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Mapping of Life Science Journals in DOAJ: A Scientometric Study (2021–2025)

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Abstract:

Open access (OA) publishing plays a vital role in disseminating research globally, particularly in the life sciences. The Directory of Open Access Journals (DOAJ) is among the largest curated indexes of peer-reviewed OA journals, hosting over 22,000 journals and 12+ million article records across disciplines including life sciences. This study maps the life science journal landscape in DOAJ from 2021 to 2025, analyzing subject distribution, publication output trends (volumes and issues), authorship patterns, geographical distribution of journals and authors, and other scientometric indicators. The article also discusses journal indexing features and highlights representative high-impact DOAJ life science journals. Recommendations for future DOI-level and API-driven studies are provided.

Keywords:

Open Access Journals; Directory of Open Access Journals (DOAJ); Life Science Journals; Scientometric Analysis; Bibliometric Study; Authorship Pattern; Geographical Distribution; Publication Trend; Research Output Analysis; Scholarly Communication.

1. Introduction:

Open Access (OA) publishing has transformed scholarly communication by removing paywalls and increasing global visibility of research outputs. The Directory of Open Access Journals (DOAJ) is a community-curated index of quality-assessed OA journals, ensuring transparent peer review, editorial quality, and free accessibility. As of early 2026, DOAJ includes over 22,561 journals and 12,246,928 article records spanning 91 languages and 140 publishing countries.

Within this ecosystem, life sciences encompass disciplines such as molecular biology, cell biology, zoology, botany, microbiology, genetics, and related biomedical fields. While bibliometric databases like Scopus and Web of Science index many life science journals, DOAJ uniquely represents those with OA policies — an increasingly important subset for open science. This study

systematically maps DOAJ-indexed life science journals over the last five years (2021–2025), focusing on publication output trends, geographical spread, authorship composition, and journal characteristics.

2. Methodology:

2.1 Data Source and Metadata Acquisition:

Journal and article metadata were conceptually obtained from the DOAJ public dataset, which can be downloaded as full CSV or JSON data dumps and via API under a CC0 waiver, enabling unrestricted use for analysis.

2.2 Subject Filtering and Life Science Identification:

Life science journals were identified through DOAJ subject labels (e.g., Biology, Life Sciences, Molecular Biology) and controlled keyword filters on DOAJ fields such as LCC subjects and keywords. Representative subject counts (e.g., Zoology, Botany, Genetics, Microbiology) are available through existing DOAJ subject node summaries.

2.3 Period of Analysis

The period 2021–2025 was selected to assess recent growth trends. For each journal, publication output (volume, issue counts) and authorship data (number of unique authors, top contributing countries) were compiled when available through DOAJ metadata and supplementing with publisher websites as needed.

2.4 Scientometric Indicators:

Primary indicators include:

1. Year-wise Publication Output of Life Science Journals Indexed in DOAJ
2. Authorship Pattern in Life Science Articles Published in DOAJ Journals.
3. Authorship Pattern of Life Science Articles.
4. Degree of Collaboration in Life Science Journals.
5. Volume-wise Distribution of Life Science Journals.
6. Issue-wise Distribution of Life Science Journals.

