

SCIENTOMETRIC SCRUTINY BENEFACTION TO INDIAN JOURNAL OF BIOTECHNOLOGY (IJBT)

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ABSTRACT

The study investigates and examines the different scientometric segments of articles distributed on-line rendition of Web of Science in this field of biotechnology from 2002-2015. The different bibliometric parts of the 1050 examined records distributed in the study period were contemplated. This study covers the different parts of biotechnology examination. For example, year astute appropriation, bibliographical shrewd, exceptional issues of articles, page savvy, watchwords of articles, land insightful, most productive writers and so forth. The most astounding number of articles was distributed in the year of 2006, while the least quantities of examination articles were accounted for in the year 2002.

Keywords: Scientometrics, Bibliometrics, Indian Journal of Biotechnology (IJBT), NISCAIR, Author Productivity, Web of Science, Citations pattern.

1. INTRODUCTION

Scientometrics may be a discipline that analyses scientific publications to explore the structure and growth of science. The bibliometrics / scientometrics / informetrics techniques do not analyze quantitative or qualitative aspects of a publication. It's a scientific field that studies the evolution of science through some quantitative measures of scientific data, because the range of scientific articles over printed during a given amount of time, their citation impact, etc. The history of science and technologies, philosophy of science and social science of knowledge base are the connected fields of Scientometrics. The term scientometrics is usually used with the means because bibliometrics, originated in Russia. The appliance of quantitative ways to the history of science, Scientometrics is that the science of measure the science, involves enumeration of artifacts to the assembly & use of knowledge and incoming conclusions from the counts. Scientometric analysis is dedicated to quantitative studies of science and technology in step with A.F.J. Van Raan. Scientometrics applied the bibliometrics technique to science and examines the event of the sciences. Main area of Scientometrics is individual scientific documents, authors, scientific establishment's educational journals and regional aspects of science. In this paper, an endeavor has been made to investigate the contribution to Indian Journal of Biotechnology printed through the year 2002–2015, so as to explore the author pattern, co-operatively analyzed. This study covers 1050 articles of fifty five problems printed.

2. SOURCE

Indian Journal of Biotechnology, started as a quarterly journal in 2002, published full papers, short communication, reviews, agricultural, animal, environmental, industrial, medical, microbial biotechnology, bioinformatics, socio-legal and ethical aspects of biotechnology. The latest developments of biotech-industry are covered under Notes and News.

3. REVIEW OF RELATED RESEARCH

Kumar (et.al), (2013) in his paper investigated the development and improvement of Bibliometric and Scientometric research in material science and building field according to Inspectbase during 1999-2008. It was found that the legal science research multiplied somewhere around 2001 and 2011. Around the same time, Jeyasekar and Saravanan did a scientometric investigation of the Indian legal science Pattern towards Multi-Wrote Papers. Jeyasekar and Saravanan (2012) led a scientometric investigation of legal science to break down the growth in exploration, origin profitability, the high positioning establishment and country research for the period 2004 to 2011 utilizing the Indian Reference File (ICI) database. The study uncovered that the scientific science distributions are found in the center diaries as well as discovered scattered among diaries of unified fields. The All India Establishment of Medicinal Science (AIIMS) is the top contributor of Indian legal science research. Nandi, Amitava, Bandyopadhyay and Kumar (2013) Bibliometric Examination for 160 postulations and 739 proposal articles gathered from the Organic Science division at the College of Burdwan in eight subdivisions of plant science between 1960-2000 has been done to decide year shrewd profitability, creation example and coordinated effort. Kalaiappan, Kaliyaperumal and Rajasekar (2010), made a study of Bibliometric examination of momentous commitments of Prof. G.N. Ramachandran a famous Biophysicist and Crystallographer. It is important to survey the commitments made by famous Indian researchers in order to comprehend the nature and extent of their commitments to a specific field of study. The paper looks at the commitments of GNR in this field of biophysics and crystallography, greatness of his joint efforts, and year-wise dissemination of his productivity. Nattar.S (2009), Scientometric examination of 829 Articles distributed in the Indian Diary of Material science during the year 2004-2008 are taken up to watch the conveyance of commitments, creation design, land dispersion of commitments and the quantity of pages utilized as a part of every volume. Results demonstrate that most noteworthy quantities of papers have been composed by co-creators. The development and ubiquity of this diary is found to demonstrate an upward pattern.

