Bibliometric Analysis on Geographical Indication and the Law: A Decade of Publications

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DOI: https://dx.doi.org/10.47772/IJRISS.2026.100500547

Received: 17 April 2026; Accepted: 22 April 2026; Published: 06 June 2026

ABSTRACT

This study examines the scholarly landscape on geographical indication and the law through a comprehensive bibliometric analysis aimed at identifying conceptual trends, research patterns and global collaboration structures within the field. Despite the growing importance of geographical indication as a legal mechanism for protecting origin-based products, enhancing rural development and shaping international trade negotiations, existing scholarship remains dispersed across multiple disciplines, creating a need for a systematic assessment of its intellectual structure. To address this gap, the study employed a structured methodology beginning with data collection through Scopus advanced searching, which yielded a final dataset of 838 peer-reviewed English-language documents published between 2015 and 2025. Statistical trends and performance indicators such as publication growth, authorship patterns, country contributions and citation metrics were analysed using the Scopus Analyzer. OpenRefine was then used to clean and harmonise author names, affiliations and keywords to ensure data accuracy and consistency. The refined dataset was subsequently processed in VOSviewer to generate visualisations of co-authorship networks, keyword co-occurrence maps and citation structures, enabling the identification of dominant themes, emerging clusters and influential actors. The numerical results reveal rapid publication growth after 2018, strong contributions from European and Asian countries, and high thematic concentration around intellectual property law, sustainability, protected geographical indication, traditional knowledge and international trade. The visual analyses also highlight dense collaborative linkages among countries with established geographical indication systems, alongside increasing participation from developing regions. The study concludes that research on geographical indication and the law has expanded into a multidimensional field shaped by legal, economic and socio-cultural considerations, underscoring the need for continued interdisciplinary engagement to support policy development and global regulatory coherence.

Keywords: geographical indication, intellectual poperty, bibliometric, law

INTRODUCTION

Geographical Indications (GIs) are a form of intellectual property that identifies a product as originating from a specific place, where a given quality, reputation, or other characteristic of the product is essentially attributable to its geographical origin. The concept of GIs is deeply rooted in the protection of traditional knowledge and cultural heritage, and it plays a significant role in the economic development of rural areas. The legal framework surrounding GIs aims to protect these unique products from misuse and to ensure that the benefits of their reputation are enjoyed by the local communities that produce them.

The importance of GIs has been recognized globally, with various international agreements and national laws providing frameworks for their protection. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, administered by the World Trade Organization (WTO), is one of the key international treaties that address GIs. Under TRIPS, member countries are required to provide legal means to prevent the use of any indication that misleads the public as to the geographical origin of goods and to prevent any use that constitutes an act of unfair competition (Anson & Eswaran, 2025; Blank, 2021). Additionally, the Lisbon Agreement and the Geneva Act of the Lisbon Agreement, administered by the World Intellectual Property Organization (WIPO), provide for the protection of appellations of origin and GIs at the international level (Blank, 2021).

Despite the robust legal frameworks, the implementation and enforcement of GI laws face several challenges. One of the primary issues is the lack of awareness among producers and consumers about the benefits and procedures of GI registration. This lack of awareness often leads to underutilization of the GI system, especially in developing countries(Labetubun et al., 2025; Nirosha & Mansingh, 2024). Furthermore, the legal infrastructure in many countries is not adequately equipped to handle the complexities of GI protection, leading to issues such as counterfeit products and inadequate enforcement of GI rights (Bashir, 2020; Das, 2008).

The need to carry out this study is underscored by the economic, cultural, and social significance of GIs. Effective GI protection can lead to increased product competitiveness, support local economies, and strengthen the cultural identity of communities (Kapur, 2022; Labetubun et al., 2025). Moreover, GIs can serve as a tool for rural development by promoting traditional products and practices, thereby contributing to the conservation of biodiversity and sustainable development (Garcia et al., 2007; Martins et al., 2024). However, to fully realize these benefits, it is essential to address the existing challenges in the legal and regulatory frameworks governing GIs.

The literature on GIs highlights several key concepts that are crucial for understanding their role and impact. Firstly, GIs are distinct from trademarks in that they are not owned by an individual but by a community, and they signify the collective reputation of a product linked to its geographical origin(Anson & Eswaran, 2025; Palar et al., 2018). This communal ownership aspect of GIs necessitates a different approach to their protection and enforcement compared to other forms of intellectual property. Secondly, the economic implications of GIs are significant, as they can help producers fetch premium prices for their products by differentiating them from competing counterfeits in the market (Belletti, Marescotti, & Brazzini, 2017; Choudhury & Paul, 2022). This market differentiation is particularly important in the context of globalization, where local producers often struggle to compete with mass-produced goods.

Another critical aspect of GIs is their role in protecting traditional knowledge and cultural heritage. By linking products to their geographical origins, GIs help preserve traditional production methods and cultural practices that might otherwise be lost (Chinthaginjala et al., 2020; Singh et al., 2024). This preservation of traditional knowledge is not only important for cultural reasons but also for maintaining biodiversity and promoting sustainable agricultural practices(Garcia et al., 2007; Martins et al., 2024). However, the effectiveness of GIs in achieving these goals depends on the strength and enforcement of the legal frameworks in place.

Accordingly, the study of GIs and their legal protection is essential for understanding how these unique products can be safeguarded and promoted. The existing literature provides valuable insights into the benefits and challenges of GI protection, highlighting the need for increased awareness, stronger legal frameworks, and effective enforcement mechanisms. By addressing these issues, GIs can play a pivotal role in supporting local economies, preserving cultural heritage, and promoting sustainable development.