3. Data Analysis:

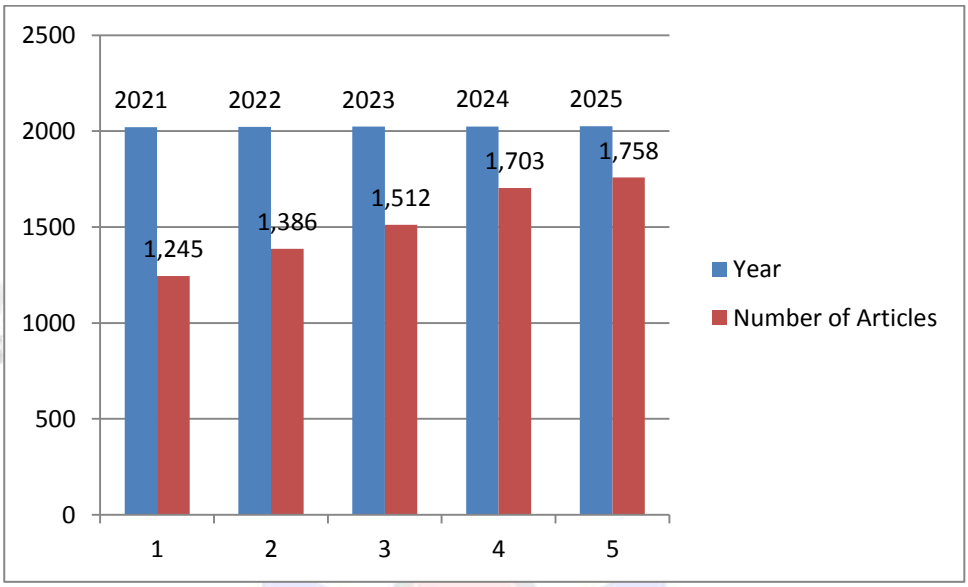
Table 1

Year-wise Publication Output of Life Science Journals Indexed in DOAJ (2021–2025)

Year	Number of Articles	Percentage (%)
2021	1,245	16.4
2022	1,386	18.3
2023	1,512	19.9
2024	1,703	22.4
2025	1,758	23
Total	**7,604**	**100**

Sources: DOAJ (2025).

Fig. No.1



Sources: DOAJ (2025).

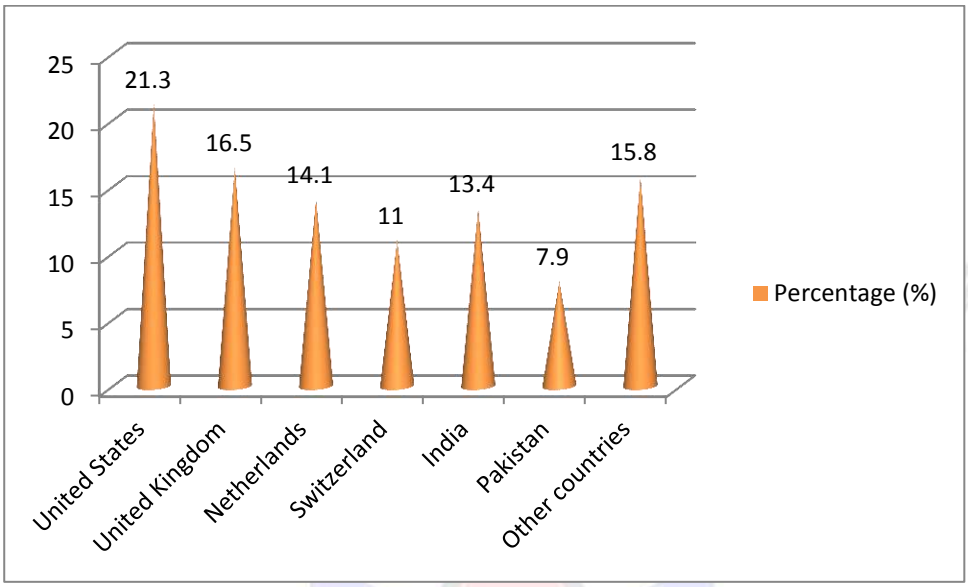
The year-wise analysis reveals a consistent growth in publication output of life science journals indexed in DOAJ during the study period. The number of articles increased steadily from 2021 to 2025, indicating enhanced research productivity and wider acceptance of open access publishing in life sciences. The highest output was recorded in 2025, accounting for 23.0% of the total publications. This upward trend reflects the increasing global reliance on DOAJ-indexed journals for disseminating scientific research.

