

A Scientometric Study of The Journal of Chemical Sciences Publications from 2004–2013

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Abstract

This empirical study aims to explore the Scientometric study of the Journal of Chemical Sciences publication from 2004–2013. The study demonstrates and elaborates on the various aspects of the Journal of Chemical Science, such as its distribution of articles per year, authorship pattern, and institution wise distribution, length of articles, citation analysis and geographical distribution of the authors. The study reveals that total 996 articles were published in the 60 issues of the journal.

Keywords: Scientometric, Chemical Sciences, Journal, Publications

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INTRODUCTION

‘Scientometrics’ is the branch science of science that describes the output traits of organizational research resource inputs and outputs, develops benchmarks to evaluate the quality of information output. Scientometric studies characterize the disciplines using the growth of the pattern and other attributes it provides a key opportunity to the researcher to publish their articles with new strategies, innovations, new methods and new ideas. Journal of Chemical Sciences is highly in the field of Chemical. They empirically describe the constantly changing relationship between science and technology and market. They forecast productivity of scientists so that dynamics of scientific research and technological development can be understood. This consequently sheds more light on our knowledge of the structure of subject of literature and better organization of information resources which can ultimately be effectively used. In this paper an attempt has been made by the research to reveal the trends towards the increase and quality of research articles in scientific discipline [1].

SOURCE JOURNAL

Journal of Chemical Sciences have been selected as the source journal for the present study. Journal of Chemical Sciences is a bi-monthly journal published by the Indian Academy of Sciences. It formed part of the original Proceedings of the Indian Academy of

Sciences – Part A, started by the Nobel Laureate Prof C V Raman in 1934, which was split in 1978 into three separate journals. The journal publishes original research articles and rapid communications, covering all areas of Chemical Sciences. A significant feature of the journal is its special issues, brought out from time to time, and devoted to conference symposia/proceedings in frontier areas of the subject, held not only in India but also in other countries. The journal accords great importance to the quality of articles published, with a stringent peer review, and in keeping the time required for processing of papers to a minimum by constant endeavor.[2]

OBJECTIVES

The present study has been undertaken with the objective of analyzing the following aspects:

- To classify the number of contributions published during the period of study
- To find out the year wise distribution of articles
- To study the authorship pattern
- To classify geographical distribution of articles
- To study the length of articles

METHODOLOGY SCOPE AND LIMITATION OF THE STUDY

The methodology applied in the present study is a Scientometric analysis, which is used to

study in detail the bibliographic features of the articles and citation analysis of reference appended at the end of each article, published in Journal of Chemical Sciences from 2004 to 2013. The data pertaining to Journal of Chemical Sciences regarding 996 articles made from volume 114 in 2004 to volume 125 in 2013. All the bibliographic details were

noted and a computerized database is then created for in depth analysis.[3]

ANALYSIS

All the details such as authors, title, and year of publication, pagination, and institutional affiliation, etc. of all articles published from 2004 to 2013 for the following analysis.[4]

Table 1: Year Wise Distribution of Articles.

Year	Vol. No.	No. of Issues	No. of Contribution	Percentage
2004	116	6	44	4.42
2005	117	6	82	8.23
2006	118	6	73	7.33
2007	119	6	76	7.63
2008	120	6	75	7.53
2009	121	6	125	12.55
2010	122	6	96	9.64
2011	123	6	103	10.34
2012	124	6	143	14.36
2013	125	6	179	17.97
Total		60	996	100

Journal of Chemical Sciences published 996 research papers during the period of study, i.e. from 2004 to 2013. The journal on an average has published 996 research papers per year. The above Table 1 shows that the maximum numbers of articles were published in the year

2013 with 179 articles and minimum in the year with 44 articles. The number of research publications of journal of Chemical Sciences for the period 2004–2013 has been given year wise in the table [5].

Table 2: Issue Wise Distribution of Articles.

Month	Volume Number										Total
	116	117	118	119	120	121	122	123	124	125	
January	8	7	16	7	24	11	9	11	39	22	154
March	9	17	10	18	7	14	23	13	22	25	158
May	8	10	9	7	8	16	18	14	20	28	138
July	6	10	9	8	8	23	20	18	15	31	148
September	7	29	8	29	10	44	11	24	21	37	220
November	6	9	21	7	18	17	15	23	26	36	178
Total	44	82	73	76	75	125	96	103	143	179	996

The Table 2 reveals the distribution of articles (Issue-wise) volume no. 125 shows in highest number of total articles. The second highest position is occupied by volume no 124. It is

followed by volume 123. Only 44 article in volume 116. The contributions of article in volume 121 are more in the month of September.

Table 3: Authorship Pattern.

Year	Number of Authors					Total
	1	2	3	4	5 & more	
2004	3	16	15	8	2	44
2005	10	29	21	14	8	82
2006	11	24	17	9	12	73
2007	2	30	18	14	12	76
2008	0	23	26	12	14	75
2009	7	36	36	21	25	125
2010	6	17	35	19	19	96
2011	3	36	17	16	31	103
2012	6	41	37	29	30	143
2013	8	53	51	38	29	179
Total	56	305	273	180	182	996
%	5.62	30.62	27.41	18.07	18.28	100

Table 3 indicates the authorship pattern in journal of Chemical Sciences. It could be observed that two author's papers occupy the first position (30.62%) in respect to total number published during the period of analysis. Three author's collaborated papers come next in order (27.41%) of sharing the

total output during the period of examination. More than five authors contributed papers occupies the third position (18.28%) with respect to total number of paper recorded into the study. Fourth author's collaborated papers occupy the fifth position (18.08%) with regard to total output noted during the study period.

