Ecolabels Research: Trends and Way Forward based on Bibliometric Analysis

Manal ECHCHAD[*]

University of Debrecen, Hungary

Ecolabels are essential tools for the promotion of sustainable consumption, through the provision of consumers with information about the environmental impact of products. The research relied on bibliometric analysis to examine the trends and developments in ecolabel research over the past three decades, emphasizing the main themes, influential authors, and the most prominent publications. By exploring the development of ecolabel research, the study aims to identify gaps and suggest future directions for research.

Keywords: *ecolabels, sustainable labels, environmental labels, bibliometric analysis, consumer behavior, sustainability*

JEL Classification: *Q56, M31, L15*

1. Introduction

Starting the 1970s, the importance of product labelling increased, due to its focus on improving safety, environmental efficiency, and quality of consumer products. This emphasis saw improvements through EU directives, aiming to provide consumers with comprehensive information for informed purchasing decisions. This approach was extended by shifting the focus to environmental quality. Ecolabelling, now a widely adopted tool in environmental policy, has copied the trajectory of EU product safety labelling. Similar to the latter, ecolabelling originated from the success of product labelling in ensuring quality. Moreover, its success in the environmental sphere elevated ecolabels to function as both marketing and public policy instruments (Iraldo et al., 2020).

Labels were defined by the International Standards Organization (ISO) as tags, brands, or marks attached to product packaging. In this sense, ecolabels showcase products with lower environmental impact. The ISO sorted ecolabels into three categories: Type I (environmental labels), Type II (self-declared certification), and Type III (environmental product declarations) (Wurster and Ladu, 2020). Furthermore, ecolabels are regarded as signals that can be employed by companies to convince consumers of the environmental and social impact of their products (Dekhili and Ertz, 2024).

---

[*]Corresponding Author:
Manal Echchad, Faculty of Economics and Business Administration, University of Debrecen, Hungary

The main objective behind the introduction of ecolabels is to ease the decision-making process of consumers vis a vis different products, in addition to providing them with enough information about the products that harm the environment, and the products that have the capability to show more respect and commitment to the different social and environmental issues facing society (Calderon-Monge et al., 2021). From the company's point of view, ecolabels are a means to demonstrate their transparency and commitment towards the environment and society as a whole (Leire and Thidell, 2005). Ecolabels are used in different industries, including wine and spirits (Lim and Reed, 2020), fishery (Varese et al., 2023), and tourism (Bučar et al., 2022), among others.

As a matter of fact, adding an ecolabel enables the brand to benefit from more positive attitudes and enhances the image of the product. Additionally, ecolabels are considered to be a tool that facilitates comparing different brands and products due to the information they provide regarding brand sustainable attributes, in addition to their ability to ensure trust and reliability of the producer (Gaspar Ferreira and Fernandes, 2022).

Thus, the main objectives of the research are to examine trends and developments in ecolabel research between 1994 and 2024, map scientific information, assess the impact of ecolabels, the determination of research gaps, and the suggestion of future directions.

2. Research Methodology

Bibliometrics encompass different methodologies, including author and document co-citation analysis, in addition to co-word and textual analysis. Both of these methods refer to multivariate analysis (Haba et al., 2023). The main objective of the research is to underline the developments and trends in the ecolabels research employing bibliometric analysis. Additionally, bibliometric studies makes it easier to identify the gaps in a specific research domain, in addition to mapping scientific information, and come up with new research ideas (Donthu et al., 2021).

2.1. Subjects of the Study

The study employed the keyword "ecolabels" to conduct the research, and the examination of the available literature led to the usage of other synonyms of the keyword, including the terms "sustainable labels" and "environmental labels". More attention was given to studies that attempted the assessment of the impact of ecolabelling on the performance of the products, in addition to their purchasing intention. The research covered only the management discipline. The main source of information was the Scopus database, from which the dataset was extracted. Scopus is considered to be one of the largest repository of abstracts and citations of peer reviewed research. The database enables the exploration of research that was conducted in different fields, available in different indexed journals (Harzing and Alakangas, 2016). Moreover, the number of indexed journals in Scopus is considered to be higher compared with other platforms, including the Web of Science database (Haba et al., 2023).

