

Green Hospitality 2030: Enhancing Guest Experience through Sustainable Innovation and the European Green Deal

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Abstract

This paper explores the evolution of academic research in green hospitality, with a focus on how sustainability, innovation, and guest experience converge under the guiding framework of the European Green Deal (EGD). Through a bibliometric analysis of 181 peer-reviewed articles published between 2019 and 2025 and indexed in the Scopus database, the study provides a comprehensive overview of global research trends in sustainable hospitality. Using VOSviewer and Biblioshiny, the analysis identified key thematic clusters—sustainability, hotel industry, and corporate social responsibility—alongside the most prolific countries, authors, and journals contributing to the field. The United States, China, Saudi Arabia, India, and the United Kingdom emerged as top contributors, while Sustainability (Switzerland) and the International Journal of Hospitality Management were highlighted as leading publication sources. Authors such as Han, who has focused extensively on green consumer behavior and sustainable tourism decision-making, Fayyad, recognized for his work on strategic sustainability practices in hospitality, and Azazz, noted for his contributions to green marketing and authenticity in hotels, were recognized for their influential work. The findings reveal a growing academic and industry-wide interest in integrating green practices and innovative strategies to enhance guest experience and operational performance. This research is one of the few to systematically align bibliometric insights with the priorities of the EGD, thereby adding original value to both academic literature and practical decision-making. The study's results offer meaningful guidance for hospitality managers, policymakers, and researchers by identifying strategic areas for investment and collaboration in sustainable innovation. It underscores the importance of aligning green practices with guest satisfaction and long-term value creation in the hospitality sector.

Keywords

Green hospitality, sustainable innovation, European Green Deal, smart tourism, green human resource management.

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Introduction

The hospitality industry is increasingly under pressure to adopt environmentally sustainable practices, not only to align with global sustainability agendas such as the European Green Deal (EGD), but also to meet evolving consumer expectations. Sustainability has become a core determinant of value creation for both businesses and consumers, particularly in industries such as tourism and hospitality that have significant ecological footprints (Preziosi et al., 2022). Sustainable innovation, green human resource practices, and green technologies are emerging as strategic levers to enhance guest experiences while achieving long-term ecological and economic goals (Yoo, 2024).

Recent studies confirm the growing strategic importance of sustainability in hospitality. For instance, Singh et al. (2024) conducted a bibliometric review emphasizing the role of digital tools and corporate responsibility in sustainable hospitality transitions. Similarly, Wahjono and Rahmanita (2024) highlighted the increasing scholarly attention toward green hotel operations in tourism destinations, while Fauzi et al. (2024) examined the dynamics of green certifications and their influence on customer loyalty. These contributions collectively demonstrate the expanding academic landscape that underpins the intersection of green innovation and consumer behavior in hospitality.

While existing research underscores the relevance of sustainability, innovation, and guest experience within green hospitality, the academic landscape remains fragmented. Despite numerous studies addressing individual components—such as green technologies, HRM, and transport—there is limited synthesis on how scholarly attention is evolving across geographies, authorship, and publication venues. To support evidence-based policymaking and academic advancement aligned with the European Green Deal, it is crucial to map the intellectual structure of the field and identify key thematic clusters. Accordingly, this article applies bibliometric analysis to the current body of literature to uncover emerging patterns and research trends. In particular, it addresses the following research questions:

- RQ1: Which keywords frequently occur in combination?
- RQ2: Which countries have contributed the most publications to this research area?
- RQ3: Which are the most relevant sources in Scopus for this research area?
- RQ4: Who are the most relevant authors in the field in terms of the number of papers?

By answering these questions, the study aims to contribute a structured overview of the research domain, thereby facilitating more targeted and impactful future investigations into Green Hospitality 2030.

The paper consists of five sections, beginning with an introduction, followed by an examination of scientific literature, a description of the methodology, and a section dedicated to results and discussions. The final section includes the conclusions.

1. Review of the scientific literature

1.1. The European Green Deal and Its Strategic Influence on Hospitality

The European Green Deal (EGD) outlines an ambitious roadmap toward carbon neutrality by 2050, affecting all sectors of the economy, including tourism and hospitality. As a key strategic policy, the EGD mandates improvements in energy use, circular economy practices, and sustainable innovation (Granat and Kozak, 2021). Within the hospitality industry, these directives are not simply regulatory impositions but catalysts for transformative innovation that enhance both operational efficiency and guest experience (D'Adamo and Rossi, 2024). Hotels and resorts are increasingly adopting measures such as renewable energy integration, sustainable building designs, and advanced waste reduction systems that align with both EGD goals and consumer expectations for environmental responsibility.