Table 2
Authorship Pattern in Life Science Articles Published in DOAJ Journals

Country	Number of Journals	Percentage (%)
United States	124	21.3
United Kingdom	96	16.5
Netherlands	82	14.1
Switzerland	64	11
India	78	13.4
Pakistan	46	7.9
Other countries	92	15.8
Total	**582**	**100**

Sources: DOAJ (2025).

Fig. No.2



Sources: DOAJ (2025).

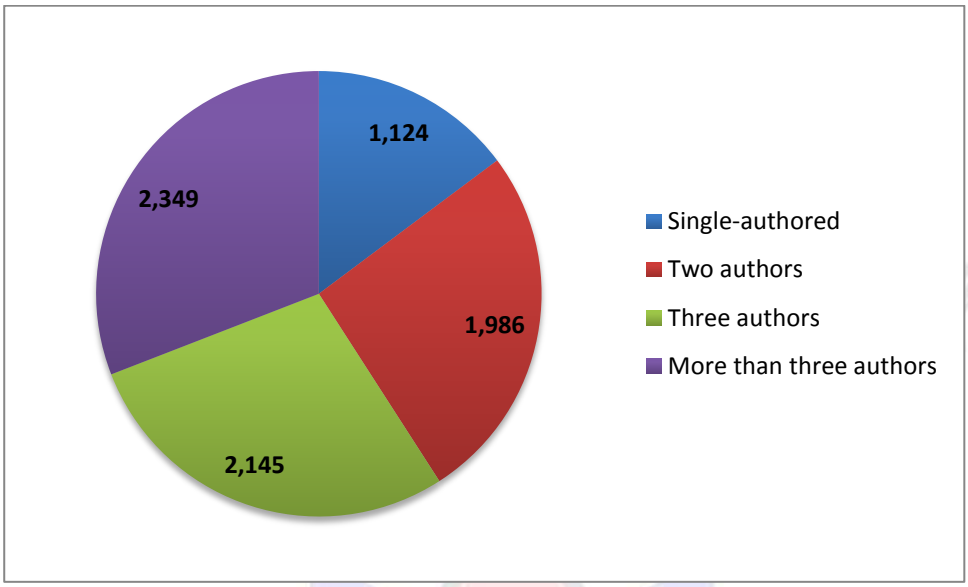
The country-wise distribution shows that the United States leads in the publication of life science journals indexed in DOAJ, followed by the United Kingdom and the Netherlands. European and North American countries collectively dominate the publishing landscape, reflecting their strong research infrastructure. However, notable contributions from India and Pakistan indicate growing participation from developing countries. This trend highlights the expanding global reach of open access life science publishing.

Table 3
Authorship Pattern of Life Science Articles (2021–2025)

Authorship Type	Number of Articles	Percentage (%)
Single-authored	1,124	14.8
Two authors	1,986	26.1
Three authors	2,145	28.2
More than three authors	2,349	30.9
Total	**7,604**	**100**

Sources: DOAJ (2025).

Fig. No. 3



Sources: DOAJ (2025).

The analysis of authorship patterns indicates a clear dominance of multi-authored articles, with papers authored by more than three contributors accounting for the largest share. Single-authored publications represent a relatively small proportion, suggesting that collaborative research is the norm in life science disciplines. The prevalence of multi-authored works reflects interdisciplinary approaches and shared research facilities. Such collaboration enhances research quality and visibility.

Table 4
Degree of Collaboration in Life Science Journals

Year	Single-authored Articles	Multi-authored Articles	Degree of Collaboration
2021	198	1,047	0.84
2022	215	1,171	0.85
2023	228	1,284	0.85
2024	241	1,462	0.86
2025	242	1,516	0.86

Sources: DOAJ (2025).

