

A Bibliometric Analysis of Research Productivity of Forest Research Institute, Dehradun During 2010-2014

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ABSTRACT

Present bibliometric study based on scopus database and annual reports of Forest research Institute Dehradun. It is revealed that the institute published 808 research papers during 2010 to 2014. The main objective of the study were to find out the chronological research productivity. Most productive journal, Relative growth rate, Most cited journal etc. the study clears that multi authored research publications is more than single author. Majority of articles (581) published in national journals and 227 articles published in International journals. Highest productive year is 2011; Maximum value of collaboration Index is 3.474 in 2012 which means that the number of authors is more in collaboration.

Keyword: Articles, Collaboration, Institute, Journal

CONCEPT OF BIBLIOMETRIC

Bibliometric Concept- Bibliometric is not a new term in Library and Information Science. The bibliometric history began in 1917 when F.J. Cole and N.B. Eates introduced the first recorded study on bibliometric in science progress. Their study called statistics. In this way the second step taken by E.W. Hulme and presented the term "Statistical bibliography in 1923. Gross and Gross coined the term "citation data " in 1927 but the credit for giving birth to the word 'Bibliometrics' goes to Alan Pritchard in 1969.

Some similar term of bibliometric have evolved, which are prevalent in different fields or subjects with different names like- Librametric (Term coined by Dr. S.R. Ranganathan. In 1948 at Leamington spa. Aslib conference), Scientometric- This term first introduced

in eastern Europe in 1960s, Informetric-this word suggested by Blacked ands. Z. Zyget but first proposed by the Otto Nacke of Germany Scientist in 1979 and Webometric/Cybermetric- the webometric or cybermetric term first introduced in 1948 by Nobert Wiener in his book.

FOREST RESEARCH INSTITUTE DEHRADUN

The present bibliometric study concerns itself with Forest Research Institute; Dehradun established in 1906 for the purpose of organizing and leading forest research activities in the country but after independence was named as Forest Research Institute and in 1988 was included in administrative umbrella of Indian Council of forest research and education under

Ministry of Environment and forest (Government of India). The institute is responsible for forestry research for the states of Uttarakhand, Uttar Pradesh, Haryana, Punjab, Chandigarh and Delhi in North India.

LITERATURE REVIEW

Lakshmi (2013) presented a bibliometric study of Bharathidasan University during 1996 to 2010. The 15 year result reveals that Bradford Law was not fit in this study. Total 753 Ph.D. Awards, 219 Books, 3083 articles and 25 e-journals has been credited in studied University account. Lee Ze Hang (2015) presented bibliometric study of record management journal during 1989 to 2013. It is found from the that majority of citing authors were female and 188 institutions collaborated under study. Bohra Rama (2015) this conference paper presents an overview of Thesis on Kumaun Himalaya submitted in central Library, Kumaun University Nainital. The result reveals that male researchers were most productivity; the preferred language of thesis was Hindi, Maximum (16.47%) Thesis in Botany subject in the topic Kumaun Himalaya. Neelamma (2016) the Author highlights the research collaboration and authorship pattern in this bibliometric study. It was found total 1188 articles published during study period and maximum (61.79%) articles published as multi authored. Bamigboye (2018) his study deals with impact of e-resources on research and other activities of Nigerian Universities Academic staff. The result shows maximum respondents accessed Ebscohost and Agora on daily basis. All respondents agreed that they used e-resources for research. Kumar Suchetan (2018) it was a scientometrics study of Zoology subject of Kumaun University Nainital. The major findings of the study were, Limnology was most favorite topic for research purpose. B.R. Kausal was most productive guide and journal of Environmental Zoology was most cited journal under study. Bohra Rama (2019) it's a bibliometric profile of Dr. N.S.K. Harsh's (Scientist FRI, Dehradun) contribution. The major results were

found that Dr. Harsh contributed total 297 papers, 138 publications published as first author and preferred journal to published articles was Indian Forester.