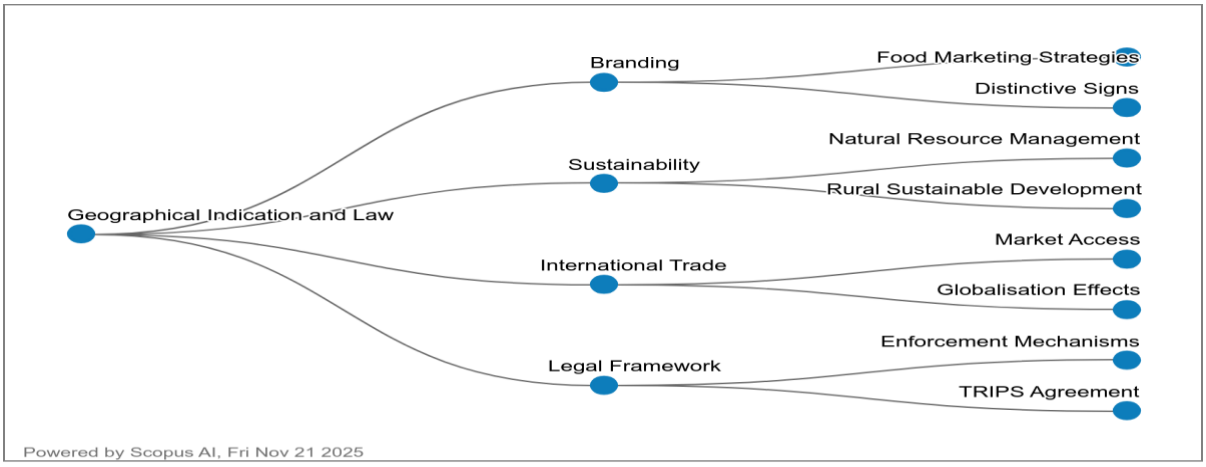

Figure 1. Key concepts generated on geographical indication and the law

The concept map in **Figure 1** presents a structured overview of Geographical Indication and the Law by organising four primary conceptual branches that extend towards twelve secondary themes. Beginning from the

left, the central construct expands first into the domain of branding, which is linked to food marketing strategies and distinctive signs, underscoring how geographical indication functions as a market differentiator. The second branch directs attention to sustainability, incorporating natural resource management and rural sustainable development, indicating that geographical indication is increasingly framed within long-term ecological and community resilience. A third branch covers international trade, which connects to market access and the effects of globalisation, illustrating the role of geographical indication within cross-border commercial dynamics. The fourth branch relates to the legal framework, extending towards enforcement mechanisms and the TRIPS Agreement, signalling the continued emphasis on regulatory alignment and institutional safeguards. Taken together, these interconnected concepts demonstrate that scholarship on geographical indication and the law has evolved into a multidimensional field that integrates marketing, sustainability, trade, and legal governance. This mapping affirms the significance of geographical indication as both an economic tool and a regulatory mechanism, highlighting the need for coherent legal structures that support equitable development and global competitiveness.

Research Questions

This study investigates the following five research questions:

RQ1: What are the research trends of geographical indication and the law according to the year of publication?

RQ2: What are the top 10 cited articles of geographical indication and the law?

RQ3: Which are the top 10 countries on geographical indication and the law based on number of publication?

RQ4: What are the popular keywords related to geographical indication and the law?

RQ5: What are co-authorship by countries' collaboration of geographical indication and the law?

METHODOLOGY

Bibliometrics provides a structured method for collecting, organising and analysing bibliographic data derived from scientific publications (Alves et al., 2021; Armijos et al., 2025; Assyakur and Rosa, 2022; Haristiani et al., 2025; Jamil et al., 2025; Verbeek et al., 2002). In addition to generating descriptive indicators such as publication outlets, temporal distribution and leading authors (Ansari et al., 2022; Ardito et al., 2019; Wu and Wu, 2017; Yadav and Banerji, 2023), bibliometric analysis incorporates advanced techniques including document co-citation analysis, which enables the identification of intellectual linkages and the conceptual evolution of a research field. For an area such as geographical indication and law, which intersects legal doctrine, economic policy and sustainability governance, a rigorous literature review must proceed through a careful and iterative process involving the selection of precise keywords, systematic database searches and detailed analytical screening. This methodological discipline supports the development of a comprehensive and credible bibliography, ensuring that the resulting interpretations remain grounded in reliable evidence (Donthu et al., 2021; Fahimnia et al., 2015; Tandon et al., 2021; Tigre et al., 2023).

In line with this approach, the present study prioritised high-impact publications, recognising their role in articulating the theoretical foundations that shape legal and interdisciplinary debates surrounding geographical indication. To ensure accuracy and consistency, SCOPUS was employed as the primary data source, given its extensive coverage across legal studies, agricultural economics, development studies and related fields (Del Gesso et al., 2024; Lopes and Lopes, 2024; Mansor et al., 2025; Mohd Zainol et al., 2025; Tarout et al., 2025; Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste and Paithankar, 2017). The dataset was further refined by limiting inclusion to peer-reviewed journal articles, thereby excluding books, lecture notes and similar materials that may lack methodological standardisation (Gu et al., 2019; Lwin et al., 2023; Naeem et al., 2023; Sikandar et al., 2021; Zheng et al., 2022). Publications from 2015 through November 2025 were retrieved from Elsevier's Scopus database, allowing the analysis to capture a full decade of scholarly development and to map contemporary legal discourse on geographical indication with analytical precision.

Data search strategy

The construction of a reliable and analytically defensible dataset requires clear procedural transparency,

particularly when dealing with an expansive research domain such as geographical indication. Based on the specified search string, TITLE (geographical indication) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND LIMIT-TO (LANGUAGE, English), the initial extraction from the database yielded 1151 documents as of the November 2025 access date. This preliminary figure reflects the full breadth of scholarly materials that reference geographical indication explicitly in their titles and fall within the broad temporal window of 2015 to 2025, while restricting the corpus to English language publications to ensure consistency in linguistic interpretation. At this stage, the dataset includes a wide variety of document types, such as articles, reviews, conference papers, book chapters, and editorial materials, each representing contributions from multiple disciplinary standpoints including law, agriculture, marketing, economics, sustainability studies, and international trade. The initial pool is therefore comprehensive but heterogeneous, designed to capture the full extent of scholarly engagement with geographical indication over a decade of academic production. The use of a title-based search ensures conceptual precision, as only works that foreground geographical indication as a primary subject rather than a peripheral reference are included. However, this inclusiveness also necessitates a systematic exclusion process to refine the dataset according to predefined research objectives.