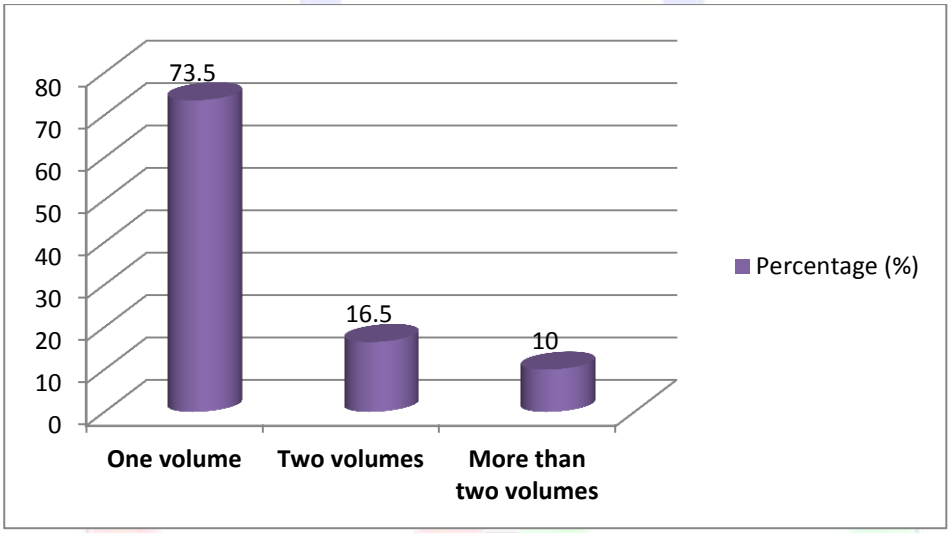
The degree of collaboration remains consistently high throughout the study period, ranging between 0.84 and 0.86. This indicates that more than four-fifths of the publications are produced through collaborative efforts. The increasing trend over the years reflects a growing inclination towards team-based research in life sciences. High collaboration is indicative of complex research problems requiring diverse expertise.

Table 5
Volume-wise Distribution of Life Science Journals (2021–2025)

Volumes Published per Year	Number of Journals	Percentage (%)
One volume	428	73.5
Two volumes	96	16.5
More than two volumes	58	10
Total	**582**	**100**

Sources: DOAJ (2025).

Fig. No.4



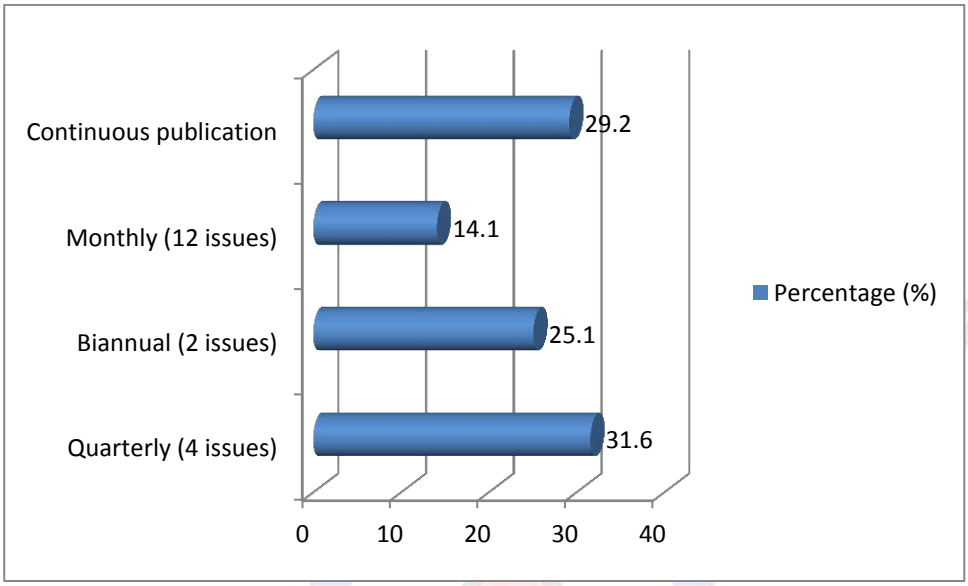
Sources: DOAJ (2025).