Importantly, the EGD aligns with global benchmarks such as the United Nations Sustainable Development Goals (SDGs), particularly SDG 7 (clean energy), SDG 9 (industry innovation), and SDG 12 (responsible consumption and production) (D'Adamo et al., 2024; Tan and Wright, 2022). Hospitality firms pursuing compliance with these goals are not only advancing environmental outcomes but also strategically positioning themselves to appeal to a growing segment of environmentally conscious travelers (Purcărea et al., 2022). This integration of sustainability and guest-centric value creation lies at the core of the *Green Hospitality 2030* vision.

1.2. Sustainable Mobility as a Pillar of Guest Satisfaction

Sustainable transport options—ranging from electric vehicle charging stations to carbon-offset travel packages—are emerging as essential components of the eco-hospitality value proposition. Increasingly, guests associate low-carbon travel options with high-quality, meaningful experiences (Baquero, 2024). These options contribute to both environmental goals and the perceived service quality, reinforcing the competitive advantage of establishments that incorporate green mobility into their offerings (Zarifis, 2024).

Whether through shuttle services, e-bike rentals, or partnerships with clean transportation networks, sustainable mobility is expanding the definition of hospitality beyond the property itself. This shift is particularly relevant for eco-resorts and rural accommodations that seek to balance accessibility with

environmental stewardship. By integrating transportation innovations into the guest journey, hospitality firms enhance the overall experience while reinforcing their commitment to sustainable practices.

1.3. Innovation and Smart Technologies in Green Hospitality

Innovation serves as a bridge between sustainability goals and experiential value creation. Emerging business models in hospitality increasingly reflect a dual focus on technological advancement and environmental performance. Concepts such as green ambidexterity—the simultaneous pursuit of explorative and exploitative innovation—have been shown to positively impact competitiveness and sustainability outcomes (Alsheref et al., 2024). Smart technologies, including IoT-enabled devices, real-time energy management systems, and personalized digital interfaces, enable hotels to optimize operations while offering greater guest control and comfort (Tan and Wright, 2022).

Beyond operational efficiency, these digital tools foster transparent communication of sustainability practices. Whether through mobile apps that show real-time energy savings or in-room systems that adjust usage based on occupancy, technology empowers guests to participate actively in sustainability efforts. Certifications and ecolabels further enhance credibility, although concerns about greenwashing underscore the importance of third-party validation and clear sustainability communication (Alyahia et al., 2024; Preziosi et al., 2022).

1.4. Human Capital and Organizational Commitment to Green Goals

The internal capabilities of hospitality organizations are crucial to embedding sustainability in a way that resonates with guests. Green Human Resource Management (GHRM) practices—such as eco-focused recruitment, training, and performance appraisals—have a demonstrated impact on employee engagement and service delivery (Yoo, 2024; Nisar et al., 2023). Employees empowered through GHRM initiatives often act as ambassadors of sustainability, thereby enriching the guest experience through authentic, value-driven service (Mughal et al., 2023).

Moreover, leadership and internal marketing play critical roles in translating strategic green objectives into everyday practices. Leaders who model sustainability and leverage digital transformation tools help align organizational goals with employee values and stakeholder expectations (Alsheref et al., 2024). These efforts collectively contribute to a cohesive sustainability culture that supports both innovation and customer satisfaction.

1.5. Changing Consumer Behavior and the Role of Market Interaction

Modern travelers increasingly seek accommodations that reflect their values, particularly in terms of environmental responsibility. Studies from Romania and Ireland reveal a growing preference for hotels that exhibit ethical sourcing, sustainable operations, and transparent communication (Purcărea et al., 2022; Tan and Wright, 2022). This shift is most pronounced among younger demographics, who prioritize sustainability and expect digital, interactive touchpoints that reinforce these values.

“Smart and green” hotel models, which integrate ecological design with personalized digital experiences, are well-positioned to meet this evolving demand. Social media, review platforms, and mobile apps enable guests to both influence and be influenced by sustainability narratives. Features such as carbon calculators, digital sustainability badges, and green loyalty programs enhance brand engagement and perceived authenticity.

2. Research Methodology

A bibliometric analysis was used for this study because it was the most suitable approach to find answers to the formulated research questions, as it offers a comprehensive overview regarding the most important papers and relevant academic research in a particular discipline. Additionally, a bibliometrics approach can be used to assess the impact of academic publications and their role in spreading information (Ellegaard and Wallin, 2015).

