

## Analysis of Indian Academy of Science Journals: A Comparative Study of Journal of Chemical Sciences and Journal of Earth System Science

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### Abstract

This article studies about the two journals of Indian Academy of Science publications. The two journals namely Journal of Chemical Sciences and Journal of Earth System Science. The study was carried for five years period (2010 - 2014). During these periods, 702 articles were published in the Journal of Chemical Sciences and 520 articles were published under Journal of Earth System Science. The study further examines the various bibliometric parameters such as authorship pattern, total number of pages and references.

**Keyword:** Indian Academy of Science, Chemical Sciences, Earth System Science, Authorship Pattern

### Introduction

Indian Academy of Sciences was found as registered society in the year 1934 with the aim of promoting the progress and upholds the cause of science, both pure and applied branches. Journal of Chemical Sciences (JCS) is a monthly journal, it formed a part of the original proceedings of the Indian Academy of Sciences – Part A, started by the Nobel Laureate Prof.C.V. Raman in the year 1934, which was split in 1978 to three separate journals. The journal publishes original and unpublished articles and rapid communications, covering all areas of chemical sciences. Special issues, devoted to conference, symposia proceedings in frontier areas of the subject are being published often.

Journal of Earth System Science (JESS) was started publishing in the year 1934 as quarterly journal. Earlier it was called as Earth and Planetary Science and was renamed as Earth System Science in the year 2005 and now publishing eight issues per year. The journal is highly inter-disciplinary and publishes scholarly research articles in the subject areas. The scope of the journal is solid earth, atmosphere, hydrosphere and biosphere.

### Objectives

- To identify the number of contributors
- To identify the growth of articles published in these journals during 2010 – 2014
- To examine the pattern of authorship and collaboration coefficient
- To identify the most prolific authors and their work affiliation
- To examine the length of articles and number of references in an article.

### Literature Review

Ravichandran P and Vijayakumar P (2015) studied bibliometric analysis of food chemistry and found that there were a gradual increasing number of research articles published after the year 2009. The maximum number of papers 95 were published in 2013. About 305 (45.86%) of the articles published are in conference proceedings. Highest number of articles i.e. 117 (19.40%) have been contributed by four authors. The most productive Journal is Journal of Agricultural and Food Chemistry with 166 papers. The

country wise distributions of Food Chemistry literature shows among the 67 countries, United States (91, 15.09%) gives top priority for research when compared to other countries.

Sing K P and Bebi (2014) studied on the publication of Library Herald for 10 years period (2003 - 2012). They found that maximum numbers of articles (34) were published in the year 2003 and minimum articles (14) were published during 2005. They further said that almost half of the articles written by single authors and majority of the authors are male authors.

Maheswaran, Sathishkumar, and Sridharan (2009) conducted a study based on the research publications generated by Structural Engineering Research Centre, Chennai during the year 2002-2006. Sharma (2009) analysed a total of 2603 research articles published from the annual reports of CPRI and Journal of the Indian Potato Association by the scientists of Central Potato Research Institute, Shimla during 1991-2007. Girap et al. (2009) analysed the publications of Technical Physics and Prototype Engineering Division at Bhabha Atomic Research Centre, Mumbai. Benamer, Bredan, and Bakoush (2009) studied and analysed the publication record of Libyan medical schools in international journals indexed in PubMed between 1988 and 2007. Akakandelwa (2009) did an informetric analysis of 220 papers published by academic faculty at the University of Zambia from 2002 to June 2007.

### Analysis and Findings

**Table – 1**  
**No of Articles Published in JCS**

Year	Vol	Issue	Ar- ticles	Author				Pages	Ref
				Single au- thor	Dou- ble author	Treble au- thor	>Tre- ble author		
2010	122	6	96	6	13	35	41	926	2848
2011	123	6	103	3	32	18	49	941	3181
2012	124	6	156	6	45	44	61	1399	5192
2013	125	6	181	8	49	54	71	1634	5815
2014	126	6	166	9	39	57	93	1867	6575
Total	5	30	702	32	178	208	315	6767	23611

As per the above table there were 702 articles published during these five years. The year 2013 has witnessed for more number of articles (181) published and the lowest number of articles (96) were published during the year 2010. All these articles were published in 30 issues and five volumes and 32 single authors, 178 double authors, 208 three authors and 315 more than three authors have contributed for their articles. From the above table, we could understand there was a gradual growth in number of articles except in the year 2014. The table further reveals that 23.4 articles were published in each issue of the journal during this five years period.