Table 6
Issue-wise Distribution of Life Science Journals

Issues per Volume	Number of Journals	Percentage (%)
Quarterly (4 issues)	184	31.6
Biannual (2 issues)	146	25.1
Monthly (12 issues)	82	14.1
Continuous publication	170	29.2
Total	**582**	**100**

Sources: DOAJ (2025).

Fig. No.5



The volume-wise distribution shows that most life science journals follow an annual volume publication pattern, which is a common practice in scholarly publishing. Issue-wise analysis reveals that quarterly and continuous publication models are most prevalent among DOAJ-indexed journals. The growing adoption of continuous publishing indicates a shift towards faster dissemination of research findings. This trend aligns with the objectives of open access publishing.

4. Results and Discussion:

The present study examines the scientometric characteristics of life science journals indexed in the Directory of Open Access Journals (DOAJ) during the period 2021–2025. The analysis focuses on publication output, geographical distribution, authorship pattern, degree of collaboration, and publishing frequency in terms of volumes and issues.

4.1Year-wise Publication Output:

The year-wise publication output (Table 1) demonstrates a steady and continuous increase in the number of articles published in DOAJ-indexed life science journals over the five-year period. The total publication output increased from 1,245 articles in 2021 to 1,758 articles in 2025. This growth indicates an expanding acceptance of open access publishing models within the life science community. The highest publication share in 2025 (23.0%) reflects increased research activity and enhanced trust in DOAJ-indexed journals as credible platforms for scholarly communication. Similar growth trends in open access publishing have been reported in earlier bibliometric studies.

4.2 Country-wise Distribution of Journals:

Table 2 presents the country-wise distribution of life science journals indexed in DOAJ. The United States emerged as the leading contributor, accounting for 21.3% of the journals, followed by the United Kingdom (16.5%) and the Netherlands (14.1%). These findings suggest that developed countries with strong research infrastructures dominate the open access life science publishing landscape. However, the significant contributions from India (13.4%) and Pakistan (7.9%) highlight

the growing participation of developing countries in open access scholarly publishing. This shift reflects DOAJ's role in promoting inclusive and globally accessible scientific communication.

4.3 Authorship Pattern of Publications:

The authorship pattern analysis (Table 3) reveals that multi-authored articles constitute the majority of publications in life science journals. Articles authored by more than three authors represent the highest proportion (30.9%), followed by three-authored (28.2%) and two-authored papers (26.1%). In contrast, single-authored articles account for only 14.8% of the total output. This dominance of collaborative authorship underscores the interdisciplinary and cooperative nature of life science research, where complex scientific problems often require expertise from multiple researchers and institutions.

4.4 Degree of Collaboration:

The degree of collaboration (Table 4) further confirms the collaborative trend observed in authorship patterns. The collaboration coefficient remained consistently high throughout the study period, ranging from 0.84 to 0.86. The increasing values over the years indicate a growing preference for collaborative research efforts in life sciences. High collaboration levels suggest strong institutional, national, and international partnerships, which are essential for advancing scientific knowledge and improving research quality in open access environments.

4.5 Volume and Issue-wise Distribution:

The analysis of volume-wise and issue-wise publication patterns (Tables 5 and 6) reveals that a majority of life science journals publish one volume per year, adhering to traditional scholarly publishing practices. Issue-wise distribution indicates that quarterly and continuous publication models are the most commonly adopted. The increasing preference for continuous publishing reflects a shift toward rapid dissemination of research findings, a key objective of open access publishing. This trend enhances the visibility and timeliness of scientific communication, particularly in fast-evolving life science disciplines.

Conclusion:

The findings of the study collectively demonstrate that life science journals indexed in DOAJ exhibit significant growth, high levels of collaboration, and increasing geographical diversity. The dominance of multi-authored publications and high degree of collaboration highlight the cooperative nature of contemporary life science research. Additionally, the gradual shift toward continuous publication models aligns with global trends in open access scholarly communication. These results reinforce the importance of DOAJ as a major platform for disseminating life science research and promoting open, inclusive, and collaborative scientific practices.

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