The conducted research aims to investigate the trends and transformations in the hospitality industry and the movement to green hospitality. The analysis focused on publications from 2019 to 2025 to enclose the evolution of hospitality and the most important and new trends in the area.

To answer to the formulated research questions, the following secondary objectives were formulated:

- O1: To identify the most frequently co-occurring keywords within the selected body of literature.

- O2: To determine the geographical distribution of scientific output by identifying the countries that have contributed the highest number of publications in the research area.
- O3: To identify the most relevant scientific sources indexed in Scopus, based on the volume and relevance of publications related to the field.
- O4: To analyze the most influential authors in the domain, based on the number of published articles, in order to outline the key contributors to the field.

The database used for this study was Scopus, using the following search string of words in the title, abstract, and keywords: “Green” AND “Deal” OR “Sustainability” AND “Hospitality”. The first result indicated 356 articles and to refine the search some filters were applied such as language “English”, publication stage “Final” and document type “Article”, resulting in 202 documents. The next step was to limit the documents only to some specific subject areas and filter also the keywords only to the ones important for the current subject, concluding with 181 papers which represents the dataset that will be examined (Figure no. 1).

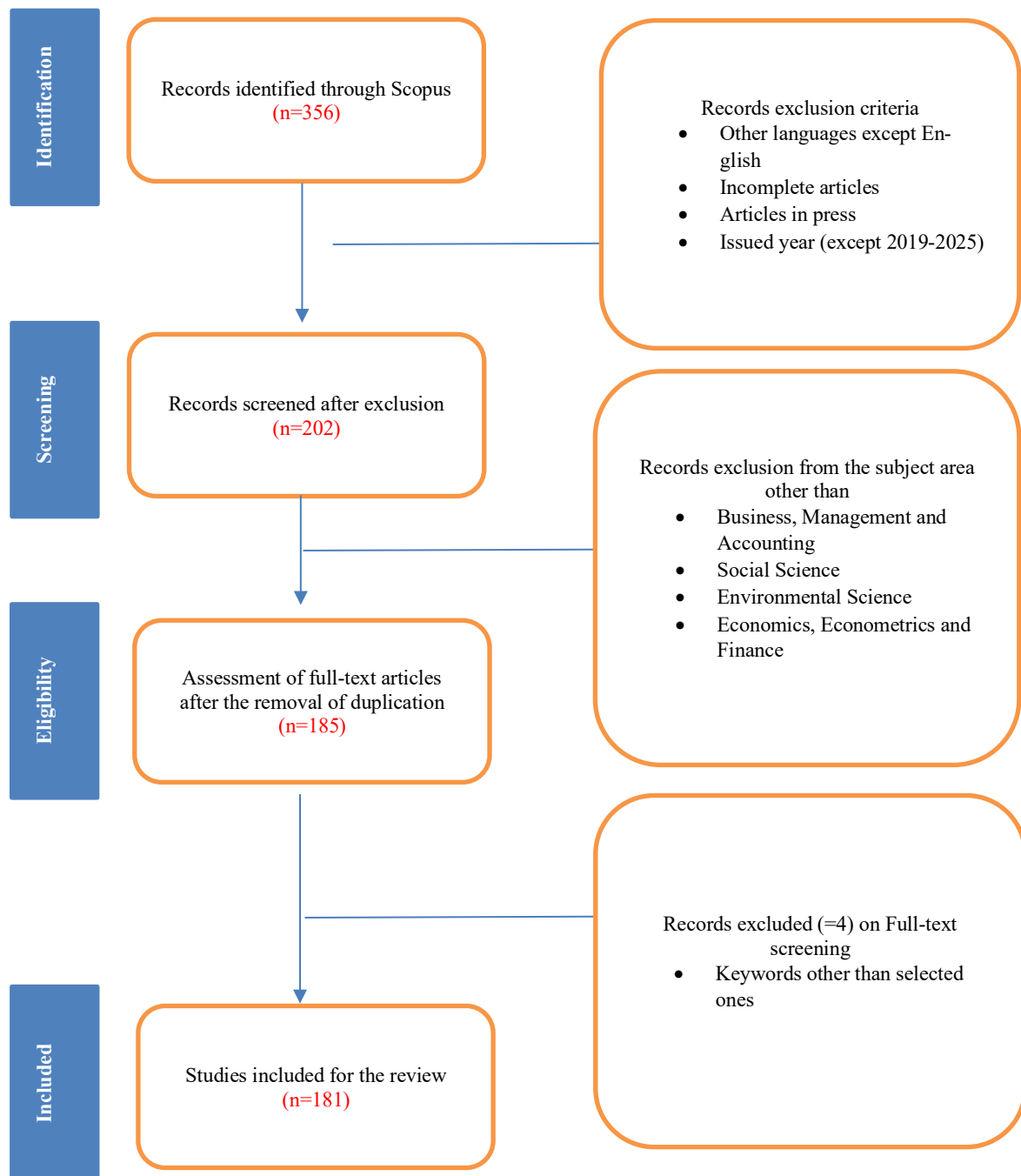


Figure no. 1. PRISMA Flowchart
Source: Adapted from Moher et al., 2009

The analysis was conducted using two tools. Firstly, VOSviewer version 1.6.20 was used to analyze the keywords co-occurrences and to identify the countries with the highest number of publications in the green hospitality area. Secondly, the authors used Biblioshiny to identify the most relevant sources and authors based on published papers in the field.