The subsequent screening applied two central inclusion and exclusion criteria, namely language and timeline, with the express purpose of enhancing internal coherence and methodological rigour. The inclusion requirement restricted the corpus exclusively to English language publications, automatically removing a notable portion of non-English scholarly work from jurisdictions where geographical indication is a major regulatory and economic instrument. This exclusion, while limiting linguistic diversity, is necessary when the research aims to maintain interpretive clarity and avoid translation inconsistencies that may compromise the comparative analytical process. The timeline criterion further narrowed the dataset by removing works published before 2015, reflecting an intention to focus on the contemporary evolution of geographical indication law, policy, and practice within the last decade. This period is particularly significant because it corresponds with intensified global debates on intellectual property governance, increased trade liberalisation pressures, and a growing recognition of sustainability narratives linked to geographical indication. After applying these exclusion parameters, the final dataset was reduced to 838 documents. This reduction from the initial 1151 items indicates that 313 documents were removed due to failing to meet the language or temporal criteria. The final dataset thus represents a curated and methodologically consistent body of literature that is sufficiently extensive to support robust bibliometric or qualitative analysis while also being filtered to reflect recent, English-language scholarly discourse. The refined corpus provides a reliable basis for examining thematic developments, legal interpretations, and interdisciplinary intersections in the study of geographical indication, ensuring that the research findings remain grounded in contemporary and internationally accessible academic contributions.

Table 1**.** The search string

Source	**Search string**
Scopus	TITLE (geographical indication) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (LANGUAGE , "English")) Access date: November 2025

Table 2. The selection criterion of searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2015 – 2025	< 2015 > 2025

Data analysis

VOSviewer, developed by Nees Jan van Eck and Ludo Waltman at Leiden University (van Eck & Waltman, 2010, 2017), is an established bibliometric software widely employed for the visualisation and analysis of scientific literature. Its interface, known for clarity and interactivity, supports the construction of detailed network visualisations, clustering analyses and density maps, allowing researchers to uncover structural patterns and conceptual linkages within complex scholarly fields. For a research area such as geographical indication and the law, where disciplinary overlap is substantial and conceptual boundaries are fluid, VOSviewer's capacity to

map co-authorship networks, co-citation structures and keyword co-occurrence patterns is particularly valuable. The software's continuous methodological enhancements ensure analytical robustness, offering both novice and experienced scholars the ability to interrogate large bibliometric datasets with precision. Its comprehensive range of metrics, customisable visual outputs and compatibility with major bibliometric databases solidify its role as an essential instrument for knowledge mapping and research evaluation in legal and interdisciplinary domains.

A notable strength of VOSviewer is its ability to convert complex bibliometric datasets into visually interpretable knowledge structures, thereby facilitating the identification of thematic clusters, intellectual trajectories and emerging debates (Bakhnoo et al., 2025; Kumar, 2025). Unlike more conventional bibliometric tools, VOSviewer integrates methodological accuracy with user accessibility, enhancing its applicability across diverse academic fields. Its strong orientation toward network visualisation and density mapping ensures that evolving research landscapes are represented with analytical clarity and conceptual coherence (Chen et al., 2025; Ju, 2024). In this study, bibliometric data, including publication year, title, author name, journal, citation count and keywords, were extracted in PlainText format from the Scopus database for the period 2015 to November 2025. These data were processed using VOSviewer version 1.6.20 to generate detailed knowledge maps based on clustering and mapping procedures. Methodologically, VOSviewer offers an alternative to Multidimensional Scaling (MDS) by positioning items in a low-dimensional space where their spatial proximity reflects their degree of similarity (van Eck & Waltman, 2010). Although conceptually related to MDS (Appio et al., 2014), VOSviewer diverges by using a refined normalisation measure, association strength (ASij), calculated as

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

where Cij represents the observed co-occurrence between items i and j, and wi and wj denote their individual occurrence frequencies (Van Eck & Waltman, 2007)). This measure reflects the ratio between observed and expected co-occurrence under statistical independence, enabling more precise mapping of latent intellectual structures. This methodological refinement makes VOSviewer a robust tool for examining the conceptual architecture of geographical indication and the law.

FINDINGS AND DISCUSSION

This section deliberates on each of the five research questions of the study.

Research Question 1: What are the research trends of geographical indication and the law according to the year of publication?

The publication trend on "geographical indication and the law" between 2015 and 2025 demonstrates a gradual but fluctuating growth in scholarly attention as shown in **Figure 2**.

