited authors in culinary research, which is centered around important themes and individuals who have had a major impact on the subject. Prominent academics like Hall, C. M. and Richards, G., whose work has come to be associated with fundamental concepts in culinary research, serve as the network's anchors. They regularly share their contributions to the study of food tourism, cultural sustainability, and gastronomic innovation. The multidisciplinary aspect of culinary research, which incorporates knowledge from psychology, marketing, and sensory studies to better understand consumer dynamics, is highlighted by Spence, C., and Verbeke, W., whose scholarship links sensory science and consumer behavior.

Warde, A., and Bourdieu, P.A emphasizes even further how sociological viewpoints can be applied to comprehend food culture as a dynamic and socially integrated practice. Scholars from a wide range of disciplines contribute to the intellectual development of culinary research, which is shown in the network visualization. Within the intellectual fabric of culinary study, the strength of co-citation relationships between writers reveals topic similarities and synergies. However, the somewhat weaker relationships between specific writers highlight potential gaps or underexplored areas that could benefit from further scholarly engagement.

There are various ramifications for culinary research from this analysis. First, the preponderance of well-known writers emphasizes how traditional frameworks must be modified to handle modern issues like food security, climate change, and the digital revolution in gastronomy. Secondly, the incorporation of marginalized perspectives and developing themes offers a chance to broaden and enhance the area, promoting a more comprehensive and inclusive comprehension of culinary phenomena.

Culinary research, as an interdisciplinary field, draws upon diverse intellectual traditions to explore the intricate relationships between food, culture, and society. The co-citation analysis of cited authors offers a lens through which to examine the intellectual structure of this domain, highlighting the foundational works, thematic clusters, and interdisciplinary synergies that have shaped its development. This narrative critically engages with the data and visualization to uncover the key contributions and

undercurrents in culinary scholarship, while also identifying opportunities for future research.

The co-citation network of cited authors in culinary research reveals a rich tapestry of scholarly interactions, clustered around key themes and figures who have significantly influenced the field. These findings not only illuminate the intellectual roots of the discipline but also underscore the dynamic interplay between established knowledge and emerging areas of inquiry. The network is anchored by prominent scholars whose work has become synonymous with core themes in culinary research. Among these, Hall, C. M. and Richards, G. stand out as pivotal figures, their frequent co-citation reflecting their contributions to the study of food tourism, cultural sustainability, and gastronomic innovation. Their collaborative influence underscores the centrality of tourism and culture as foundational pillars of culinary research. Another notable cluster is represented by Spence, C. and Verbeke, W., whose scholarship bridges sensory science and consumer behavior. Their work, focused on the sensory and experiential aspects of food consumption, highlights the interdisciplinary nature of culinary research, which integrates insights from psychology, marketing, and sensory studies to better understand consumer dynamics. Additionally, the presence of Bourdieu, P. within the network signals the enduring relevance of sociological frameworks in this field. Bourdieu's theories on cultural capital and consumption patterns have provided a critical lens for examining the social dimensions of gastronomy, from dining practices to food hierarchies. His connection with Warde, A. further underscores the application of sociological perspectives in understanding food culture as a dynamic and socially embedded practice.
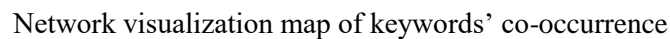
The network visualization reflects the interdisciplinary richness of culinary research, with scholars from diverse fields contributing to its intellectual growth. The clustering of authors such as Spence, C., Verbeke, W., and Wang, Y. suggests a shared focus on consumer experiences, sensory innovation, and market dynamics, areas that are increasingly relevant in the context of global food systems and sustainability challenges.At the same time, peripheral authors like Zhang, J. and Fuller, D. Q. highlight emerging or niche research themes, such as ancient culinary traditions, regional food systems, or underexplored cultural contexts. While their work may not yet have achieved the same level of citation frequency as the central figures, it represents an important opportunity for diversification and the inclusion of alternative perspectives within the field.

The strength of co-citation ties between authors reveals thematic overlaps and synergies within the intellectual fabric of culinary research. For instance, the strong linkage between Hall, C. M. and Richards, G. reflects their shared focus on food tourism and cultural sustainability. Similarly, the connection between Spence, C. and Verbeke, W. highlights their interdisciplinary contributions to sensory and consumer research. On the other hand, the relatively weaker ties between certain authors suggest potential gaps or underexplored areas that could benefit from greater scholarly interaction. For example, the distance between peripheral authors and the central nodes in the network may reflect missed opportunities for collaboration or integration into mainstream research agendas.