2.2. Data Mining

The following keywords were used to conduct research: ecolabelling, sustainable labeling, labelling, environmental labelling, and synonyms were used based on examining research conducted by experts on ecolabelling. The research retrieved 394 papers covering different fields, including biochemistry, genetics, and molecular biology, chemistry, medicine, among others. Additionally, the papers were written on various languages, from which English was the only one chosen. For the sake of specificity, the research includes only articles written in the domain of business, management, and accounting. Additionally, the research retrieved various document types, including articles, conference papers, book chapters, reviews, among others. Our research included only articles written in English. After applying the research criteria, 315 papers were retrieved from Scopus, all of which belong to the business and management discipline.

The process of data mining was done through the following stages: the first step involved extracting research papers from the Scopus database using a string of keywords (for instance "ecolabels", "sustainable labels", and "environmental labels") and included papers published between 1994 and 2024 to have better insights. The second stage focused on eliminating papers belonging to other disciplines other than business

and management, and that was done through the examination of titles, and abstracts in case the title was not representative enough. The third step focused on eliminating document types other than articles.

2.3. Data Analysis

The publications that were selected for the study were analyzed using bibliometric analysis. The analysis considered the year of publication, journal, total number of citations a research paper has, field of the research, researchers, the institutions they belong to, and the research technique employed (Nobanee et al., 2021). Additionally, science mapping was used to analyze the collected data and it was done through VOS viewer, which is considered to be a tool that has been used to map the knowledge of research (Donthu et al., 2021). Moreover, VOS refers to the visualization of similarities and focuses on visually displaying different networks of the collected data, including authors, institutions, countries, keywords, journal, and references (van Eck and Waltman, 2010).

3. Analysis and Results

3.1. Performance Analysis

The available literature contained 315 research articles published in 159 journals. The first date of publication was 1994, with publications that were carried out in the last 30 years, and the average publication per year was equal to 17.06. This rate shows the increased interest in the ecolabels research compared with other themes that emerged during the same period. The ecolabels research amassed a total of 12186 citations over 30 years, with an average number of citations per document equal to 38.68, defining average intellectual contributions. The single-authored articles were equal to 53, while the co-authored articles were equal to 262, showcasing that collaboration was crucial for the research.

Table 1 showcases the annual trends of the ecolabels research between 1994 and 2024. Between 1993 and 2005, the maximum number of papers that were published was equal to an estimate of 14, that was recorded in 2005. That finds its origin in the emergence in the theme of sustainability and environmental protection. In 2024, the total number of papers evolving around the theme of ecolabels that were published was equal to an estimate of 12 papers. The highest number of publications was recorded in 2021, with an estimate number equal to 31 publications. That finds its origin in the proliferation of ecolabeling as a means to enhancing sustainable consumption, in addition to the emergence of green consumers that put more importance on the production process and products and the impacts they have on the environment afterwards.

Additionally, companies started referring to ecolabelling in order to distinguish their products from competition and they also use ecolabels as a sign of quality. Additionally, the different industries started having their own ecolabels which can explain the increasing number of publications recorded in 2023.

Table 1. Publications per year

Year	Documents
1994	5
1995	3
1996	4
1997	6
1998	2
1999	5
2000	5
2001	7
2002	8
2003	4
2004	8
2005	12
2006	15
2007	8
2008	10
2009	12

2010	10
2011	15
2012	20
2013	18
2014	30
2016	35
2017	25
2018	28
2019	30
2020	26
2021	25
2022	32
2023	27
2024	5

Source: Scopus database

3.2. The Most Prominent Countries

According to table 2, the country with the most publications is the United States in the first place, followed by Italy in the second place and India in the third place, followed by the United Kingdom, France, Spain, Australia, China, Germany, and Canada, respectively. The order of countries showcased the concentration of research in the most developed countries, with the exception India which is considered to be developing but characterized with a rapid economic growth (Wang *et al.*, 2023).

