

# Open Access Chemistry Journals Indexed In The DOAJ: An Analytical Study

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*Abstract: Present study focuses on analysis of open access journals in the field of chemistry based on data collected from DOAJ. It highlights various facets of open access publishing like publishing country, language, publisher, funding model and licensing. DOAJ has registered 601 OA journals in the field of Chemistry which are published by the academic institutions, different organizations, varied societies, renowned research centers and also by commercial publishers. The study revealed that the prominent publishers have taken part in open access publication of journals which belong to 97 countries of the world and United Kingdom (UK) tops the list followed by the Indonesia and Switzerland respectively. The journals in chemistry are published in 27 languages with English being the most preferable one. DOAJ uses a normal peer review process. In the case of chemistry journals, it has been discovered that anonymous peer review and double anonymous peer review are used because they assure a fair and accurate assessment of the publications. About 87.52 percent of the open access journals in chemistry are not marked with DOAJ seal and a few journals are marked with DOAJ seal.*

**Keywords:** Open Access Journals, Chemistry Journals, DOAJ

## I. INTRODUCTION

In today's knowledge economy, universal access to pertinent information and expertise is essential. In addition to posing significant obstacles to open distribution (because to cost and legal restrictions), subscription-based access to academic material (mostly print journals) also reduces the potential effect of research output. The publishing industry has never been more chaotic than it is now with the emergence of Open Access (OA). Because of advancements in information and communication technology, especially the Internet, open access (OA) has transformed scholarly publication. The approach to addressing the "serial crisis" that started as a "different publication model" eventually altered the nature of scholarly publishing. A wide range of stakeholders in academic communication networks, including publishers, funding agencies, researchers, affiliated institutions, and society at large, may and will profit from open access (OA). Even with the advantages of quicker publication and easier access, open access publishing raises awareness and usage.

One important resource designed specifically for research and development workers is the Director of Open Access Journals (DOAJ). It offers access to important academic and scientific open access publications that span almost all domains of human knowledge. Lund University in Sweden launched the directory, which is based on the Budapest Open Access Initiative programme. By making open access scholarly literature easier to access and utilise, DOAJ hopes to increase the influence and utilisation of open access journals.

## II. OBJECTIVES

The objectives of the present study are:

- ✓ To identify the leading publishers of open access chemistry journals;
- ✓ To determine language-wise distribution of journals;
- ✓ To find out the type of licensing;
- ✓ To study the geographical and language wise distribution of journals in DOAJ;

- ✓ To study peer reviewed type of journals.

### III. SCOPE AND LIMITATION OF THE STUDY

- ✓ Present study is limited to Chemistry subjects in DOAJ indexed.
- ✓ Present study is limited to up to 06<sup>th</sup> December 2023.
- ✓ Scope of the present study is 601 Chemistry Journals.

### IV. RESEARCH METHODOLOGY

The present data were collected by visiting the URL (<https://doaj.org/>) of DOAJ period coverage up to 06<sup>th</sup> December 2023. There are 601 chemistry journals registered in the DOAJ database. The data was analysed according to the objectives and presented in tabular form with simple percentages.

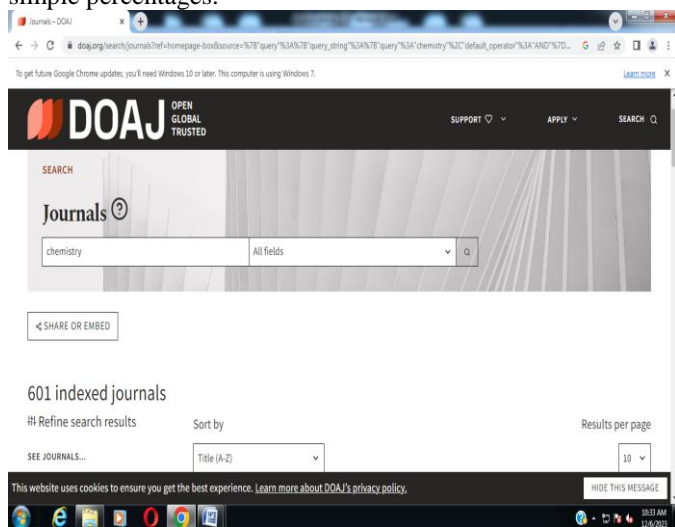


Figure 1: Search Results of DOAJ (as on 06/12/2023)

### V. DATA ANALYSIS AND INTERPRETATION

S.No	Name of the Publisher	Journals	Percentage
1	Elsevier	58	9.650582
2	MDPI AG	57	9.484193
3	KeAi Communications Co., Ltd.	16	2.66223
4	Springer	15	2.49584
5	The Royal Society of Chemistry	11	1.830283
6	American Chemical Society	11	1.830283
7	DeGruyter	11	1.830283
8	Hindawi Limited	10	1.663894
9	Frontiers Media SA	10	1.663894
10	Wiley	8	1.331115
11	BMC	7	1.164725
12	Wiley – VCH	6	0.998336
13	Taylor and Francis	6	0.998336