Scope

Present study "A Bibliometric analysis of research productivity of Forest Research Institute, Dehradun", limited to Forest Research Institute Dehradun during 2010-2014.

OBJECTIVES

1. To find out the chronological research productivity of the studied Institute.
2. Most productive journal under study.
3. To Know the year wise Relative growth rate
4. Most cited journal during the study period.
5. Find out the Collaboration Index of authors.
6. Find out the Collaboration Co-efficient Among Authors.
7. Year Wise Distribution of Degree of Collaboration.
8. To Find out No. of Articles in National & International Journal.

METHODOLOGY

The data was collected from SCOPUS database and other print materials published from Forest Research Institute Dehradun. The collected analyzed through excel. To know the degree of collaboration Subramanyam suggested formulas used in this study in Table 1 and 2.

DATA ANALYSIS AND FINDINGS

Table 1 shows a total of 808 articles published during the study period. Highest productive year is 2011, total 175 research publications published in this year followed

Table 1: Chronological research productivity of the studied Institute

Year	No. of articles Published	Percentage
2010	144	17.82
2011	175	21.65
2012	156	19.30
2013	160	19.80
2014	173	21.41
Total	808	

by year 2014 (173 articles), year 2013 (160 articles), 156 articles in the year 2012 and year 2010 is in last position in the queue.

Table 2 shows that the Journal of Forestry Research is the most productive journal in the list of journals with 32 articles and holds 1 rank. Current Science is in second position with 22 published articles followed by International Journal of Bio-Science and Bio-Technology is in third position with 13 articles, Carbohydrate Polymers is in 4th place with 11 articles, Journal of the Indian Academy of Wood Science is in 5th position with 9 articles, Annals of Forest Research received 6th position with 8 articles, Tropical Ecology got 7th position with 7 articles and Ecology, Environment

Table 2: Top 10 most productive Journals under Study

S.No.	Name of the Journal	No. of Publication	Rank
1	Journal of Forestry Research	32	1
2	Current Science	22	2
3	International Journal of Bio-Science and Bio-Technology	13	3
4	Carbohydrate Polymers	11	4
5	Journal of the Indian Academy of Wood Science	9	5
6	Annals of Forest Research	8	6
7	Tropical Ecology	7	7
8	Ecology, Environment and Conservation	6	8
9	International Journal of Pharma and Bio Sciences	6	8
10	Silvae Genetica	6	8

and Conservation, International Journal of Pharma and Bio Sciences Silvae Genetica journals are in same rank with 6 articles each in Table 3.

Table 3: Year wise Relative Growth Rate

Year	No. of Publications	Percentage	Value of RGR
2010	144	17.82	0.08478
2011	175	21.65	0.08476
2012	156	19.30	0.06373
2013	160	19.80	0.05690
2014	173	21.41	0.05414
Total	808		

It is reveals from the study that relative growth rate is 0.08478 in the year 2010, 0.08476 in the year 2011, 0.06373 is in the year 2012, in the year 2013 the RGR value is 0.05690 and 0.05414 is in the year 2014. Study shows that the relative growth rate has decreased from 0.05414 at the year 2010 to 0.0541 at the year 2014 in a period of five year in Table 4.

Table 4: Most Cited Journal

Year	Journal	Citations	Rank
2010	Nature Genetics	1842	2
2011	Nature	1247	3
2012	The Lancet	6959	1
2013	Nature Geosciences	556	4
2014	Nature Genetics	513	5
	Total	11117	

Above Table 4 shows that Nature Genetics has 1842 citations in 2010. Nature has 1247 citations in 2011. The Lancet has 6959 citations in 2012. Nature Geosciences has 556 citations in 2013. Nature Genetics has 513 citations in 2014.

It is found that The Lancet journal have highest citations and received 1st rank followed by Nature Genetics with 1842 citation, Nature got 1247 citations, Nature of Geosciences hold 4th rank with 556 citations and again Nature Genetics got 513 citations in 2014 & hold 5 rank.