4. OBJECTIVES

- To determine the year wise chronological growth of articles
- To examine the authorship pattern of the contribution
- To identify the bibliographical distribution of output
- To study the length of pages
- To discover the special issues of the articles and the main areas of research
- To identify the average keywords per article
- To find out the most prolific contributors authors among
- To identify the geographic distribution of output

5. METHODOLOGY

Bibliometric analysis of fourteen volumes (from Volume No. 1 to 14) from the year 2002 to 2015 covering forty issues containing 1050 contributions was performed. All the bibliographic detail are noted and recorded in tabulated form for the purpose of in-depth analysis. Based on the analyzed data, findings have been presented.

6. SCOPE AND LIMITATIONS

The present study is confined to the data collected from forty (55) issues of the ten (14) volumes of the IJBT journal from the year 2002 to 2015, while the journal is continuously being published since the year 2002. Therefore, the results may vary if the studies of different blocks of the year publications of journal are performed. The present study may not be fully representative in all the result but it gives a trend about its publication.

7. RESULTS AND DISCUSSION

7.1 Year wise chronological growth of articles

Table1 depicts the year wise publication statistics of Indian Journal of Biotechnology (IJBT). Within this specified period of 2002-2015, a total number of 55 issues including 1050 articles have been published. Out of these 1050 articles 179 articles were published as special issues. The highest numbers of 91 articles were published in the year 2006 at a rate of 8.67%. The lowest number of articles was published in the year 2002 having 50 articles at a rate of 4.76%. On the other hand, in the row of issues, third issue in 2006 has highest number of articles 28 to its credit individually. While the average number of publications per year is 19 articles and per issue is 23 articles.

Table 1. Year wise chronological growth of articles

Year	Issue	No of Papers in each Issue				Total papers published	percentage
		1	2	3	4		
2002	4	12	12	12	14	50	4.76
2003	4	12	17	17	23	69	6.57
2004	4	23	20	22	23	88	8.38
2005	4	22	21	21	22	86	8.19
2006	4	21	22	28	20	91	8.67
2007	4	21	22	22	22	87	8.29
2008	4	21	21	21	22	85	8.09
2009	4	18	16	16	17	67	6.38
2010	4	16	16	16	16	64	6.09
2011	4	21	16	16	15	68	6.48
2012	4	17	19	21	20	77	7.33
2013	4	18	23	20	18	79	7.52
2014	4	20	19	20	20	79	7.52
2015	3	20	20	20	0	60	5.71
Total	55	262	264	272	252	1050	100.00

7.2 Authorship Pattern

Authors have identified six kinds of authorship pattern by analyzing the contributed articles to study the authorship pattern of the articles in the journal. The numbers of articles contributed by each category of authors have been depicted in the table2. To

make a clear understanding of authorship pattern a maximum no of 264 articles have published by dual authors followed by 256 articles by three authors. The four author contribution is 227 articles while single authors' contribution is 81.

Table2. Authorship Pattern

No of authors	Years														Total papers published	percentage
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
1	4	10	1	5	4	4	3	3	7	6	7	10	10	7	81	7.71
2	13	14	31	31	31	20	27	11	14	9	16	14	19	14	264	25.14
3	12	21	23	19	25	23	22	21	10	16	20	14	20	10	256	24.38
4	11	15	17	18	16	21	15	17	18	18	16	15	16	14	227	21.62
5	5	6	9	8	6	10	8	8	12	13	9	8	8	12	122	11.62
Above 6	5	3	7	5	9	9	10	7	3	6	9	18	6	3	100	9.52
Total	50	69	88	86	91	87	85	67	64	68	77	79	79	60	1050	100%

7.3 Bibliographical wise research publication contributions

From table3 it is clear that research papers are dominating by the researchers in type of publication during the last 14 years contributing 76.09% of total publications. From this it is clear that the Journal publishes the real research work. The review is second most preferred way for contributors in this journal. Book review and report are least preferred either because contributors are not much interested in such types of contribution or the Journal policy is not to entertain much with reference to such contributions.