3. Results and discussion

To obtain the co-occurrence keywords network map (Figure no. 2), the following settings were used in the VOSviewer tool: the type of analysis used was “co-occurrence”, the unit of analysis was “all keywords”, and also, the “full counting” method was in place for the analysis. The minimum number of occurrences of a keyword was set to 10, resulting in 20 items, forming 3 clusters, generating 155 links with a total link strength of 623.

The first cluster, the green one, refers to sustainability, suggesting the importance of it and its applicability in hospitality, having in its area of interest also keywords such as “hospitality industry” or “green economy”. The second cluster, formed in red, has the hotel industry as the main keyword, while the last cluster, formed in blue, refers to corporate social responsibility. The results match the ones from Wahjono and Rahmanita (2024) and Fauzi et al. (2024), identifying some common keywords such as “sustainability”, “green hotels”, “sustainable tourism”, “hospitality”, “tourism” and so on.

The entire map reveals strong connections among the three clusters, as well as within each cluster and among different keywords from various clusters. This serves as evidence of a synergistic map, emphasizing the role of sustainability in the hospitality industry while also highlighting the evolution of articles in the field, the points of interest, and the transformation of this industry.

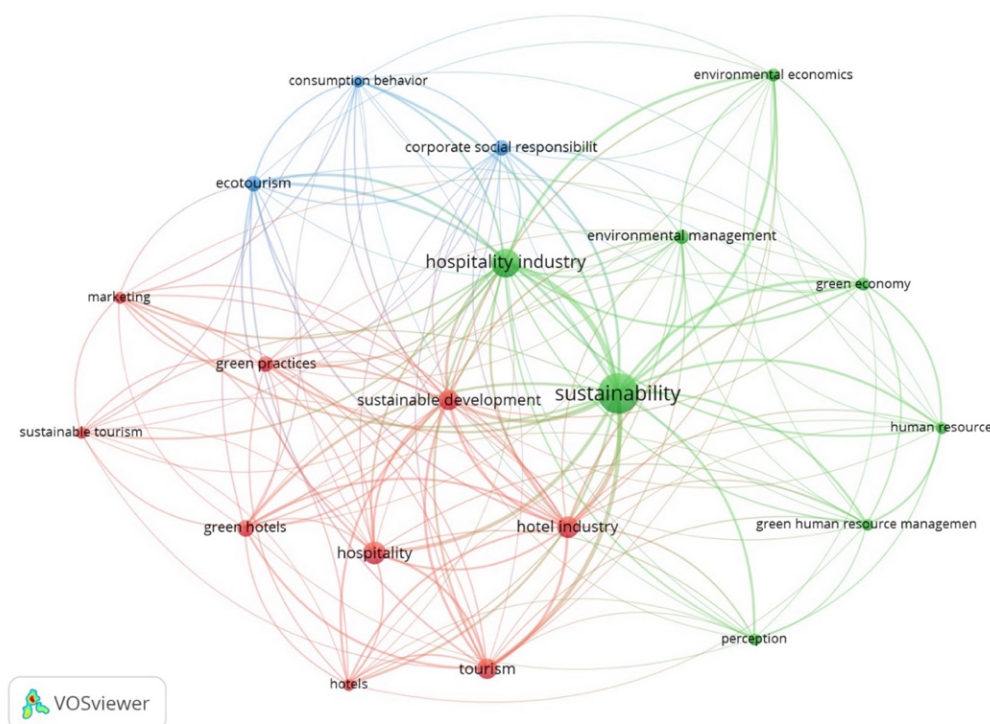


Figure no. 2. All keywords in the co-occurrence network map

To generate the network map of countries with the highest publication, a series of conditions were set in VOSviewer: the type of analysis was “co-authorship”, the unit selected for the analysis was set to “countries” and the method used was the “full counting”. The minimum number of papers in a specific country was set to 5, and the results show 5 clusters formed, summing 20 items with 75 links and a total link strength of 140 (Figure no. 3).