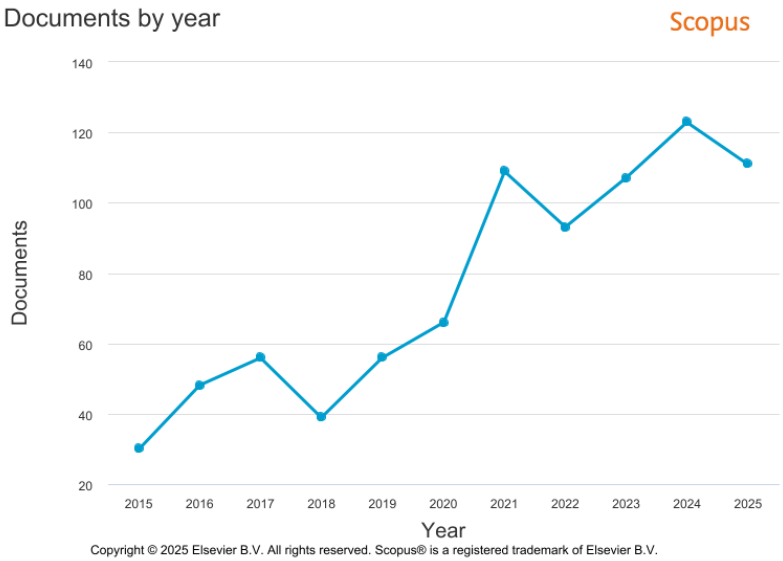

Figure 2. Publication trend by year of publication

The publication trend from 2015 to 2025 demonstrates a clear upward trajectory in scholarly attention to geographical indication and the law, reflecting both the maturation of the field and the expanding relevance of geographical indication within global regulatory and commercial environments. The early period from 2015 to 2018 shows modest output, ranging from 30 to 39 publications, suggesting that research during these years was still consolidating its conceptual foundations and responding primarily to longstanding intellectual property debates under the TRIPS framework. The gradual rise from 2017 onward, with a noticeable increase to 56 publications in both 2017 and 2019, indicates emerging interest driven by discussions on rural development, sustainability governance, and value chain protection linked to geographical origin. The steady climb into the early 2020s, particularly the jump from 66 publications in 2020 to 93 in 2022, corresponds with renewed global attention to food security, authenticity, and traceability during and after the pandemic period, when supply chain vulnerabilities prompted wider academic inquiry into regulatory mechanisms that safeguard regional products and producer communities.

The peak years between 2023 and 2025, reaching a high of 123 publications in 2024 and remaining substantial at 111 in 2025, reflect the consolidation of geographical indication as a multidisciplinary research domain involving law, economics, sustainability, marketing, and international trade. Several factors appear to underpin this surge. First, ongoing trade negotiations and disputes have heightened the legal significance of geographical indication as a tool for market differentiation and rural economic resilience, prompting legal scholars to examine regulatory harmonisation and enforcement models. Second, sustainability transitions have intensified interest in geographical indication as a mechanism for promoting environmentally responsible production and protecting cultural heritage, encouraging greater contributions from environmental law and development studies. Third, technological advancements in traceability, such as blockchain-enabled certification systems, have inspired new research intersections with digital governance. These dynamics collectively explain the observed growth pattern, demonstrating that the field has evolved from a niche legal topic into a broader platform for analysing how law mediates identity, commerce, and community in the global economy.

Research Question 2: What are the top 10 cited articles of geographical indication and the law?

Produced below in **Table 3** is the list of top 10 cited articles on the topic of geographical indication and the law.

Table 3: Top 10 cited articles

Authors	**Title**	**Year**	**Source title**	**Citation count**
Belletti, G.; Marescotti, A.; Touzard, J.-M.	Geographical Indications, Public Goods, and Sustainable Development: The Roles of Actors' Strategies and Public Policies	2017	World Development	209
Dias, C.; Mendes, L.	Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG): A bibiliometric analysis	2018	Food Research International	131
Belletti, G.; Marescotti, A.; Sanz-Cañada, J.; Vakoufaris, H.	Linking protection of geographical indications to the environment: Evidence from the European Union olive-oil sector	2015	Land Use Policy	118

Crescenzi, R.; de Filippis, F.; Giua, M.; Vaquero-Piñeiro, C.	Geographical Indications and local development: the strength of territorial embeddedness	2022	Regional Studies	99
Cei, L.; Defrancesco, E.; Stefani, G.	From geographical indications to rural development: A review of the economic effects of European Union policy	2018	Sustainability (Switzerland)	89
Neilson, J.; Wright, J.; Aklimawati, L.	Geographical indications and value capture in the Indonesia coffee sector	2018	Journal of Rural Studies	86
Meloni, G.; Swinnen, J.	Trade and terroir. The political economy of the world's first geographical indications	2018	Food Policy	79
Gangjee, D.S.	Proving Provenance? Geographical Indications Certification and its Ambiguities	2017	World Development	76
Török, Á.; Jantyik, L.; Maró, Z.M.; Moir, H.V.J.	Understanding the real-world impact of geographical indications: A critical review of the empirical economic literature	2020	Sustainability (Switzerland)	75
Quiñones Ruiz, X.F.; Penker, M.; Belletti, G.; Marescotti, A.; Scaramuzzi, S.; Barzini, E.; Pircher, M.; Leitgeb, F.; Samper-Gartner, L.F.	Insights into the black box of collective efforts for the registration of Geographical Indications	2016	Land Use Policy	72

The citation pattern across the ten most cited papers on geographical indication and the law demonstrates that scholarship in this domain is driven by interdisciplinary engagement with sustainability governance, rural development, economic policy, and institutional design. The most cited work, Belletti, Marescotti, & Touzard(2017) with 209 citations, anchors the field by linking geographical indication to public goods and sustainable development, reflecting the centrality of sustainability discourses in contemporary agri-food governance. Closely following is Dias & Mendes (2018) with 131 citations, whose bibliometric analysis provides a systematic mapping of the field, explaining its frequent utilisation as a foundational reference for subsequent empirical studies. Highly cited environmental and land-use focused contributions, such as Belletti et al. (2015) with 118 citations and Quiñones Ruiz et al. (2016) with 72 citations, show that geographical indication scholarship is strongly shaped by evidence from European agricultural sectors, especially olive oil and other regionally embedded commodities. These studies offer robust empirical grounding, which partly explains their high citation counts, as researchers often rely on established datasets and policy contexts to analyse legal and regulatory impacts.

The prominence of works published in high-impact journals such as World Development, Land Use Policy, Food Policy, and Regional Studies also contributes to their citation visibility, given these journals' broad readership across economics, development studies, environmental governance, and rural sociology. Papers focusing on

economic and territorial embeddedness, for example Crescenzi et al. (2022) with 99 citations, and Cei et al. (2018) with 89 citations, attract sustained attention because they examine how geographical indication interacts with markets and rural livelihoods. Similarly, studies addressing value capture and political economy dimensions, such as Neilson et al. (2018) with 86 citations and Meloni & Swinnen (2018) with 79 citations, gain traction for explaining how law shapes distributional outcomes in global value chains. Legal-oriented contributions, such as Gangjee (2017) examination of certification ambiguities, remain widely cited because they interrogate interpretive and enforcement challenges in geographical indication protection. Collectively, the high citation rates can be attributed to topical relevance, empirical depth, publication outlets with strong impact factors, and the alignment of these studies with broader debates on sustainability, territorial development, and global agri-food governance.