**Table – 2**  
**No of Articles Published in JESS**

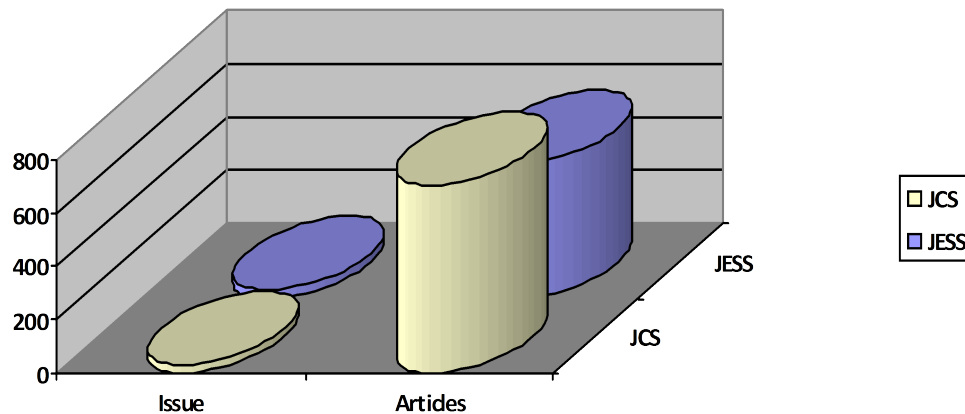
Year	Vol	Issue	Ar- ticles	Author				Pages	Ref
				Single au- thor	Dou- ble author	Treble au- thor	>Tre- ble author		
2010	119	6	66	7	21	14	24	815	2737
2011	120	6	88	1	15	16	56	1089	3030
2012	121	6	106	8	18	30	50	1459	3453
2013	122	6	121	6	24	29	65	1563	3824
2014	123	8	139	5	21	46	67	1813	4331
Total	5	32	520	27	99	135	262	6739	17375

The above table shows that 520 articles were published during this five years period. It is interesting to note that there were 100% increase in articles publications between the year 2010 and 2014, 66 articles were published in the year 2010 and 139 articles were published during 2014. The table further shows that there were five volumes published in issues, which have 520 articles during these periods. Single authors 27, double authors 99, three authors 135 and more than three authors 262 have contributed in these five volumes of publications. The entire articles were published in 6739 pages with reference of 17375. We could understand from the above table that 16.25 articles have been published in each issue of the journal during the period 2010 – 2014.

**Table - 3**  
**No of Issue Vs Articles**

Year	JCS			JESS		
	Issue	Articles	Growth rate	Issue	Articles	Growth rate
2010	6	96	16%	6	66	11%
2011	6	103	17%	6	88	15%
2012	6	156	26%	6	106	18%
2013	6	181	30%	6	121	20%
2014	6	166	28%	8	139	17%

The journal of chemical sciences has published 702 articles in 30 issues during the year 2010 – 2014, similarly, the journal of earth system sciences has published 520 articles in 32 issues during the same period. The growth rate of both the journals has been increased in each year, but the table clearly indicates that there was a decrease in article publication of both the journals during the year 2014. The year 2013, 181 articles were published, but it was gone down to 166 during 2014 in journal of chemical sciences. Same productivity can be found in the journal of earthy system sciences between the year 2013 and 2014. There were 3 % decrease in article publications between these two years.



**Table - 4**  
**Authorship Pattern**

JCS						JESS					
Vol No	Single author	Double author	Treble author	>Treble author	Total	Vol No	Single author	Double author	Treble author	>Treble author	Total
122	6	13	35	41	95	119	7	21	14	24	66
123	3	32	18	49	102	120	1	15	16	56	88
124	6	45	44	61	156	121	8	18	30	50	106
125	8	49	54	71	182	122	6	24	29	65	124
126	9	39	57	93	198	123	5	21	46	67	139
Total	32	178	208	315	733	Total	27	99	135	262	523

The above table indicates that two or more authors have collaborated more for article publications than the single author contribution in these two journals during the year 2010 – 2014. There were 701 articles have been published by this collaborative works in the journal of chemical sciences and 496 articles have been published by two or more authors in the journal of earth system and science during above said period. For the whole five years period, only 32 articles have been written by single authors in the journals of chemical sciences and 27 articles have been published by single authors at the journal of earth system and science.