Figure no. 3 represents the countries with the highest number of publications in the area of green hospitality, highlighting the importance of the subject, the different or common perspectives of the countries regarding

this subject, and last but not least, the strong calibration of the same purpose worldwide. Some of the most active countries when it comes to the number of paper publications are: the United States, China, Saudi Arabia, India, Pakistan, Malaysia, and the United Kingdom. These results confirm the ones from Kalıpçı and Şimşek (2023) paper, finding the USA, China, and the UK as the most active countries in this research field.

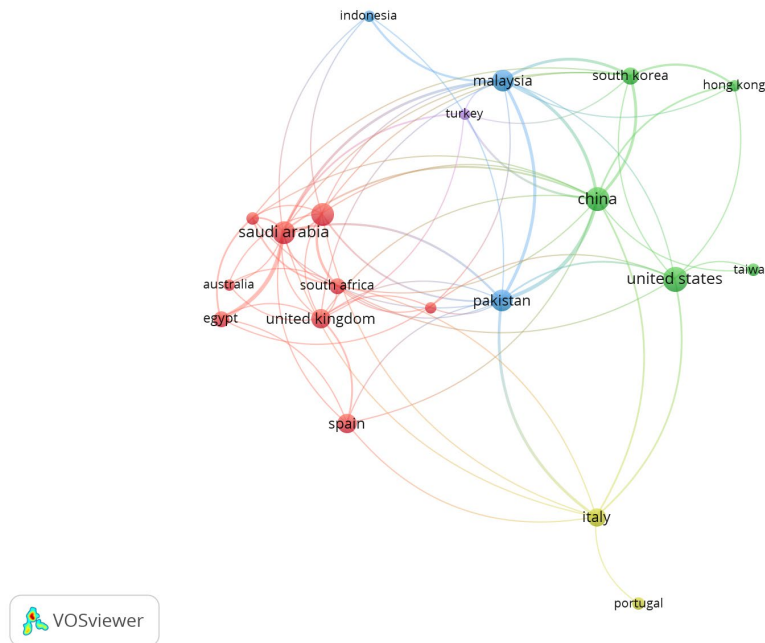


Figure no. 3. Countries with the highest publication output

Figure no. 4 represents the top ten most important sources in Scopus for the green hospitality area. The most valuable journal with the highest number of papers published was “Sustainability (Switzerland)” having a number of 27 papers, followed by the “International Journal of Hospitality Management”, “International Journal of Contemporary Hospitality” and “Journal of Sustainable Tourism”, supporting also the results obtained by Singh et al. (2024). Out of 181 articles included in the analysis, 78 were published only by the top ten journals.