Table 4: Year Wise Authorship Pattern.

Authorship	Year										Total	%
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Single	3	10	11	2	0	7	6	3	6	8	056	05.62
Joint	41	72	62	74	75	118	90	100	137	171	940	94.38
Total	44	82	73	76	75	125	96	103	143	179	996	100

The above Table 4 showed that out of 996 articles joint authors contributed 940 (94.38%) articles while the rest 56 (5.62%) articles were contributed by a single author.

DEGREE OF COLLABORATION

The formula given by Subramanyan is useful for determining the degree of collaboration quantitative terms. The study followed the same formula which is mathematically put as:

$$C = \frac{NM}{NM + NS}$$

NM = Number of Multi authored papers

NS = Number of single authored papers

In the present study

NM=940

NS=56

Thus C=996

940

940 + 56

Thus the degree of collaboration in Journal of Chemical Sciences is 0.943.

The Table 5 reveals that the majority of articles 676 (67.87%) have a length of 5–9 pages followed by 187 (18.78%) articles 10–12 pages, 75 (7.53%) articles with 13 and more pages and the remaining 58 (5.82%) articles have the length of 1–4 pages [6].

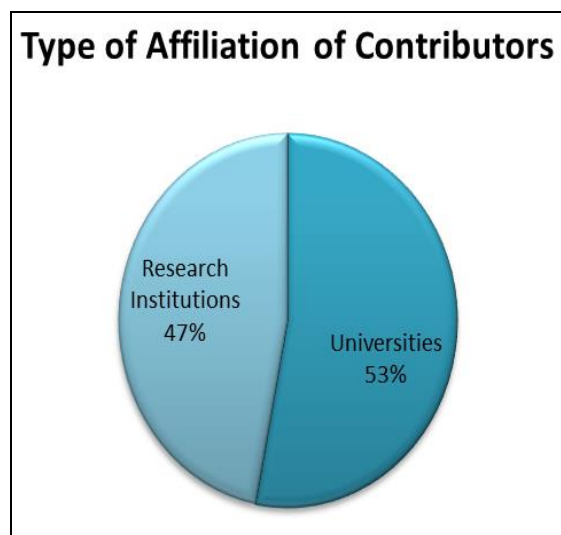
Table 5: Length of Articles.

Length	Year										Total	%
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
1–4	7	10	9	2	6	7	4	2	3	8	58	05.82
5–9	29	55	43	61	54	93	42	69	102	128	676	67.87
10–12	6	11	16	11	9	17	40	23	27	27	187	18.78
13 & more	2	6	5	2	6	8	10	9	11	16	75	07.53
Total	44	82	73	76	75	125	96	103	143	179	996	100

Table 6: Type of Affiliation of Contributors.

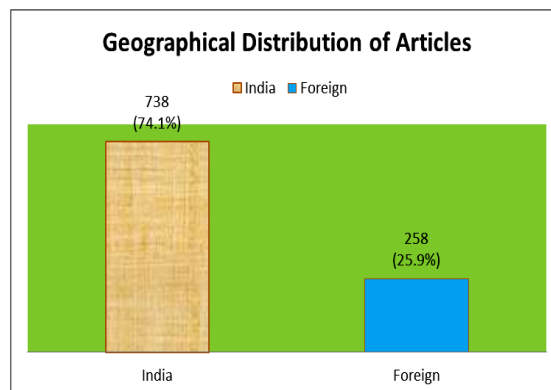
Type of Affiliation	No. of Articles	%
Universities	498	50.00
Research Institutions	441	42.28
Colleges	57	5.72
Total	996	100

The Table 6 showed that the majority of the articles 498 (50.00%) was contributed by Universities. Followed by research institutions with 441 (42.28%) and college 57 (5.72%).

**Fig.1:** Graph showing Affiliation of Contributors**Table 7: Geographical Distribution of Articles.**

Name of the Institution	No. of Articles	%
India	738	74.10
Foreign	258	25.90
Total	996	100

The Table 7 showed that highest number of contribution from India to 74.10% and the rest 25.90% only from foreign sources.

**Fig. 2:** Graph showing Geographical Distribution of Article**Table 8: Year Wise Distribution of Citations.**

Year	No. of Citations	%
2004	1165	3.99
2005	2506	8.58
2006	1961	6.71
2007	2589	8.86
2008	1784	6.11
2009	3610	12.35
2010	3157	10.80
2011	3299	11.29
2012	4494	15.38
2013	4656	15.93
Total	29221	100

The above Table 8 showed the maximum number of citations 4656 (15.93%) produced in the year 2013 followed by 4494 (15.38%) citations in 2012, 3610 (12.35%) citation in 2009 and 3299 (11.29%) citation in 2011. Figures 1 and 2 .

FINDINGS AND CONCLUSION

The Following Findings were Analyzed from the Study

1. The maximum numbers of articles were published in the year 2013.

2. Volume 125 shows in the highest number of articles produced.
3. Two authors had contributed more number of articles with 30.62 percentages.
4. The majority of articles 676 (67.87%) have a length of 5–9 pages.
5. The majority of the articles 498 (50%) was contributed by Universities compared to research centers.
6. Out 996 articles, India had contributed to highest number of articles 74.10%.
7. The maximum number of citations 4656 (15.93%) produced in the year 2013

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