Table 2. Publications per country

Country	Documents
United States	70
Italy	30
India	30
United Kingdom	28
Fance	25
Spain	25
Australia	20
China	20
Germany	20
Canada	18

Source: Scopus database

3.3. The Most Prominent Affiliation

Table 3 details the classification of publication by affiliation. According to the table 3, the ecolabels research is dominated by American institutions, with the University of Arkansas coming in the first place and the Sam M. Walton College of Business belonging to the same institution in the fifth place. Additionally, the presence of European universities come in second place, with the Aarhus University coming in second place in the ranking, in addition to the Wageningen University & Research institution in the third place, and the Georg August University of Gottingen coming in the ninth place.

The presence of Asian institutions was represented only by the Nanyang Technological University, ranking sixth. Thus, it can be concluded that in terms of affiliations, ecolabels research is more concentrated in American and European research institutions.

***Table 3**. Publications per affiliation*

Affiliation	Documents
University of California, Los Angeles	7
La Trobe University	5
Deakin University	5
INRAE	5
CNRS Centre National de la Recherche Scientifique	4
The Hong Kong Polytechnic University	4
University of Canterbury	4
Griffith University	4
L'Institut Agro Montpellier	4
The University of Manchester	4

Source: Scopus database

3.4. The Most Prominent Articles

The classification of research institutions demonstrated on Table 3 showcases that the high rank is shared between American, Australian, and French institutions when it comes to ecolabels research, with the University of California, Los Angeles in the first place, followed by La Trobe University, Deakin University, the Institut National de la Recherche Agronomique (INRAE), Centre National de la Recherche Scientifique (CNRS), The Hong Kong Polytechnic University, the University of Canterbury, Griffith University, L'Institut Agro Montpellier, and The University of Manchester in the tenth place.

3.5. The Most Prominent Authors

The number of citations per author was considered to measure their productivity in the field of ecolabels research. The number of citations is used as a second criterion to rank authors. Thus, according to table 4, Taghian, M ranked first with a total number of citations equal to 647 and total link strength of 11. Onozaka, Y. followed with a total number of citations equal to 485 and total link strength of 23. In the third place, there is Asche, F. with a total number of citations equal to 358 and total link strength of 14.

***Table 4**. Citations per author*

Author	Documents	Citations	Total link strength
Taghian, M.	4	647	11
Onozaka, Y.	3	458	23
Asche, F.	4	358	14
D'Souza, C.	3	338	9
Grankvist, G.	3	281	3
Sogn-Grundvåg, G.	4	247	14
Young, J. A.	4	247	14
Castka, P.	3	149	1
Bougherara, D.	3	145	6
Lucas, S.	3	138	4

Source: Generated by the author

3.6. The Most Prominent Journals

Table 5 showcases the most productive journals in the field of ecolabels research in terms of output. According to the results, the Journal of Cleaner Production is the most productive with 23 documents and 1158 citations, followed by the International Journal of Consumer Studies with 10 papers and 1013 citations. Business Strategy and the Environment ranked in third place with an output equal to 8 papers and total citations equal to 732. Food Policy ranked in fourth place with 8 research papers and total citations equal to 585. Thus, it can be concluded that the research published in the different mentioned journals has an impact on various fields in which the publications are focused.