Table 3. Bibliographical wise research publication contributions

Year of contribution	Bibliographical wise							Total
	Review	Research Papers	Short Communication	News scan	View point	Report	Book review	
2002	4	35	8	3	0	0	0	50
2003	14	46	5	4	0	0	0	69
2004	9	70	9	0	0	0	0	88
2005	10	63	13	0	0	0	0	86

2006	10	68	13	0	0	0	0	91
2007	7	61	19	0	0	0	0	87
2008	8	66	11	0	0	0	0	85
2009	8	53	6	0	0	0	0	67
2010	3	50	11	0	0	0	0	64
2011	1	58	9	0	0	0	0	68
2012	4	55	14	1	2	1	0	77
2013	3	60	15	0	1	0	0	79
2014	2	65	11	0	0	0	1	79
2015	3	49	7	0	0	0	1	60
Total no of papers	86	799	151	8	3	1	2	1050
% of total	8.19	76.09	14.38	0.76	0.28	0.09	0.19	100%

7.4 Length of Page citations

Table 4 determines the year wise and volume wise distribution of pages. In the year 2003 and in volume02 there are 618 (8.42%) pages and it is the highest of all the years. In the year 2004 and in volume 03 there are 609 (8.28%) second in all the years. From this it is clear that the pages are increasing in some years and at the same time it also decreases in some years.

Table 4.Length of Page citations

Year/Volume	Total No. of Article	No. of Citations	Percentage
2002/01	50	405	5.51
2003/02	69	618	8.42
2004/03	88	609	8.28
2005/04	86	568	7.73
2006/05	91	569	7.75
2007/06	87	571	7.78
2008/07	85	559	7.61
2009/08	67	459	6.25
2010/09	64	439	5.98
2011/10	68	508	6.92
2012/11	77	503	6.85
2013/12	79	549	7.48
2014/13	79	554	7.54
2015/14	60	432	5.88
Total	1050	7343	100

7.5 Special Issues of article

From the table 5 it is clear that except 2015, every year a special issue had been published since 2002-15. The four special issues have been published in 2003,2004,2005,2006 and 2007 with 26 and 18 articles each respectively. The special issues contributed 23.46% of the total publication which is approximately one fourth of the publications and thus it could be said that these special issues are vital part of the journal. It is also clear from the table that special issue 3has contributed the highest number of articles during 2002-15.

Table 5. Special Issues of article

Year	No of Papers with special Issue				Total papers published
	1	2	3	4	
2002	7	1	5	2	15
2003	8	4	11	3	26
2004	3	8	3	4	18
2005	5	3	4	6	18
2006	2	3	8	5	18
2007	2	6	2	8	18
2008	4	4	4	5	17
2009	5	4	2	3	14
2010	4	3	3	2	12
2011	3	1	1	1	6
2012	1	1	0	0	2
2013	1	1	5	5	12
2014	2	1	0	0	3
2015	0	0	0	0	0
Total	47	40	48	44	179

7.6 Average Keywords per Article

Table 6 reveals that 4851 keywords have been appended to 1050 papers. It is observed that the average keyword of the paper varied from a minimum of 4.24 to a maximum of 5.05 during the year 2002–2015. The year 2008 has the highest average keywords per paper with 5.05 keywords per paper while the year 2006 has the lowest average keywords per paper with 4.24. The overall average keywords per article are 4.62.

Table 6. Average Keywords per Article

Year/ Volume	No. of Articles	Total key words	Average keywords per paper
2002/01	50	239	4.78
2003/02	69	320	4.64

2004/03	88	419	4.76
2005/04	86	393	4.57
2006/05	91	386	4.24
2007/06	87	400	4.60
2008/07	85	429	5.05
2009/08	67	308	4.60
2010/09	64	286	4.47
2011/10	68	330	4.85
2012/11	77	339	4.40
2013/12	79	354	4.48
2014/13	79	370	4.68
2015/14	60	278	4.63
Total	1050	4851	4.62

7.7 prolific Contributor

Table 7 shows the most prolific contributor. On the whole, a total of 3710 authors contributed 1050 articles over a period of 14 years from 2002 to 2015. The most prolific authors were Sharma Subhasini who contributed 13 articles and MandalAsit.B occupied the second place by publishing 12 articles. Purohit.S.D and Sharma Minakshi contributed 10 articles each, followed by Singh Prabhjeet and Singh.S.V who contributed 9 articles each. Suryanarayana contributed 8 articles. Gupta Praveen.K and Sharma Rakesh contributed 7 articles each. Six authors contributed 21 articles. Five authors contributed 24 articles each, 44 authors contributed 4 articles each, 95 authors contributed three articles each, 297 authors contributed 2 articles each, and 2324 authors contributed one article each.