This analysis carries several implications for culinary research. First, the dominance of established authors underscores their foundational contributions but also highlights the need to adapt these frameworks to address contemporary challenges, such as climate change, food security, and the digital transformation of gastronomy. Second, the inclusion of peripheral voices and emerging themes presents an opportunity to diversify and enrich the field, fostering a more inclusive and holistic understanding of culinary phenomena.

Moreover, the interdisciplinary nature of the network underscores the importance of fostering cross-disciplinary collaborations, which can generate novel insights and solutions to complex food-related challenges. The integration of sociology, sensory science, and consumer behavior into culinary research exemplifies the value of such synergies, offering a blueprint for future scholarship.

f. RQ 6: What are the popular keywords related to the study?

Network visualization map of keywords' co-occurrence

In bibliometric research, keywords act as critical signifiers that reflect the thematic priorities, methodological orientations, and disciplinary intersections of a scholarly field. Analyzing keyword co-occurrence provides an opportunity to map not only what is being studied, but also how topics are connected. This form of analysis is particularly meaningful in culinary research, where diverse disciplines including cultural studies, food science, education, sustainability, and tourism frequently converge.

By examining the frequency and co-occurrence patterns of keywords from scholarly publications, this study offers a comprehensive view of the intellectual structure and thematic development in culinary research. The analysis not only highlights dominant topics and foundational themes, but also uncovers emerging trends, interdisciplinary linkages, and potential gaps in the existing literature.

Dominant Themes and Intellectual Anchors

The centrality of keywords such as "food" and "gastronomy" reflects their pivotal role in defining the scope of culinary research. While food serves as the overarching subject spanning nutrition, culture, and industry, gastronomy captures the experiential, aesthetic, and socio-cultural dimensions of food studies. Together, these terms form the conceptual core of the field.

Adjacent to these anchors are keywords like "food preparation," "food production," and "food safety", which denote the field's technical and applied focus. These terms signal an ongoing concern with the practicalities of food handling, hygiene, and process innovation that crucial for both industry and education.

Thematic Clusters and Their Intersections

A deeper analysis of the keyword network reveals several distinct thematic clusters:

I.   Cultural and Gastronomic Studies
     Keywords such as food culture, authenticity, and traditional food indicate a strong orientation

toward exploring identity, heritage, and the cultural meanings of food practices.

II. Health and Nutrition

This cluster includes terms like diet, nutrition, and food practices, reflecting growing interest in the relationship between culinary choices and public health, particularly within the context of rising non-communicable diseases and lifestyle-related health risks.

III. Sustainability and Food Systems
Keywords such as sustainable development, food waste, and climate change signify engagement with ecological and ethical issues, especially how culinary practices impact global food security and environmental sustainability.

IV. Education and Vocational Training
With keywords like culinary arts, education, and food processing, this cluster underscores the importance of pedagogy, skill development, and training infrastructure in the formation of culinary professionals.

Emerging Trends and Contextual Relevance

The presence of "COVID-19" as a keyword underscores the field's responsiveness to global crises. Research in recent years has examined how the pandemic reshaped food systems, supply chains, consumption patterns, and culinary education delivery. Similarly, keywords like "food waste" and "sustainable development" reflect the alignment of culinary scholarship with contemporary global challenges and the Sustainable Development Goals (SDGs).

Interdisciplinary Connectivity

One of the most insightful features of the keyword network is the degree of interdisciplinary linkage across clusters. For example, the keyword "education" intersects meaningfully with sustainability, nutrition, and vocational skills development, highlighting its bridging function. Likewise, "food practices" appears across cultural and health-related clusters, suggesting a strong cross-domain relevance that blurs traditional academic boundaries.

Peripheral Topics and Identified Gaps

While core themes dominate the discourse, peripheral terms such as cookbooks, kitchen, and tourist destination hint at underexplored but promising areas. These keywords point to niche domains such as culinary tourism, media representation, and domestic cooking spaces, which are often marginal in the literature but hold high potential for future interdisciplinary research.

In summary, the keyword co-occurrence analysis reveals a vibrant and multifaceted research landscape in culinary studies, shaped by both theoretical exploration and applied concern. The presence of strong central themes, alongside emerging topics and interdisciplinary bridges, demonstrates the field's maturity and adaptability. However, the relative absence of certain keywords particularly those related to digital technology, AI in culinary education, and global culinary equity highlights areas that merit further scholarly attention.