Table 5. Most productive journals

Source	Documents	Citations	Total Link Strength
Journal of Cleaner Production	23	1158	34
International Journal of Consumer Studies	10	1013	28
Business Strategy and the Environment	8	732	23
Food Policy	8	585	16
Journal of Consumer Policy	5	495	5
Journal of Sustainable Tourism	7	453	5
Journal of Business Ethics	6	403	10
Marine Policy	13	296	9
Food Quality and Preference	8	248	9
British Food Journal	12	185	28

Source: Generated by the author

3.7. Keywords Network Analysis

Keyword network analysis enables the reflection and depiction of research hotspots in disciplinary domains and supports scientific research by unveiling the global level of sentiment (Haba et al., 2023). This section consisted of examining the terms in the ecolabels research. Such an examination was executed based on the co-occurrence analysis that generated the co-occurrence map. Terms in the ecolabels research were examined to generate the map. 81 keywords were generated, with occurrences equal to 5. Figure 1 displays the map created by Vos viewer.

According to figure 1, 7 clusters were generated. Nodes with the same color belong to the same cluster. Additionally, the shorter the distance between the nodes belonging to the same cluster, the stronger the relationship. Moreover, the thicker the line the more the co-occurrence is present. The formed clusters can be named as follows: Cluster 1 is about sustainability in the textiles industry, cluster 2 is about sustainable consumption and consumer decision-making cluster 3 is about sustainable food choices, cluster 4 is about sustainable seafood consumption, cluster 5 is for sustainable tourism, cluster 6 is for ecolabels perception, and cluster 7 is for consumer decision making.
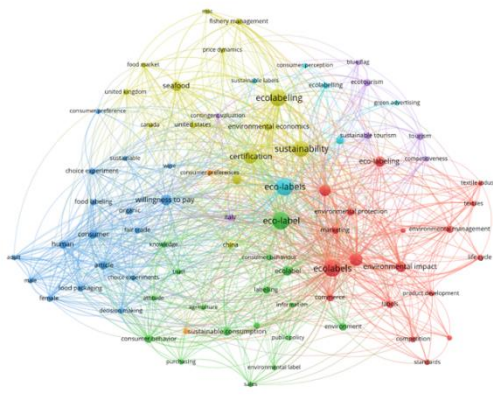

Figure 1. Keywords network analysis
Source: Vosviewer

3.8. Co-citation Analysis

Co-citation analysis examines which academic papers have been cited together in the source articles. Additionally, clusters of research form when the same pairs are co-cited by various authors. The co-cited papers forming the clusters are considered to share similar themes. Co-citation analysis reveals relationships among academic publications by identifying frequently co-cited papers. This sheds light on the structure of research within specific domains. (Donthu et al., 2021). The reference co-citation analysis was performed on 315 papers meeting a minimum citation threshold of 5. A total of 66 references from these papers were analyzed and identified with a final set of frequently co-cited papers. The findings are shown in figure 2.

It can be concluded from figure 2 that four clusters have emerged as a result of reference co-citation analysis. Each cluster share the same color, in this case blue, red, green, and yellow. Additionally, clusters emerge when two publications are simultaneously referenced. Such publications usually have the same themes.
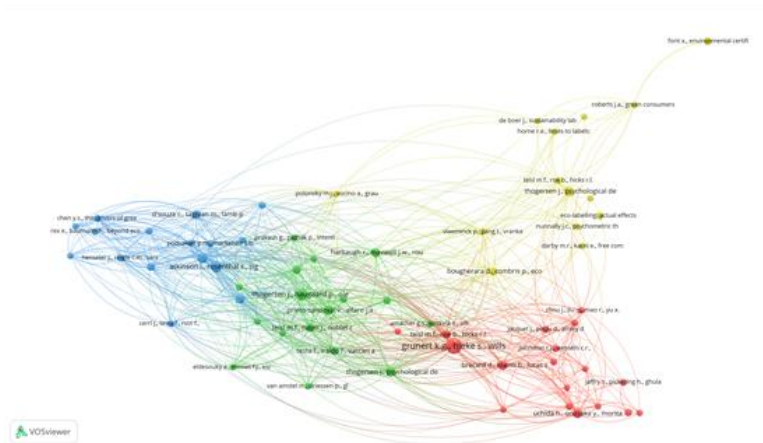