Research Question 3: Which are the top 10 countries on geographical indication and the law based on number of publication?

The following **Figure 3** reveals the top 10 countries based on number of publication in the area of geographical indication and the law.

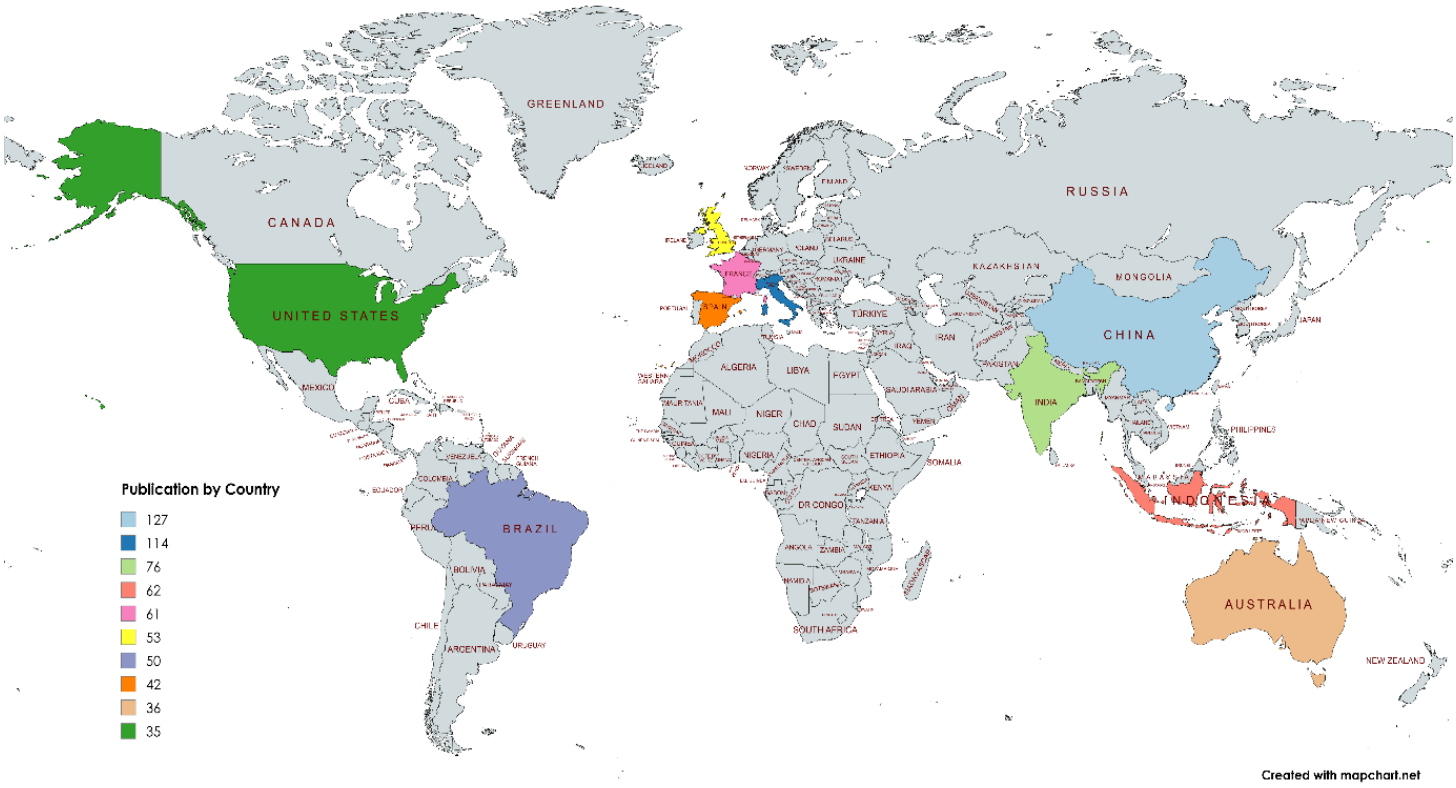

Figure 3. Top 10 countries based on number of publications

The distribution of publications across the ten leading countries reflects both the legal significance of geographical indication within national regulatory frameworks and the degree of economic reliance on origin-based products. China, with 127 publications, leads the list, which is consistent with its aggressive expansion of geographical indication protection as part of its rural revitalisation strategy and intellectual property modernisation agenda. Italy follows closely with 114 publications, reflecting its longstanding tradition of origin-linked agri-food products and its central role in shaping European Union geographical indication jurisprudence. India and Indonesia, with 76 and 62 publications respectively, demonstrate growing scholarly output driven by their efforts to leverage geographical indication for rural empowerment, cultural heritage protection and export competitiveness. France, with 61 publications, reflects its historic leadership in developing appellations of origin, particularly in the wine and cheese industries, which continue to anchor comparative legal and economic studies.

The presence of the United Kingdom, Brazil, Spain, Australia and the United States among the top ten further illustrates the globalisation of geographical indication discourse. The United Kingdom's 53 publications

correspond with heightened academic interest following its regulatory restructuring post-Brexit, which prompted renewed examination of national geographical indication policies. Brazil (50 publications) and Spain (42 publications) show strong engagement due to their established agricultural sectors and active participation in international debates on geographical indication as a development tool. Australia, with 36 publications, reflects ongoing tensions between domestic trademark traditions and international geographical indication commitments, particularly in negotiations with the European Union. The United States, although traditionally cautious about geographical indication protection, appears with 35 publications due to ongoing policy debates on trademarks versus geographical indication systems and the implications for global trade. Collectively, the distribution underscores that countries with strong agricultural identities, export-oriented markets or evolving intellectual property regimes tend to produce higher volumes of scholarship on geographical indication and the law.

Research Question 4: What are the popular keywords related to geographical indication and the law?