Future research could benefit from exploring digital transformation in culinary pedagogy, the role of design thinking in food systems innovation, and the impact of AI and automation in culinary production and training. Addressing these gaps will not only expand the field's theoretical base but also enhance its relevance to real-world challenges in food security, education, and sustainability.

DISCUSSION

The bibliometric insights derived from this analysis present a vivid portrait of culinary research's evolution, illuminating its dynamic trends, influential contributors, thematic breadth, and interdisciplinary potential. Across the examined dimensions, the findings reveal a field that is simultaneously thriving and transitioning, with both opportunities and challenges shaping its trajectory.

The Rise and Fall of Research Output

The temporal analysis of publication trends portrays an intriguing narrative. Between 2021 and 2023, culinary studies experienced exponential growth, culminating in an impressive peak of 106 publications in 2023. This surge likely reflects the convergence of heightened societal interest, increased funding opportunities, and technological advancements that lowered entry barriers for researchers. Indeed, 2023 appears to have been a pivotal year, marked by significant scholarly activity, possibly fueled by influential conferences, major collaborations, or landmark publications.

Yet, the sharp decline that followed from 67 publications in 2024 to a mere 3 in 2025 demands careful reflection. While part of this drop may be attributed to delays in indexing recent publications, it also signals potential shifts in research priorities, funding landscapes, or academic interest. The question of sustainability emerges prominently here: How can the momentum witnessed in peak years like 2023 be harnessed and sustained to ensure a steady flow of impactful contributions? This trajectory underscores the importance of adaptive strategies that align academic efforts with emerging societal challenges while addressing structural barriers within the research ecosystem.

The Human Faces of Culinary Research

The analysis of authorship patterns brings to light the human dimension of scholarly contribution. Leading figures like Doğan, M., Hernández-Rojas, R.D., and Munk, R. have established themselves as intellectual anchors, shaping the thematic and methodological directions of the field. Their sustained productivity not only reflects individual expertise but also underscores the role of strong academic networks and institutional support in fostering innovation.

Simultaneously, the contributions of mid-tier authors and collaborative networks speak to the inclusivity and collective effort that characterize culinary research. This broader participation is vital for the field's vitality, ensuring a continuous infusion of fresh ideas and perspectives. However, the prominence of a select few also highlights the potential risks of concentration, where over-reliance on a small cohort could stifle diversity. To counter this, fostering mentorship, encouraging contributions from underrepresented groups, and diversifying funding streams will be essential in building a robust and inclusive research community.

Thematic Breadth and Interdisciplinary Potential

The thematic diversity within culinary studies is one of its greatest strengths. With 43.3% of the research originating from the social sciences, the field demonstrates a deep engagement with cultural, societal, and behavioral dimensions. Complemented by significant contributions from agricultural and biological sciences, this interdisciplinary alignment enables researchers to address complex global challenges, such as sustainability, food security, and health equity.

At the same time, the underrepresentation of fields like energy and computer science points to untapped opportunities. For instance, integrating data analytics, renewable energy, and digital technologies could revolutionize culinary research, offering innovative solutions to pressing issues like climate change and resource optimization. Such integration would not only expand the field's scope but also enhance its relevance in addressing contemporary challenges.

Collaboration Without Borders

The global collaboration networks highlighted in this analysis underscore the importance of international partnerships in advancing culinary research. Countries like the United States, Spain, and the United Kingdom play central roles in these networks, leveraging their academic infrastructure and cultural legacies. However, the limited participation of scholars from regions like Southeast Asia and Africa reveals a persistent imbalance in global research dynamics. Bridging these gaps will require targeted initiatives, such as capacity-building programs, equitable funding models, and platforms that amplify marginalized voices.

The Stories Behind the Keywords

Keywords tell a story of their own, revealing the intellectual heartbeat of a field. In culinary studies, terms like "food," "gastronomy," and "sustainability" dominate the landscape, reflecting both foundational themes and contemporary priorities. Clusters focusing on cultural identity, health, and environmental sustainability illustrate the field's responsiveness to global challenges.

Emerging keywords such as "COVID-19" highlight the field's agility in addressing crises, while peripheral terms like "cookbooks" and "tourist destinations" point to niche areas ripe for exploration. These findings suggest that culinary studies is not merely reactive but actively shaping its discourse to remain relevant and impactful.