Figure 2. *Co-citation analysis*
Source: Vosviewer

4. Evolution of Themes and Core Gaps

The evolution of themes and core gaps was assessed using the SciMAT analysis, which focuses on subdividing the subjects to themes that can be displayed in two dimensions and separated into four categories on a map that includes four quadrants showcased on the X and Y axis. The upper right quadrant (quadrant I) displayed the motor themes that are considered to be essential for the developing the subject under study. Additionally, themes placed in such quadrant are considered to be well developed. Themes placed in quadrant II (specialized themes) are well developed internally but have no external relevance. Thus, they are considered to have a minimal impact on the main research theme. Themes places in the lower left quadrant III (transversal themes) are considered to be underdeveloped and minor. The bottom right quadrant IV is composed of generic themes that are constantly being repeated because of their importance for the field of research. The bigger the sphere, the more research articles are connected to the word, and the denser the sphere, the higher their co-occurrence.

SciMat analysis was conducted to decipher the evolution of themes in the field of ecolabels research and determines the research gap that are needed to be focused on in future research. Three main researches were concludes, namely the evolution map of themes from publications on the themes of sustainability and ecolabels, the strategic map of the mentioned themes, and the clusters of themes. The carried analysis employed the following configuration: words analysis with authors, source, and added role were selected. Moreover, equivalence index was used as a normalization measure. When it comes to the cluster algorithm, centers simples was selected. Additionally, the maximum cluster size was fixed in 12 and the minimum size was 3. For the evolution measure, the inclusion index was selected and the Jaccard index was chosen as the overlapping measure.

Clustering algorithms is used as a means to identify sets of data points that share similar themes based on their proximity to one another in the dataset. In order to analyze the development of the identified clusters within a specific period of time, the minimum cluster size was set to 3 and the maximum was set to 12 using centroid-based clustering. When it comes to the evolution measure in SciMat mapping, the inclusion index was used in order to cover all themes. Additionally, the Jaccard index was used to establish the normalization of the bibliographic network. Such steps were followed based on the recommendation of (Cobo *et al.*, 2012).

Figure 3 showcases the evolution of themes between 1994 and 2024 in the field of ecolabels research. According to the figure 3, two main themes are converging with each other, namely sustainability and ecolabels. Between 1994 and 2003, sustainability was the major theme, and eventually became more concentrated on ecolabels between 2004 and 2024.
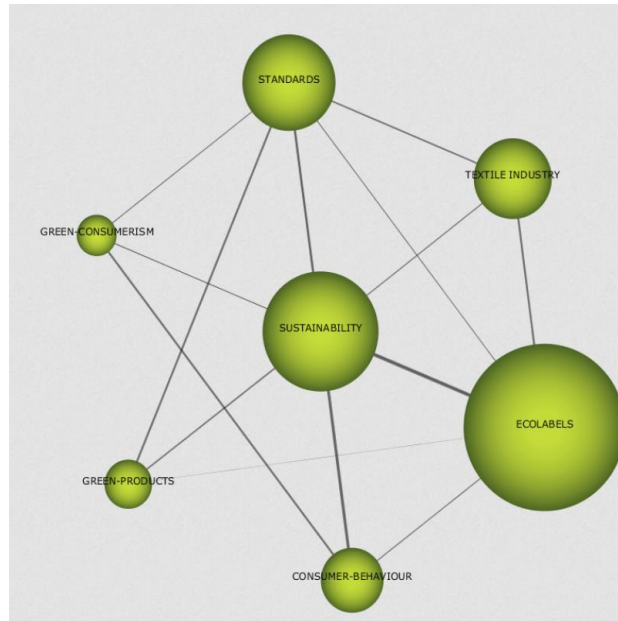
Figure 3. *Evolution map of themes*
Source: SciMAT