The above table further says that there were 733 authors have contributed in journal of chemical sciences and 523 authors have contributed in journal of earth system sciences during these periods. In the year 2014, highest number authors (198 and 139) have contributed in both the journals and in the year 2010 were found to be the lowest number of contribution, 95 and 66 respectively. But it is interesting to note that the author's degree of collaborations has been gradually increased in each year in both the journals. Author's contribution has been increased from 95 to 198 in journal of chemical sciences and 66 to 139 in journal of earth system sciences.

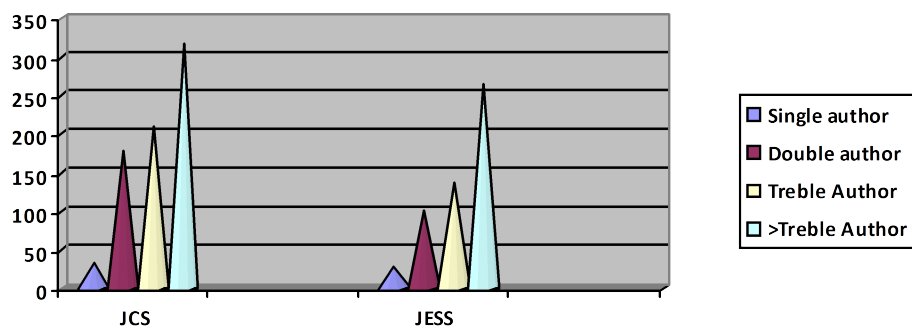


Table – 5

**No of Article Vs No of Author**

JCS			JESS	
Year	Articles	Authors	Articles	Authors
2010	96	95	66	66
2011	103	102	88	88
2012	156	156	106	106
2013	181	182	121	124
2014	166	198	139	139
Total	702	733	520	523

The above table reveals that there were 702 articles were written by 733 authors during the period 2010-2014 in the journal of chemical sciences. Likewise, there were 520 articles were written by 523 authors in the journal of earth system sciences during the mentioned period. In the year 2010, 95 authors have been contributed in the journal of chemical sciences and 66 authors have done so in the journal of earth system sciences. But in the year 2014, there were 100% increase, 198 authors have contributed in journal of chemical sciences and 139 authors in journal of earth system sciences. It is interesting to note that in the year 2012 number of articles and number of authors were same (156) in the journal of chemical sciences similarly in the year 2014 the number of articles and authors were same (139) in the journal of earth system sciences.

**Table - 6**  
**No of Pages per Volume**

JCS				JESS		
Year	Vol	Issue	Page	Vol	Issue	Page
2010	122	6	926	119	6	815
2011	123	6	941	120	6	1089
2012	124	6	1399	121	6	1459
2013	125	6	1634	122	6	1563
2014	126	6	1867	123	8	1813
Total	5	30	6767	5	32	6739

The table no 6 shows that all the articles were published in 6767 pages during these five years period at journal of chemical sciences and 6739 have been used to publish articles in journal of earth system sciences. The table clearly indicates that there was gradual increase in terms of pages from 926 to 1867 in the journal of chemical sciences, similar growth has been found in journal of earth system sciences, pages increased from 815 to 1813.

**Table - 7**  
**No of References per Volume**

JCS				JESS		
Year	Vol	Issue	Reference	Vol	Issue	Reference
2010	122	6	2848	119	6	2737
2011	123	6	3181	120	6	3030
2012	124	6	5192	121	6	3453
2013	125	6	5815	122	6	3824
2014	126	6	6575	123	8	4331
Total	5	30	23611	5	32	17375

The above table reveals that there were 23611 references have been referred by the authors in journal of chemical sciences and 17373 references have been referred in journal of earth system sciences during these five years period. The highest numbers of references were shown in the year 2014 as 6575 in journal of chemical sciences and the same year has been found the highest one, 4331 references have been referred in journal of earth system sciences.

### Conclusion

Journal of chemical sciences and journal of earth system sciences have good number of publications, 702 and 520 articles, respectively in the year 2010 – 2014. In both the journal, a good number of references (23611 and 17375) have been referred for article publications. Single author's contributions are very less compared to other type of authorship. It is a welcome sign that two or more persons working together for a common interest will felicitate more innovative ideas in their respective domain. There were 701 articles have been published by two or more authors in the journal of chemical sciences and 496 articles have been published by two or more authors in the journal of earth system and science during the period 2010-2014.

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