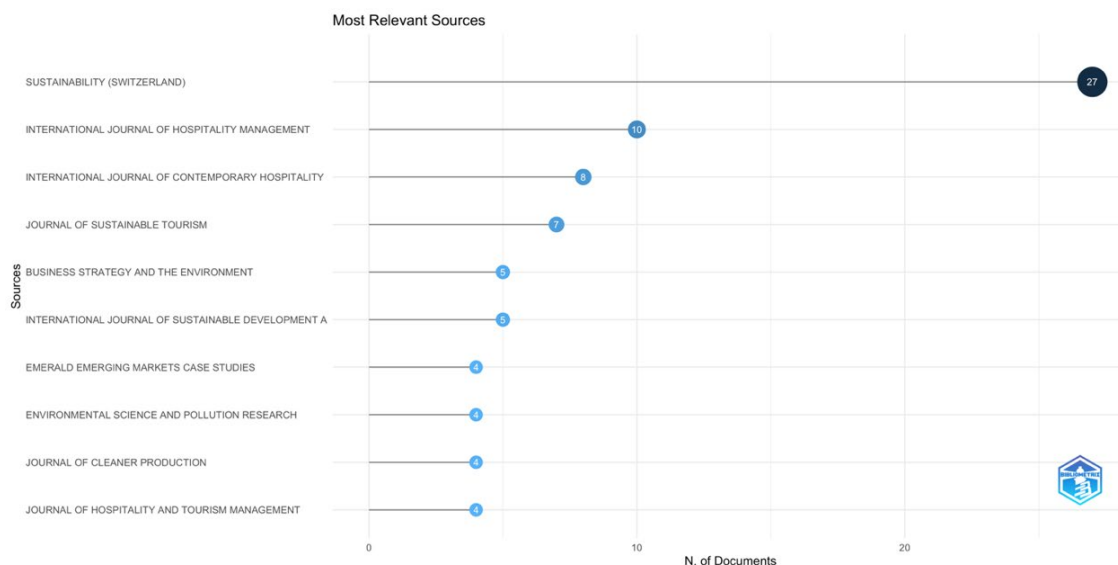


Figure no. 4. Most Relevant Sources

When it comes to the most relevant authors in the field from the number of publications perspective, the most remarkable author is Han with 7 papers, followed by Fayyad with 6 papers and Azazz and Elshaer with 5 papers each (Figure no. 5). Han was also found as the most active author in the field in the research conducted by Fauzi et al. (2024).

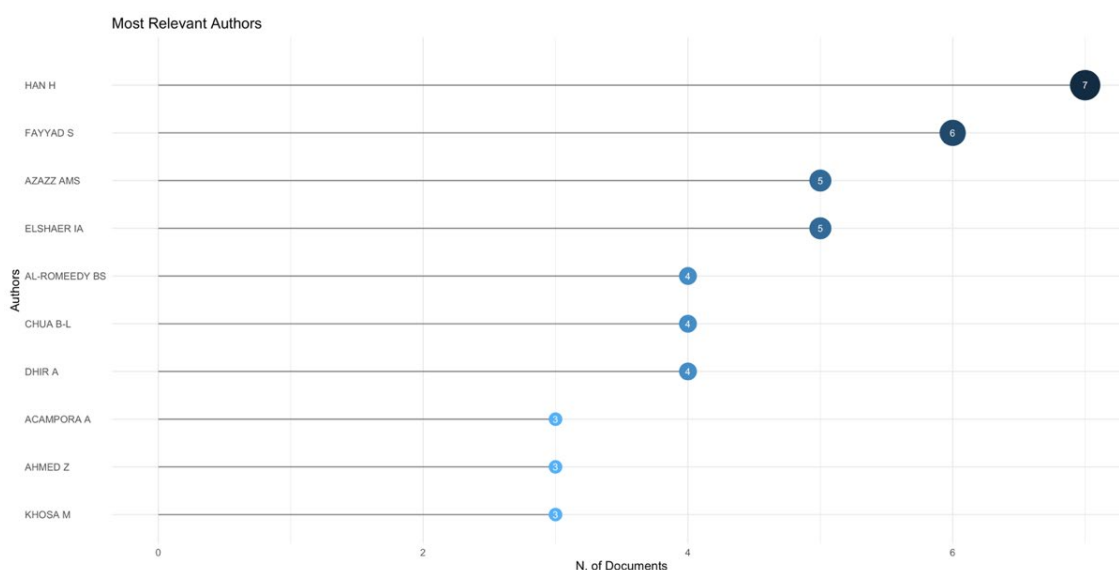


Figure no. 5. Most Relevant Authors – number of papers

Conclusions

This study advances the existing literature on green hospitality through the alignment of the bibliometric insights with the strategic objectives of the European Green Deal, offering a forward-looking structure that maps the current academic landscape and also pinpoints key areas for future academic and practical investment. This comprehensive and policy-oriented method increases the significance of bibliometric research in influencing academic discussions and promoting sustainable practices within the hospitality sector, policymakers, and investors, highlighting emerging areas for investments such as green HRM, sustainable mobility, and smart technologies.

The results provide a systematic analysis of trends and significant players in the shift towards sustainable hospitality, matching the ones from other important papers in the field (Kalıpçı and Şimşek, 2023; Fauzi et al., 2024; Singh et al., 2024; and Wahjono and Rahmanita, 2024).

Some of the limitations of this study are: only final and complete articles in English from the Scopus database were used, and the bibliometric analysis doesn't offer an overview to see the real impact of the European Green Deal initiatives on the hospitality industry. This study could be based on multiple databases, also extending the period of the analysis. Also, future studies could investigate the similarities and differences between different countries or regions in terms of adopting sustainable practices in the hospitality industry, but also by looking into the relationship between sustainable leadership and green human resource management or the economic performance in this field.

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