The following **Figure 4** highlights the main keywords used by the authors related to the study of geographical indication and the law.

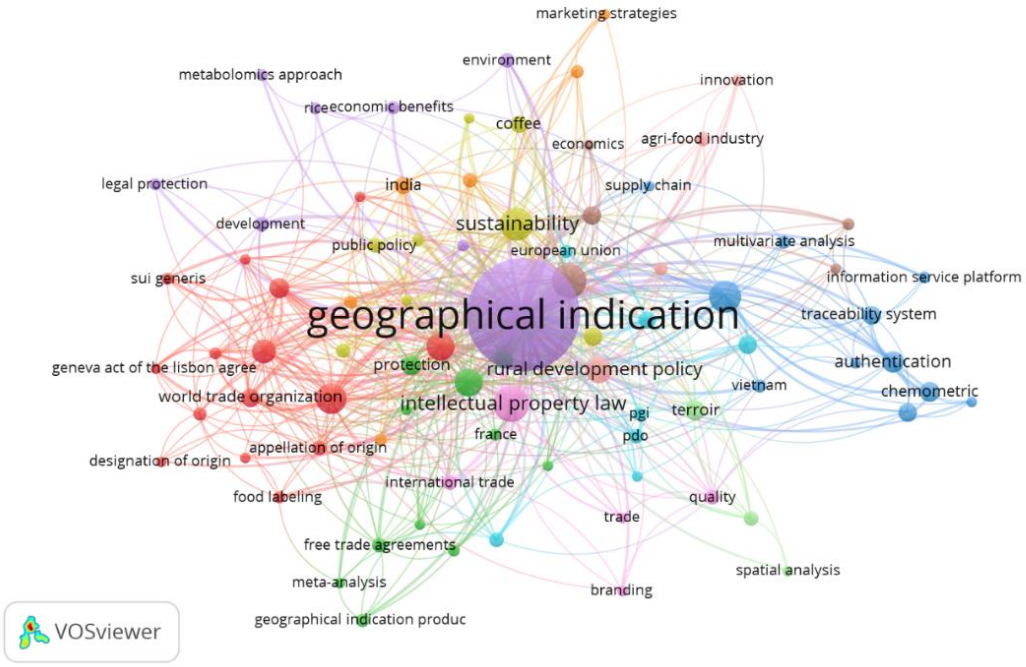

Figure 4: Network visualisation map of keywords' co-occurrence

Co-occurrence analysis in VOSviewer identifies how frequently author keywords appear together within the same publications, allowing researchers to observe conceptual linkages and thematic structures within a field. In the context of geographical indication and the law, this method is particularly relevant because the topic spans legal, economic, agricultural and policy domains, and its conceptual boundaries are shaped by interdisciplinary interactions. Using the full counting method with a minimum occurrence threshold of five, VOSviewer processed a total of 1583 keywords, of which 83 met the threshold. By applying a minimum cluster size of five, the software generated 11 clusters, each reflecting a distinct segment of scholarly discourse. This configuration ensures that only conceptually meaningful and frequently co-occurring terms are represented in the visualisation, enabling a clearer interpretation of how legal principles, economic considerations and agri-food systems intersect within the literature. The resulting clusters therefore function as a structural map of the intellectual landscape, revealing how authors collectively articulate the legal, regulatory and socio-economic dimensions of geographical indication.

The findings contribute significantly to the body of knowledge by highlighting dominant themes that shape contemporary scholarship. Central terms such as geographical indication (466), intellectual property law (49),

protected geographical indication (39), sustainability (42), and the TRIPS Agreement (35) demonstrate that legal protection, regulatory harmonisation and international intellectual property frameworks remain core concerns. Strong methodological and sectoral keywords, including traceability system (13), authentication (17), chemometric (15), and terroir (15), indicate substantial attention to quality assurance and product verification. Socio-economic themes emerge through rural development policy (28), traditional knowledge (29), governance and public policy (14), and economic impact (6), reflecting the role of law in shaping rural economies and cultural preservation. Regionally anchored terms such as European Union geographical indication (30), India (12), and wine (13) signal geographical concentration in both legal scholarship and agri-food application. Together, these patterns illustrate how the field integrates legal doctrine with agricultural systems, trade regulation and cultural heritage, strengthening understanding of how geographical indication operates as a legal instrument embedded within broader economic and societal frameworks.

Research Question 5: What are co-authorship by countries' collaboration of geographical indication and the law?

Produced below is **Figure 5**, depicting the network visuatisation mapping of the authors' co-authorship collaboration by country.