The clusters maps depicted in figures 4a and 4b showcase that the core themes within the years have changed. For instance, between 1994 and 2003, the main theme of research was sustainability, and had a strong association with other research topics, mainly green products, green consumerism, standards in general, textile industry, consumer behavior, and ecolabels. Sustainability emerged as a core topic in the 1990s, when more attention was given to the various environmental issues that the world was, and still facing during the time. Decision makers shifted their focus on how to decrease the detrimental effects of their products and production processes on the environment, that is way more research evolved around textiles, standards, consumer behavior, and ecolabel's themes. Between 2004 and 2024, the main theme of research was ecolabels, in addition to other research themes, namely sustainability, consumer behavior, green products, supply chain, and textiles. Other research themes were linked with ecolabels, but their importance in terms of publications and impact is reduced compared to the previous themes, namely the theory of planned behavior, used as means to study the behavior of consumers towards ecolabels and ecolabelled products, ecotourism, green consumerism, food products, and standards. As a matter of fact, the evolution of themes showcases a concentration and diversification of research interests. The concentration narrative is observed in the importance ecolabels research started to hold, and the diversification dimension is seen through the examination of the feasibility of ecolabels in different industries and the influence they have on consumer behavior.
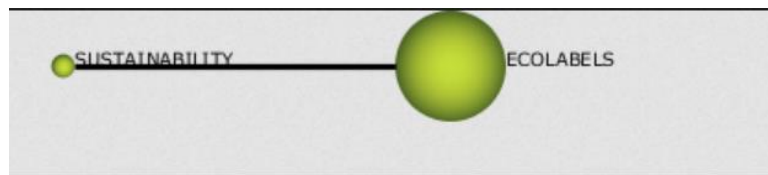

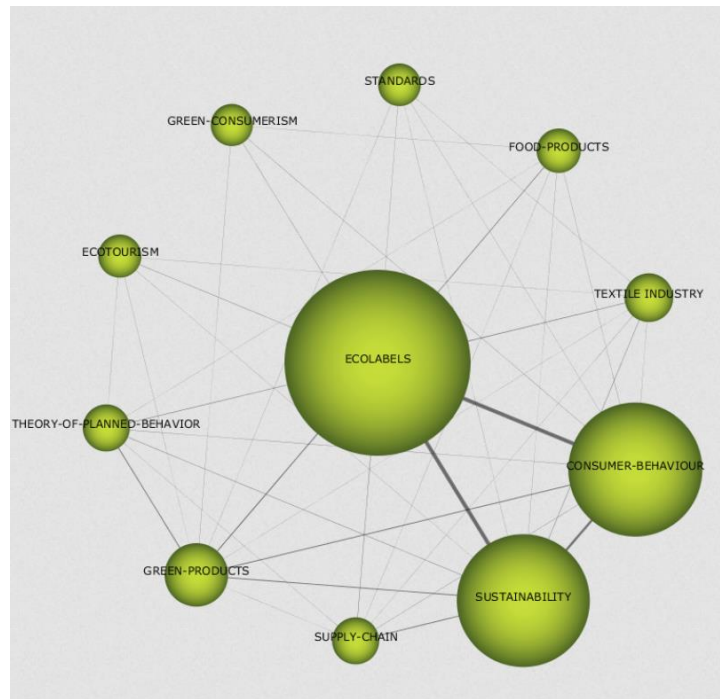***Figure 4a.*** *Clusters of themes (1994-2003)*
Source: SciMat

Figure 4b. *Clusters of themes (2004-2024)*
Source: SciMat

5. Discussion of Findings

The analysis encompassed 315 papers from the Scopus spanning from 1994 to 2024. The United States led in publications, followed by Italy, India, the United Kingdom, France, Spain, Australia, China, Germany, and Canada. Despite the inclusion of two developing countries in the ranking, ecolabels research predominantly stems from developed nations, that can be due to the increasing consumer awareness of environmental issues and a higher willingness to pay premium prices. The presence of India and China is attributed to their rising pollution rates and economic growth. The number of publications steadily increased, peaking in 2021, which can be explained by the increased corporate adoption of sustainability practices, that can be seen through the inclusion of ecolabels in the marketing strategies in order to appeal to the environmentally responsible consumers. Thus, such shift in attention increased the importance of conducting research regarding the effectiveness of ecolabels in influencing the behavior of consumers and improving the brand image (Panopoulos *et al.*, 2022).