Toward a Vision for the Future

The narrative of culinary research is one of transformation and possibility. To sustain its momentum and maximize its impact, the field must embrace several imperatives:

1. **Sustainability of Effort**: By aligning research agendas with long-term global priorities, culinary studies can ensure a steady flow of contributions that address pressing societal needs.
2. **Inclusive Collaboration**: Amplifying underrepresented voices and fostering global partnerships will enrich the field's intellectual fabric and promote equity.
3. **Technological Integration**: Leveraging advancements in data science, digital innovation, and renewable energy can redefine the boundaries of culinary research.
4. **Interdisciplinary Synergies**: Strengthening connections between diverse disciplines, cultural studies, health sciences, and environmental research will foster holistic solutions to complex challenges.

The evolution of culinary studies illustrates the power of interdisciplinary collaboration, human creativity, and ongoing academic research. This study's findings, through the synthesis of these patterns, indicate several significant implications for the future of the field. The thematic diversity, coupled with inconsistent technological integration and geographical representation, suggests that culinary research is transitioning from descriptive cultural analysis to a more strategic and interdisciplinary knowledge framework that corresponds with global priorities like sustainability, digital transformation, and food system adaptability. Enhancing methodological innovation, embracing future technology, and increasing participation from underrepresented regions will be crucial for improving the relevance and intellectual influence of the field. By addressing these structural and conceptual deficiencies, culinary research will be more effectively positioned to significantly contribute to global dialogues on cultural preservation, sustainable development, and technological advancement in gastronomy.

CONCLUSION

This bibliometric study provides a comprehensive and nuanced portrait of culinary research as a vibrant, evolving, and interdisciplinary field. The findings underscore a dynamic landscape shaped by rising global interest, notable thematic diversity, and increasing collaboration across disciplines and geographies. The surge in scholarly output in 2023 reflects the field's responsiveness to societal and technological shifts,

while the subsequent decline raises important questions about sustainability and long-term research engagement.

Authorship and co-authorship analyses reveal a balance between established intellectual leaders and a growing base of mid-tier contributors, reflecting an inclusive and collaborative academic culture. Thematic mappings from cultural identity and gastronomy to sustainability and public health demonstrate the field's capacity to address complex global challenges. However, gaps remain in digital integration, technological innovation, and representation from marginalized regions and cuisines.

By synthesizing trends, networks, and thematic clusters, this study emphasizes the need for strategic efforts to sustain momentum, broaden participation, and amplify interdisciplinary linkages. Moving forward, culinary research must prioritize inclusivity, technological adaptation, and global equity to remain impactful and relevant. These bibliometric insights not only chart the past and present of the field but also offer a roadmap for its future growth and transformation.

DECLARATION OF GENERATIVE AI

During the preparation of this work, the author(s) used ChatGPT to enhance the clarity of the writing. After using the ChatGPT, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

ACKNOWLEDGEMENT

Conflict of Interest: No conflict of interest was involved in this research.

REFERENCES

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-Learning Theoretical Framework. In *Educational Technology & Society* (Vol. 19, Issue 1).

Appio, F. P., Cesaroni, F., & Di Minin, A. (2014). Visualizing the structure and bridges of the intellectual property management and strategy literature: a document co-citation analysis. *Scientometrics*, *101*(1), 623–661. https://doi.org/10.1007/s11192-014-1329-0

A. Verbeek, K. Debackere, M. Luwel, & E. Zimmermann. (2002). Measuring progress and evolution in science and technology - I: The multiple uses of bibliometric indicators. *International Journal of Management Reviews*, *4*(2), 179–211.

Burke, R. M. (2024). New dimensions in dining: A review of the gastronomic evolution of 3D printed foods from 2013 to 2024 and beyond. *International Journal of Gastronomy and Food Science*, *38*. https://doi.org/10.1016/j.ijgfs.2024.101027

Claudine Sykimte. (2023). Food and Beverage Management: Trends, Innovations, and Challenges. *International Journal of Advanced Research in Science, Communication and Technology*, 713–718. https://doi.org/10.48175/ijarsct-12360

Di Fraia, T., & di Gennaro, F. (2025). The deposits of reddish impasto "olle": Archaeological reality and possible interpretations. *Quaternary Science Reviews*, *349*. https://doi.org/10.1016/j.quascirev.2024.108998

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Gozali, G., Setyawati, R., Duari, I. P. H. H., Zulkarnain, Z., Nooryastuti, N. A., Yudistira, S., & Purwaningrum, H. (2024). Exploring "Mandai": gastronomy of Banjar ethnic in Kalimantan, Indonesia. *Journal of Ethnic Foods*, *11*(1). https://doi.org/10.1186/s42779-024-00246-2