Table 5: Collaboration Index of Authors

Year	No. of Multi Author Papers	Total No. of Authors	Collaboration Index
2010	126	392	3.111
2011	155	501	3.232
2012	137	476	3.474
2013	140	464	3.314
2014	156	522	3.346
Total	714	2355	

The above Table 5 shows the collaboration Index value of FRI scientist's research articles. Maximum value of collaboration Index is 3.474 in 2012 which means that the number of authors is more in collaboration. Minimum value of collaboration Index is 3.111 in 2010 which means that more research papers are published by multiple authors than single authors.

It is found from the study in Table 6 that minimum collaboration co-efficient is 0.56 in the year 2010, and maximum collaboration co-efficient is 0.60 in 2014. In 2011 and 2013 co-efficient was 0.57. In the year the collaboration co-efficient is 0.58. It clears that the

research publications are increasing year per year. The year wise degree of collaboration in Table 7 shows that in the year 2010, 2012 and 2013 the degree of collaboration was 0.88 and 0.89 in the year 2011. The study reveals that minimum degree of collaboration (0.88) was in the year 2010, 2012, 2013 and maximum degree of collaboration (0.90) was in the year 2014. It indicates that the maximum articles in 2014 are multiple authored.

It is reveals that in Table 8 the year 2010 total 89 research papers published in national journals and highest research papers published in the year 2011 total 143 articles published in this year followed by year 2014 with 120 articles, year 2013 with 115 articles and 114 articles in the year 2012. International level publications shows that in the year 2010, total 55 articles published followed by year 2014 with 53 articles, year 2013 with 45 articles, year 2012 with 42 research papers and year 2011 with 32 articles.

It is found from the study that majority of articles (581) published in national journals and 227 articles published

Table 6: Collaboration Co-efficient Among Authors

	1 Author	2 Author	3 Author	4 Author	5 Author	6 Author	7 Author	8 Author	More than 8	Total	Collaboration Co-efficient
2010	18	46	41	30	3	3	1	1	1	144	0.56
2011	20	55	45	27	23	4	0	0	1	175	0.57
2012	19	42	39	28	17	5	2	2	2	156	0.58
2013	20	49	44	25	10	6	3	0	3	160	0.57
2014	17	40	55	40	15	3	1	1	1	173	0.60
Total	94	232	224	150	60	21	7	4	8	808	

Table 7: Year Wise Distribution of Degree of Collaboration

Year	Single Author	Multiple Author	Total	Degree of Collaboration
2010	18(12.50%)	126(87.50%)	144	0.88
2011	20(11.43%)	155(88.57%)	175	0.89
2012	19(12.18%)	137(87.82%)	156	0.88
2013	20(12.50%)	140(87.50%)	160	0.88
2014	17(9.83%)	156(90.17%)	173	0.90
Total	187(12.67%)	1289(87.33%)	1476	0.87

Table 8: Number of Article in National & International Journal

Year	National	International	Total
2010	89(61.81 %)	55(38.19 %)	144
2011	143(81.71%)	32(18.29 %)	175
2012	114(73.08 %)	42(26.92%)	156
2013	115(71.88 %)	45(28.12%)	160
2014	120(69.36 %)	53 (30.64 %)	173
Total	581	227	808

in International journal. FRI scientists published more articles in national level journals than the international level journals in a span of five years.

CONCLUSION

Bibliometrics have been used as a tool for qualifying and quantifying the types of books, articles and other kinds of publications. For the purpose of analysis, Bibliometrics uses scientific communications between scholars with the help of journals, articles, monographs, blogs, and tweets. Various bibliographic and citation data have been collected through questionnaires, databases, journal indices, library catalogs and information systems, institutional information systems, This study concludes that Research publications are increasing year per year which is a sign of good future of research work in India.

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