The dominance of American institutions in ecolabels research reflects the significant role of the U.S. market in driving interest and investment to discern consumer preferences and market dynamics. Consequently, American institutions wield substantial influence in shaping ecolabel policies, business strategies, and consumer behavior. However, the research lacks clear objectives and did not address key issues, including consumer behavior towards ecolabelled products.

Ecolabels research has developed over the years, encompassing diverse subject categories, and reflecting its growing importance and applicability. Yet, interest in the topic varies by location and authorship, contributing to geographical diversity in research perspectives. However, the study reveals a gap in examining consumer behavior towards eco-labeled products in detail. Co-word analysis indicates a focus on certification, standards, and physical products in industries like food, seafood, and hospitality, neglecting consumer behavior and applications in non-developed countries. Diversified research methods such as data mining and artificial intelligence could enhance understanding, complementing traditional approaches like the theory of planned behavior with theories on consumption values.

6. Conclusion

The study aimed to conduct bibliometric analysis and visualize publications related to ecolabels in the Scopus database. This involved utilizing VOSviewer to examine 315 Scopus articles on the subject, analyzing trends in topics, keywords, co-authorship, and reference co-citations, which provided insights into the

landscape of ecolabels research. Additionally, SciMAT was employed to generate an evolution map, strategy diagram, and identify topic clusters within the field of ecolabels. Through these analyses, the research objectives were achieved, and key research questions were answered.

In conclusion, the trajectory of ecolabels research goes in parallel with the evolution of environmental consciousness in consumer markets and the broader societal emphasis on sustainability. Originating from a foundation established by product safety labeling in the 1970s, ecolabels have emerged as essential tools, encompassing both marketing strategies and public policy instruments. Their role in facilitating informed consumer choices and signaling a commitment to environmental and social responsibility has propelled their adoption across diverse industries, including wine and spirits, fisheries, and tourism.

The methodology employed in this study, utilizing bibliometric analysis, provided insights into the trends and developments within the ecolabels research domain. By systematically analyzing a dataset spanning three decades, research focus and thematic evolution were highlighted. In the 1990s, sustainability was dominating as the main research, followed by a concentration on ecolabels and consumer behavior in the following decades.

While the analysis revealed a substantial volume of research output, notably from American institutions, there remains a notable gap in understanding consumer behavior towards ecolabelled products in detail. This highlights an opportunity for future research to dig deeper into the factors influencing consumer preferences and purchasing decisions, particularly in the context of emerging markets and online commerce platforms.

Moreover, the study emphasizes the importance of employing diversified research methodologies, including data mining and artificial intelligence, to complement traditional approaches and enhance the understanding of consumer behavior and market dynamics. By adopting a forward-looking approach, future research can address these knowledge gaps and contribute to the advancement of sustainable consumption practices on a global scale.

Conflicts of Interest: The author declares that there are no conflicts of interest regarding the publication of this paper.

References

Bučar, K., Hendija, Z. and Katić, I., 2022. Ecolabels as a Tool of Sustainable Development in Tourist Destinations. *Sustainability*, 14(10), p. 6313. doi: 10.3390/SU14106313.

Calderon-Monge, E., Redondo-Rodriguez, R.G. and Ramírez-Hurtado, J.M., 2021. Narrowing the gap between consumer purchasing intention and behaviour through ecolabelling: a challenge for eco-entrepreneurism. *British Food Journal*, 123(10), pp. 3293–3308. doi: 10.1108/BFJ-09-2020-0874.

Cobo, M.J., López-Herrera, A.G., Herrera-Viedma, E. and Herrera, F., 2012. SciMAT: A new science mapping analysis software tool. *Journal of the American Society for Information Science and Technology*, 63(8), pp. 1609–1630. doi: 10.1002/ASI.22688.