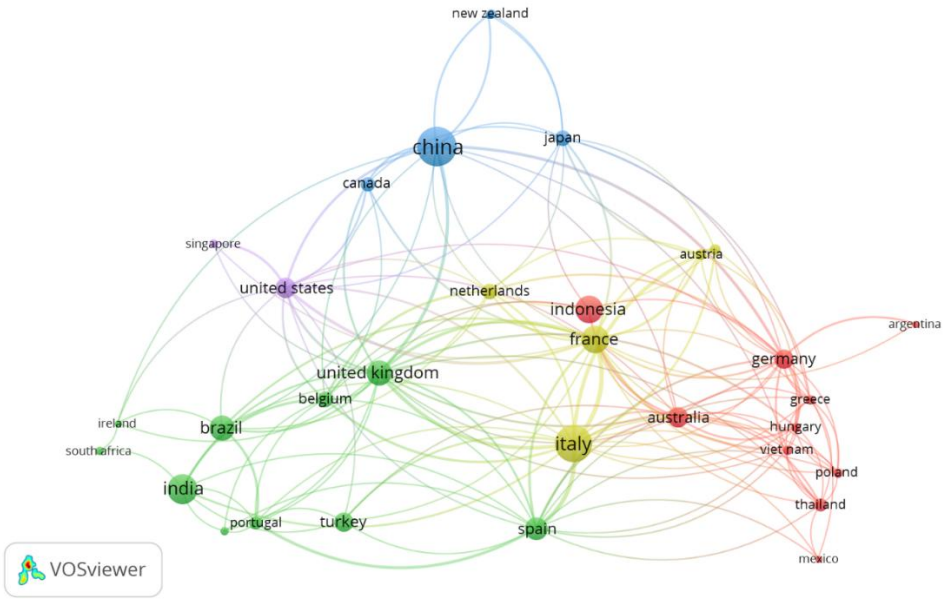

Figure 5. Network visualisation map of authors' collaboration by country

Co-authorship by country collaboration analysis in VOSviewer identifies how frequently authors from different countries work together, allowing the mapping of international research networks within a field. In the context of geographical indication and the law, this approach is particularly useful because the subject inherently intersects global trade, intellectual property regimes and transnational agricultural value chains. Using the full counting method with a minimum threshold of five publications, VOSviewer processed 80 countries, of which 33 met the threshold. Applying a minimum cluster size of five generated 10 collaboration clusters, reflecting the formation of distinct research communities. These settings ensure that the visualised network focuses on meaningful and recurrent partnerships, highlighting countries that serve as central nodes in the global research landscape. The resulting map therefore illustrates how legal scholarship on geographical indication is shaped by international cooperation, cross-jurisdictional comparisons and shared regulatory interests.

The findings demonstrate that the field is driven by both European leadership and rapidly expanding contributions from Asia and Latin America. Italy (114), France (62), Spain (43), Germany (32) and the United Kingdom (54) occupy central positions, reflected in high link strengths such as Italy (53), France (48) and Spain (32), which corresponds with the European Union's long-standing regulatory architecture for geographical indication and its global influence. China emerges as a significant contributor with 125 documents and a strong

collaboration profile (26), consistent with its policy emphasis on geographical indication for rural development and export competitiveness. India (76), Indonesia (62), Brazil (51) and the United States (37) illustrate the widening internationalisation of the field, reflecting growing interest in intellectual property protection, trade negotiations and agri-food value chains. Countries such as Austria (11; 17 link strength), Japan (21; 14 link strength) and Portugal (16; 13 link strength) also demonstrate active engagement through targeted regional studies and comparative legal work. Collectively, these patterns show that scholarship on geographical indication and the law is sustained by a network of countries with strong agricultural sectors, evolving intellectual property regimes or historical ties to origin-based products, thereby reinforcing the global and multidisciplinary character of this research domain.

CONCLUSION

The purpose of this study was to examine the scholarly development of geographical indication and the law over a ten-year period, with the intention of clarifying publication trends, influential works, thematic patterns and global collaboration networks . The analysis demonstrates a steady expansion of research activity, marked by rising publication output after 2018 and concentrated attention on themes such as intellectual property protection, sustainability, traditional knowledge, rural development and international trade. The keyword co-occurrence and authorship mapping further reveal a structured intellectual landscape shaped by interconnected legal, economic and socio-cultural concerns. These results illustrate that geographical indication has evolved into a multidimensional field supported by contributions from both developed and developing regions. The study advances current understanding by synthesising dispersed literature and highlighting how legal debates around geographical indication intersect with agricultural systems, market governance and cultural preservation. The findings carry practical relevance, as they offer a clearer picture of global research directions that may guide policymakers, regulatory institutions and industry stakeholders in strengthening geographical indication protection and aligning legal frameworks with contemporary economic and community needs. Nonetheless, the analysis is limited by its reliance on a single database, exclusion of non-English publications and dependence on author-provided keywords, which may not capture the full conceptual diversity of the field. Future research may expand coverage to additional databases, incorporate qualitative content analysis or explore disciplinary variations in legal scholarship to enrich understanding of geographical indication governance. Overall, the study underscores the importance of bibliometric approaches for mapping intellectual progress in this area and highlights the continued relevance of geographical indication as a legal instrument that shapes market differentiation, cultural identity and rural development at the global level.

ACKNOWLEDGMENT

The author would like to express gratitude to Dr. Wan Azani Mustafa for providing guidance and insights in completing this paper, and to Universiti Utara Malaysia for the resources necessary in finalising this paper.

REFERENCES

1. Anson, C. J., & Eswaran, A. (2025). Intellectual Property and Gender in Geographical Indications: A Case Study of Chendamangalam Handlooms in Kerala. Journal of Intellectual Property Rights, 30(5), 511–517. https://doi.org/10.56042/jipr.v30i5.5413
2. 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
3. Bakhnoo, M., Rostamzadeh, R., Sangar, A. B., & Sarhangi, K. (2025). Bibliometric and Network Analysis of Phygital Research Using VOSviewer Software. Human Behavior and Emerging Technologies, 2025(1), 3596211.
4. Bashir, A. (2020). Protection of geographical indication products from different states of india. Journal of Intellectual Property Rights, 25(3–4), 74–79. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090641245&partnerID=40&md5=18d4dcc31bfb288b26c47360c53de3c7
5. Belletti, G., Marescotti, A., & Brazzini, A. (2017). Old World Case Study: The Role of Protected Geographical Indications to Foster Rural Development Dynamics: The Case of Sorana Bean PGI. In Ius

Gentium (Vol. 58, pp. 253–276). Springer Science and Business Media B.V. https://doi.org/10.1007/978-3-319-53073-4_10