14	International Union of Crystallography	5	0.831947
15	Nature Portfolio	5	0.831947
16	SAGE Publishing	5	0.831947
17	Sciendo	5	0.831947
18	EDP Sciences	4	0.665557
23	5 publishers 3 journals each	15	2.49584
47	24 publishers 2 journals each	48	7.986689
335	288 publishers 1 journal each	288	47.92013
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 1: Publishers wise distribution open access journals in Chemistry

Table 1 shows that 335 publishers are involved are publishing 601 chemistry open access journals in DOAJ. Out of 335, 288 publishers publish only a single open access journal, while 29 publishers publish more than one open access journal. Elsevier Publishing Company publishes 58 (9.65%) journals followed by MDPI AG publishers (57 journals), KeAi Communications Company Limited (16 journals), The Royal Society of Chemistry, American Chemical Society and DeGruyter publishers (11 journals each), Hindawi Limited and Frontiers Media SA (10 journals each) etc.

S.No	Name of the Country	Number	Percentage
1	UK	85	14.14309
2	Indonesia	84	13.97671
3	Switzerland	72	11.98003
4	Netherlands	35	5.823627
5	China	33	5.490849
6	USA	31	5.15807
7	Germany	20	3.327787
8	Poland	19	3.161398
9	Russia	18	2.995008
10	Iran	18	2.995008
11	Brazil	16	2.66223
12	Iraq	14	2.329451
13	Ukraine	13	2.163062
14	Egypt	9	1.497504
15	Turkey	9	1.497504
16	Colombia	8	1.331115
17	France	8	1.331115
18	Croatia	7	1.164725
19	India	6	0.998336
20	Japan	6	0.998336
21	Serbia	6	0.998336
22	Italy	5	0.831947
23	Romania	5	0.831947
24	Other countries	74	12.31281
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 2: Country-wise distribution open access journals in Chemistry

Table 2 shows that the contributions of Chemistry open access journals in DOAJ from different countries such as United Kingdom (UK) has a maximum number of contributions i.e. 85 (14.14% of total journals), followed by

Indonesia 84 (13.98%), Switzerland 72 (11.98%), Netherlands 35 (5.82%), China 33 (5.49%), USA 31 (5.16%) respectively. These 6 countries are contributed more than fifty percent of the journals and the remaining percent of the journals are contributed by other countries.

S.No	Language	Number	Percentage
1	English	437	72.71215
2	Indonesian	46	7.65391
3	Spanish	21	3.494176
4	Russain	21	3.494176
5	Protguese	16	2.66223
6	Chinese	10	1.663894
7	Ukrainian	9	1.497504
8	French	8	1.331115
9	Arabic	6	0.998336
10	Turkish	4	0.665557
11	Persian	3	0.499168
12	Serbian	3	0.499168
13	German	2	0.332779
14	Polish	2	0.332779
15	Other languages	13	2.163062
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 3: Language-wise distribution open access journals in Chemistry

Table 3 shows that the information about the language wise publication of open access journals in chemistry. Open access journals in mathematics are published in 27 different languages. Out of the total 610 journals, 437 (72.71%) journals are published in English language, followed by 46 (7.65%) are Indonesian, 21 (3.49%) journals in Spanish and Russian languages respectively. These found languages are major contributions in Chemistry.

S.No	Type of Journals	Number	Percentage
1	Without Article Processing Charges (APCs)	242	40.27
2	With Article Processing Charges	359	59.73
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 4: Publication fee of open access journals

Table 4 shows that out 601 journals, 359 (59.73%) journals asked for article processing charges for publications and 242 (40.27%) journals had no article processing charges.

S.No	Type of Review	Number	Percentage
1	Anonymous peer review	333	55.41
2	Double anonymous peer review	187	31.11
3	Peer Review	77	12.81
4	Open Peer Review	4	0.67
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 5: Peer reviewed processes of open access journals in Chemistry

Table 5 shows that out of 601 journals, 333 (55.41%) open access journals are anonymous peer review, 187 (31.11%) journals are double anonymous peer review, 77 (12.81%) journals are peer review, and 4 (0.67%) journals are open peer review.