Hassan, S. C., & Singh, A. (2024). Preserving Traditional Cuisines and Methods in the Culinary World. In *Global Sustainable Practices in Gastronomic Tourism* (pp. 393–402). https://doi.org/10.4018/979-8-3693-7096-4.ch023

Hassan, W., & Duarte, A. E. (2024). Bibliometric analysis: A few suggestions. *Current Problems in Cardiology*, *49*(8), 102640. https://doi.org/https://doi.org/10.1016/j.cpcardiol.2024.102640

Hema Kothari, Dr. (2024). REVOLUTIONARY TRENDS IN FOOD AND TECHNOLOGY. In *Futuristic Trends in Agriculture Engineering & Food Sciences Volume 3 Book 1* (1st ed., Vol. 3, pp. 88–95). Iterative International Publisher, Selfypage Developers Pvt Ltd. https://doi.org/10.58532/V3BCAGP1CH6

Jusoh, M. Y. F., & Ishak, N. A. (2024). A BIBLIOMETRIC STUDY ON ENERGY LITERACY AND EDUCATION: MAPPING TRENDS, FOCUS AREAS, AND RESEARCH GAPS. *Journal of Contemporary Social Science and Education Studies*, *4*(2). https://doi.org/10.5281/zenodo.13370480

Kaya, S. S., Munk, R., Prado, D., & Quoidbach, J. (2025). Emotions shape taste perception in a real restaurant environment. *International Journal of Gastronomy and Food Science*, *39*. https://doi.org/10.1016/j.ijgfs.2024.101080

N.J Van Eck, & L.Waltman. (2007). *Bibliometric Mapping of the Computational Intelligence Field*. http://hdl.handle.net/1765/10073

N.J.Van Eck, & L.Waltman. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

N.J.Van Eck, & L.Waltman. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, *111*(2), 1053–1070. https://doi.org/10.1007/s11192-017-2300-7

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, *88*. https://doi.org/10.1016/j.ijsu.2021.105906

Palacios-Fonseca, A. J., Moreno-Ortega, A., Sosa-Argáez, I., & Moreno-Rojas, R. (2025). Trend in the consumption of traditional dishes of colima, Mexico: Demographic characteristics and preferences. *International Journal of Gastronomy and Food Science*, *39*. https://doi.org/10.1016/j.ijgfs.2024.101091

Park, J., & Park, J.-Y. (2025). Unraveling Four Decades of Events Research Across Three Journal Groups: A Bibliometric Analysis. *Event Management*, *29*(3), 301–323. https://doi.org/10.3727/152599524X17265263360296

Salinas-Ríos, K., & Janneire García-López, A. (2022). Bibliometrics, a useful tool within the field of research. *Journal of Basic and Applied Psychology Research Biannual Publication*, *3*(6), 9–16. https://repository.uaeh.edu.mx/revistas/index.php/jbapr/issue/archive

Vogel, D., Lisboa Sohn, A. P., & Santucci de Oliveira, B. (2024). Analysis of Scientific Production on Competencies Models in Culinary Arts Education on EBSCO, Web of Science and Scopus Databases. *Journal of Culinary Science & Technology*, *22*(3), 533–546. https://doi.org/10.1080/15428052.2022.2060890

Wardana, A. A., & Setiarto, R. H. B. (2024). Unveiling the cultural significance and development of "wajik", a traditional Javanese food. *Journal of Ethnic Foods*, *11*(1). https://doi.org/10.1186/s42779-024-00237-3

Wargadalem, F. R., Nasyaya, A., & Santoso, A. D. (2024). A bibliometric analysis of Indonesian ethnic food studies. In *Canrea Journal: Food Technology, Nutritions, and Culinary Journal* (Vol. 7, Issue 2, pp. 143–161). Hasanuddin University Department of Food Science and Technology. https://doi.org/10.20956/canrea.v7i2.1060

Wu, Y.-C. J., & Wu, T. (2017). A decade of entrepreneurship education in the Asia Pacific for future directions in theory and practice. *Management Decision*, *55*(7), 1333–1350. https://doi.org/10.1108/MD-05-2017-0518

Yilmaz, E., & Yalcin, Y. (2024). Sustainability of traditional meat dishes with fruit. *International Journal of Gastronomy and Food Science*, *38*. https://doi.org/10.1016/j.ijgfs.2024.101030