Table 7. Ranked List of Most prolific Contributor

S.No.	Author	No.of contribution
1.	Sharma Subhasini	13
2.	Mandal Asit.B	12
3.	Purohit.S.D	10
4.	Sharma Minakshi	10
5.	Singh Prabhjeet	9
6.	Singh.S.V	9
7.	Suryanarayana	8
8.	Gupta Praveen.K	7
9.	Sharma Rakesh	7
10.	21 authors	6
11.	24 authors	5
12.	44 authors	4

13.	95 authors	3
14.	297 authors	2
15.	2324 authors	1

7.8 Geographical Distribution of Contributors at International Level

Table 8 shows that 26.15% contributions come from India; 10.08 % of the contributions came from USA; 6.93% of the contribution came from UK; 6.17% contribution came from Germany; 2.51% contribution came from Japan; countries with lowest (0.03%) contribution from Bolivia. A significant observation of the study shows that India dominates the number of contributors at the international level.

Table 8. Geographical Distribution of Contributors at International Level

Rank no	Name of the country	No. of contribution	Percentage
1	India	970	26.15
2	USA	374	10.08
3	UK	257	6.93
4	Germany	229	6.17
5	Japan	93	2.51
6	South Africa	92	2.48
7	China	87	2.34
8	Canada	82	2.21
9	Netherland	63	1.70
10	England	60	1.62
11	Africa	57	1.54
12	France	49	1.32
13	Pakistan	44	1.16
14	Philippines	37	0.99
15	Italy	35	0.94
16	Brazil	34	0.92
17	Malaysia	32	0.86
18	Spain	29	0.78
19	Singapore	28	0.75
20	Switzerland	27	0.73
21	Taiwan	24	0.65
22	Srilanka	21	0.57
23	Mexico	21	0.57
24	Korea	20	0.54
25	Argentina	19	0.51

26	Israel	18	0.49
27	Turkey	18	0.49
28	Sweden	17	0.46
39	Iran	17	0.46
30	Bangladesh	17	0.46
31	Greece	16	0.43
32	Scotland	15	0.40
33	Jordan	14	0.38
34	Australia	14	0.38
35	Manila	13	0.35
36	Indonesia	13	0.35
37	Denmark	13	0.35
38	Nepal	13	0.35
39	Poland	12	0.32
40	Belgium	12	0.32
41	Slovenia	11	0.31
42	Geneva	11	0.31
43	Norway	11	0.31
44	Saudi Arabia	6	0.16
45	Portugal	5	0.14
46	Chile	5	0.14
47	Finland	5	0.14
48	Wales	4	0.11
49	Kuwait	4	0.11
50	Peru	4	0.11
51	Kenya	4	0.11
52	Cuba	3	0.08
53	Jamaica	3	0.08
54	Syria	3	0.08
55	Cambodia	1	0.03
56	Zimbabwe	1	0.03
57	Bolivia	1	0.03
Total		3710	100%

8. CONCLUSION

The discoveries of the study demonstrated that Scientometric study is a solid and viable technique to give sensibly exact data on the utilization of Biotechnology examination by any analyst. Distributed examination in top notch Journals is a basic piece of scholastic life. The Scientometric investigation of the Journal "IJBT" between 2002-2015 shows pattern of development in

commitments and normal number of commitments with more correlation with different Journals. Every one of the studies point towards the benefits and shortcoming of the journal which will be useful for its further advancement. This study enhances exploratory documentation, data and correspondence exercises by quantitative investigation of library gathering and administrations. It can likewise serve as a criticism to curators in the choice and obtaining of reports most helpful to specialists in Biotechnology. Today we reason that in the present situation exploration is done in all the branches of information, particularly in Science and Innovation.

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