## LICENSING MODELS

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S.No	Acronym	License Description	Number	Percentage
1	CC BY	Creative Common Attribution	371	61.73045
2	CC BY-NC-ND	Attribution-Non Commercial-No Derivatives	93	15.47421
3	CC BY-NC	Attribution-Non Commercial Uses	62	10.31614
4	CC BY SA	Attribution-Share Alike	34	5.657238
5	CC BY-NC-SA	Attribution-Non Commercial-Share Alike	24	3.993344
6	CC BY-ND	Attribution-No Derivatives	7	1.164725
7	CC 0	Creative Common Zero	7	1.164725
8	Publishers own Licence		3	0.499168
<b>TOTAL</b>			<b>601</b>	<b>100.00</b>

Table 6: Licensing model of Mathematics open access journals

Table 6 shows that that 61.73 percent of open access journals in chemistry use CC BY licensing, followed by 93 (15.47%) journals are CC-BY-NC-ND, 62 (10.32%) journals are CC-BY-NC, 34 (5.66%) journals are CC-BY-SA, 24 (3.99%) journals are CC-BY-NC-SA, 7 (1.16%) journals each are CC-BY-ND and CC0 and 3 (0.50%) journals are own license.

S.No	DOAJ Seal	Number	Parentage
1	Yes	75	12.48
2	No	526	87.52
<b>TOTAL</b>		<b>601</b>	<b>100.00</b>

Table 7: DOAJ seal wise distribution of journals

It is evident from Table 7 that 87.52 percent of the chemistry open access journals lack a DOAJ seal and 12.48 percent of the journals are marked with a DOAJ seal.

S.No	Year	Number of Journals added	Cumulative Number	Percentage	Cumulative Percentage
1	2023	71	71	11.81364	11.81364
2	2022	73	144	12.14642	23.96006
3	2021	80	224	13.31115	37.27121
4	2020	59	283	9.816972	47.08818
5	2019	55	338	9.151414	56.2396
6	2018	42	380	6.988353	63.22795
7	2017	56	436	9.317804	72.54575
8	2016	38	474	6.322795	78.86855

9	2015	25	499	4.159734	83.02828
10	2014	10	509	1.663894	84.69218
11	2013	21	530	3.494176	88.18635
12	2012	12	542	1.996672	90.18302
13	2011	16	558	2.66223	92.84525
14	2010	7	565	1.164725	94.00998
15	2009	9	574	1.497504	95.50748
16	2008	7	581	1.164725	96.67221
17	2007	1	582	0.166389	96.8386
18	2006	3	585	0.499168	97.33777
19	2005	5	590	0.831947	98.16971
20	2004	3	593	0.499168	98.66888
21	2003	6	599	0.998336	99.66722
22	2002	2	<b>601</b>	0.332779	<b>100.00</b>

Table 8: Year wise added chemistry open access journals in DOAJ

Table 8 shows that a total of 601 open access journals were added in chemistry during the years 2002 – 2023. Out of the 601 chemistry journals, 80 (13.31%) journals added in the year 2021, 73 (12.14%) journals were added in the year 2022, 71 (11.81%) journals were added in the year 2023, 59 (9.82%) journals were added in the year 2020, 56 (9.32%) journals were added in the year 2017. These five years (56.41%) percent of open access journals were added in chemistry. The remaining (43.59%) percent of journals were added during the seventeen years.

## VI. CONCLUSION

Globally, open access articles are becoming more and more well-liked in many different sectors. The launch of new open access journals and the conversion of for-profit publications to an open access model have increased the number of open access journals available. Additionally, publishers have taken a more positive stand on open access. A good indicator for this idea is the daily rise in the quantity of open access journals. DOAJ has registered 601 journals in the field of chemistry which are published by the academic institutions, different organizations, varied societies, renowned research centers and also by commercial publishers. Prominent publishers have taken part in open access publication of journals which belong to 97 countries of the world and United Kingdom (UK) tops the list followed by the Indonesia and Switzerland respectively. The journals in chemistry are published in 27 languages with English being the most preferable one. Open access journals are either published after receiving requisite publication charge from the authors or they are published free of cost by some publishers. In chemistry journals, more than fifty percent of the journals

are published free of cost and rest of them require an article processing fee before their publication.

Before paying any publishing fees for their works, writers need to be aware of predatory publishers and able to recognise predatory journals. DOAJ follows a standard procedure for peer review prior to journal publication. In the case of mathematics journals, it has been discovered that anonymous peer review and double anonymous peer review are used because they assure a fair and accurate examination of the publications. These also provide protection to the author and reviewer from criticism. The greatest and most widely accepted licence for people to read, share, use, and cite their copyrighted work is the Creative Commons (CC) licence. In the discipline of chemistry, 61.73 percent of journals have a Creative Commons licence, indicating that the frontiers of open access chemistry journals in DOAJ are expanding. The DOAJ seal is a symbol of the directory's open access journals' certification. The seal is only given to journals that have been indexed in DOAJ. DOAJ seal is awarded by DOAJ to the journals that achieve high level of openness, follow best practices and high publishing standards. About 87.72 percent of the journals in chemistry are not marked with DOAJ seal and a few journals are marked with DOAJ seal.

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