Dekhili, S. and Ertz, M., 2024. Reinventing ecolabels in the era of augmented reality: An experimental study on the case of fair-trade coffee. *Journal of Cleaner Production*, 434, p.139987. doi: 10.1016/j.jclepro.2023.139987.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N. and Lim, W.M., 2021. How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, pp. 285–296. doi: 10.1016/J.JBUSRES.2021.04.070.

Gaspar Ferreira, A. and Fernandes, M.E., 2022. Sustainable advertising or ecolabels: Which is the best for your brand and for consumers' environmental consciousness?. *Journal of Marketing Theory and Practice*, 30(1), pp. 20–36. doi: 10.1080/10696679.2021.1882864.

Giacomarra, M., Crescimanno, M., Vrontis, D., Miret Pastor, L. and Galati, A., 2021. The ability of fish ecolabels to promote a change in the sustainability awareness. *Marine Policy*, 123, p. 104292. doi: 10.1016/J.MARPOL.2020.104292.

Haba, H.F., Bredillet, C. and Dastane, O., 2023. Green consumer research: Trends and way forward based on bibliometric analysis. *Cleaner and Responsible Consumption*, 8, p. 100089. doi: 10.1016/J.CLRC.2022.100089.

Harzing, A.W. and Alakangas, S., 2016. Google Scholar, Scopus and the Web of Science: a longitudinal and cross-disciplinary comparison. *Scientometrics*, 106(2), pp. 787–804. doi: 10.1007/S11192-015-1798-9/TABLES/4.

Iraldo, F., Griesshammer, R. and Kahlenborn, W., 2020. The future of ecolabels. *The International Journal of Life Cycle Assessment*, 25(5), pp. 833–839. doi: 10.1007/S11367-020-01741-9.

Leire, C. and Thidell, Å., 2005. Product-related environmental information to guide consumer purchases – a review and analysis of research on perceptions, understanding and use among Nordic consumers. *Journal of Cleaner Production*, 13(10–11), pp. 1061–1070. doi: 10.1016/J.JCLEPRO.2004.12.004.

Lim, K.H. and Reed, M., 2020. Do ecolabels cheapen wines?. *Journal of Cleaner Production*, 245, p. 118696. doi: 10.1016/J.JCLEPRO.2019.118696.

Nobanee, H., Hamadi, F.Y.A., Abdulaziz, F.A., Abukarsh, L.S., Alqahtani, A.F., Alsubaey, S.K., Alqahtani, S.M. and Almansoori, H.A., 2021. A Bibliometric Analysis of Sustainability and Risk Management. *Sustainability*, 13(6), p. 3277. doi: 10.3390/SU13063277.

Panopoulos, A., Vakouftsi, E. and Dimitriou, E., 2022. Influencing Green Purchase Intention through Eco Labels and User-Generated Content. *Sustainability*, 15(1), p. 764. doi: 10.3390/SU15010764.

van Eck, N.J. and Waltman, L., 2010. Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), pp. 523–538. doi: 10.1007/S11192-009-0146-3.

Varese, E., Pellicelli, A.C. and Bollani, L., 2023. Consumers' consciousness and willingness to pay for fishery products with ecolabels: an empirical study on university students in Italy. *Sustainability*, 7(1), pp. 35–52. doi: 10.17501/23861282.2021.7104.

Wang, W., Li, X., and Chen, Y., 2023. Economic Growth and Sustainable Transition: Investigating Classical and Novel Factors in Developed Countries. *Sustainability*, 15(16), p. 12346. doi: 10.3390/SU151612346.

Wurster, S. and Ladu, L., 2020. Bio-Based Products in the Automotive Industry: The Need for Ecolabels, Standards, and Regulations. *Sustainability*, 12(4), p. 1623. doi: 10.3390/SU12041623.