6. Belletti, G., Marescotti, A., Sanz-Cañada, J., & Vakoufaris, H. (2015). Linking protection of geographical indications to the environment: Evidence from the European Union olive-oil sector. Land Use Policy, 48, 94–106. https://doi.org/10.1016/j.landusepol.2015.05.003
7. Belletti, G., Marescotti, A., & Touzard, J.-M. (2017). Geographical Indications, Public Goods, and Sustainable Development: The Roles of Actors' Strategies and Public Policies. World Development, 98, 45–57. https://doi.org/10.1016/j.worlddev.2015.05.004
8. Blank, K. G. (2021). Multilateral Protection of Geographical Indications in WTO and WIPO. International Trade Law and Regulation, 27(1), 36–53. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85170041015&partnerID=40&md5=e1e3bd9b26fec9cd163c51c051acaaec
9. Cei, L., Defrancesco, E., & Stefani, G. (2018). From geographical indications to rural development: A review of the economic effects of European Union policy. Sustainability (Switzerland), 10(10). https://doi.org/10.3390/su10103745
10. Chen, B., Ye, X., & Dai, F. (2025). Research on Sustainable Building Development in the Context of Smart Cities: Based on CiteSpace, VOSviewer, and Bibliometrix. Buildings, 15(11), 1811.
11. Chinthaginjala, H., Ahad, H. A., Pradeepkumar, B., Tadapatri, S. R.-M., Manchikanti, S. P., & Vikas, S. S. (2020). Challenging Protection for Geographical Indications: The Distinct Intellectual Property Right Based on Local Knowledge and Reputation. Pharma Times, 52(2), 11–13. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85124699371&partnerID=40&md5=3954aac141a720d7c8cdb77aacbc7a7b
12. Choudhury, M. H., & Paul, S. K. (2022). Geographical Indication Registrations for Rural Enterprise Development. In Geographical Indication Protection in India: The Evolving Paradigm (pp. 75–104). Springer Nature. https://doi.org/10.1007/978-981-19-4296-9_4
13. Crescenzi, R., de Filippis, F., Giua, M., & Vaquero-Piñeiro, C. (2022). Geographical Indications and local development: the strength of territorial embeddedness. Regional Studies, 56(3), 381–393. https://doi.org/10.1080/00343404.2021.1946499
14. Das, K. (2008). Select issues and debates around geographical indications with particular reference to India. Journal of World Trade, 42(3), 461–507. https://doi.org/10.54648/trad2008021
15. Dias, C., & Mendes, L. (2018). Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Speciality Guaranteed (TSG): A bibiliometric analysis. Food Research International, 103, 492–508. https://doi.org/10.1016/j.foodres.2017.09.059
16. Gangjee, D. S. (2017). Proving Provenance? Geographical Indications Certification and its Ambiguities. World Development, 98, 12–24. https://doi.org/10.1016/j.worlddev.2015.04.009
17. Garcia, C., Marie-Vivien, D., Kushalappa, C. G., Chengappa, P. G., & Nanaya, K. M. (2007). Geographical indications and biodiversity in the Western Ghats, India: Can labelling benefit producers and the environment in a mountain agroforestry landscape? Mountain Research and Development, 27(3), 206–210. https://doi.org/10.1659/mrd.0922
18. Ju, F. (2024). Mapping the knowledge structure of image recognition in cultural heritage: a scientometric analysis using CiteSpace, VOSviewer, and bibliometrix. Journal of Imaging, 10(11), 272.
19. Kapur, A. (2022). The Geographical Indications Act: Place Matters. In Routledge Readings on Law and Social Justice: Dispossessions, Marginalities, Rights (pp. 364–380). Taylor and Francis. https://doi.org/10.4324/9781003299554-14
20. Kumar, R. (2025). Bibliometric analysis: comprehensive insights into tools, techniques, applications, and solutions for research excellence. Spectrum of Engineering and Management Sciences, 3(1), 45–62.
21. Labetubun, M. A. H., Angga, L. O., Laturette, A. I., & Latupono, B. (2025). Geographical Indications and Positive Legal Theory: Protection of Collective Rights as a Fair Business Legal Instrument. Jurnal Hukum Bisnis Bonum Commune, 8(2), 319–335. https://doi.org/10.30996/jhbbc.v8i2.13118
22. Martins, L. O. S., de Oliveira, V. R. V, Lora, F. A., Fraga, I. D., Saldanha, C. B., Silva, D. T., Pereira, M. G. A., & Silva, M. S. (2024). Geographic Indications, Sustainability and Sustainable Development: A Bibliometric Analysis. Journal of Scientometric Research, 13(3), 919–934. https://doi.org/10.5530/jscires.20041231
23. Meloni, G., & Swinnen, J. (2018). Trade and terroir. The political economy of the world's first

geographical indications. Food Policy, 81, 1–20. https://doi.org/10.1016/j.foodpol.2018.10.003

24. Neilson, J., Wright, J., & Aklimawati, L. (2018). Geographical indications and value capture in the Indonesia coffee sector. Journal of Rural Studies, 59, 35–48. https://doi.org/10.1016/j.jrurstud.2018.01.003
25. Nirosha, R., & Mansingh, J. P. (2024). Geographical indication tag for agricultural produces: Challenges and methods. Multidisciplinary Reviews, 7(9). https://doi.org/10.31893/multirev.2024206
26. Palar, M. R. A., Sukarsa, D. E., & Ramli, A. M. (2018). Indonesian system of geographical indications to protect genetic resources, traditional knowledge and traditional cultural expressions. Journal of Intellectual Property Rights, 23(4–5), 174–193. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85064493920&partnerID=40&md5=6b12f744f56a0726efbac41513eb8335
27. Quiñones Ruiz, X. F., Penker, M., Belletti, G., Marescotti, A., Scaramuzzi, S., Barzini, E., Pircher, M., Leitgeb, F., & Samper-Gartner, L. F. (2016). Insights into the black box of collective efforts for the registration of Geographical Indications. Land Use Policy, 57, 103–116. https://doi.org/10.1016/j.landusepol.2016.05.021
28. Singh, G., Sharma, K., Dawer, S., Rana, S., Soni, R., Singh, V. K., & Sinha, R. P. (2024). Horticultural geographical indications of India: botanical aspect. Vegetos, 37(3), 803–817. https://doi.org/10.1007/s42535-023-00684-4
29. van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics, 84(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3
30. van Eck, N. J., & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. Scientometrics, 111(2), 1053–1070. https://doi.org/10.1007/s11192-017-2300-7
31. Van Eck, N. J., & Waltman, L. (2007). Bibliometric mapping of the computational intelligence field. International Journal of Uncertainty, Fuzziness and Knowldege-Based Systems, 15(5), 625–645. https://doi.org/10.1142/S0218488507004911