

RESEARCH PUBLICATION TRENDS ON PH.D THESES OF BOTANY DEPARTMENT, ANNAMALAI UNIVERSITY: A CITATION STUDY.

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Abstract:-

This paper is discussed about the submitted research theses in the Dept of Botany in Annamalai University, during the period of 2007-2016, the duration of 10 years. This research attempts to analyze the research out of 74 theses submitted in Botany for a period of 10 years. This study applied bibliometric techniques, such as authorship pattern, Degree of collaboration, Relative growth rate, country wise distribution, totally 10,619 citations are teaching to consider for this study.

Key words:-*Citation, Document type, Botany, degree of collaboration, authorship pattern, Relative growth rate etc.*

INTRODUCTION

In the field of library and information science research is developing through bibliometric analysis during the past few years. It is interesting to note the bibliometric analysis of science. The important aspects of science progress is that the scientific literature grows in quality and complexity. It creates an imbalance between individual's capacity to comprehend and the rate of information explosion. It is more helpful to research activities on various science disciplines.

Bibliometrics

Bibliometrics, a new branch of information science was originated in 1960's the term bibliometrics is equivalent to Ranganathan concept of "Librametrics" where mathematical And statistical calculus are systematically applied to study and solve the problems in Library Science.

Areas of Bibliometrics

The major areas of concern of bibliometrics studies have been

1. The potential application of bibliometrics techniques in libraries or other information system and
2. The development and refinement of Mathematical descriptions of bibliometrics phenomena.

Since the origin of bibliometrics, information scientists employed a number of techniques to quantify the characteristics of features of literature. The following are some of the important fields of bibliometrics.

- a. Citation analysis
- b. Bibliometric laws
- c. Citation indexing

The above areas of citation analysis is widely, applied in field of library and information science.

Citations

Citation analysis is the most popular techniques used in bibliometrics. The citation help the librarians to know the study habits of the scholars whereby they could offer better services and make a more meaningful acquisition programme for the library.

Each and every published and unpublished documents consists number of references to earlier literature. Again each reference belongs to one or other forms of literature, such as journals, Books, Conference proceeding, Seminar paper, Theses etc. The journal can be measured in term of the extent to which it is used by others, ie the number of times it is cited.

Review of literature

Deo (1991) made a citation study at Marthwade university journal during the period 1975-1984. The result spells out the information use pattern of the scholars in the field of zoology.

Nasir et al. (2009) analyzed agricultural literature was published in Malaysia between 1981-1990. The analysis shed light on the key journals that published agricultural literature: on the forms of publications. They are restored in the communication of research results. On the subject areas they are well written on those that have been neglected.

Pathi (2012) analyzes 3174 papers published in journals in the field at laser science and technology. It is indicated that only 401 papers were single authored and the rest 2773 were coauthored papers. Of the 2773 papers, only 68.7 were written in local domestic journal and others in international collaboration.

Vijayakumar,P (2016) made a study to determine the obsolescence factors, and patterns of periodical literature of plant and cell physiology, by the way of citation study. From, this study the average half-life literature was found to be 6.2 years.

Objectives

In order to peruse this study, the following objectives are framed, in according with the scope of this investigation:

- To find out the different year wise distribution theses.
- To find out the form wise distribution of the document.
- To analyze the subject of the cited journals.
- To find out the country wise distribution of document.
- To determine the half-life of the literature using the calculated age data.
- To find out the authorship pattern of cited documents.

Hypothesis

The following hypotheses have been formulated with a view to test, the above framed objectives.

- ❖ There is a considerable level of variations in using various document citations in Ph.D., theses of Botany
- ❖ There is a considerable level of inter country variations in cited documents of Botany researchers.
- ❖ There is a considerable level of subject wise variations in cited documents of Botany researchers.
- ❖ The validity of Botany scientist's paper declines progressively year after year in terms of half-life measure.

Methodology

The study is based on the citations given at the end of each Ph.D thesis of Botany in Annamalai University, during the period of 2007-2016. The bilometric details of the sources of theses and cited documents were recorded on catalogue cards. Then it was counted author wise, country wise and so on. The counted data is used for tabulation and graphical

presentations. Analyzed data is presented in the forms of table and illustrations. Since this study is primarily statistical study, tabulated data focused much about the information usage pattern.

Statistical tools

In order to analyze the data, the researcher has adopted simple statistics and also Bradford's law of scattering of journals. In order to identify the degree of collaboration the investigator has adopted K. Subramanyam's formula.

The formula is

$$C = N_m / (N_m + N_s)$$

Where,

C = degree of collaboration in a discipline

N_m = number of multiple authored papers

N_s = number of single authored papers.

Limitation of the study

The present study cover only 10 years from 2007-2016 due to latest-availability of Ph.D. theses of Botany department.

Analysis and Interpretation

Table-1 Year wise distribution of theses

S.No	Year	No. of Theses	percentage	Cumulative percentage
1	2007	5	6.76	6.76
2	2008	7	9.46	16.22
3	2009	8	10.81	27.03
4	2010	3	4.05	31.08
5	2011	8	10.81	41.89
6	2012	8	10.81	52.70
7	2013	13	17.57	70.27
8	2014	6	8.11	78.38
9	2015	9	12.16	90.54
10	2016	7	9.46	100.00

Table 1 shows that the year wise distribution of Ph.D theses submitted by the scholars of Botany Department in Annamalai University. There were 13 (17.57%) Ph.D. theses submitted in the year 2013. In the year 2015 there are 9(12.16%) Theses submitted, Eight theses were submitted (10.81%) each in the years 2009, 2011 and 2012. Seven theses were submitted (9.46) each in the year 2008, 2016. In the year 2007 and 2014 there were five, and six theses submitted. In the year 2010 only 3 theses were submitted.

It could be seen clearly from the above discussion a maximum number of 13 (17.57%) theses were submitted in the year 2013.

Fig: 1 Year wise distribution of theses

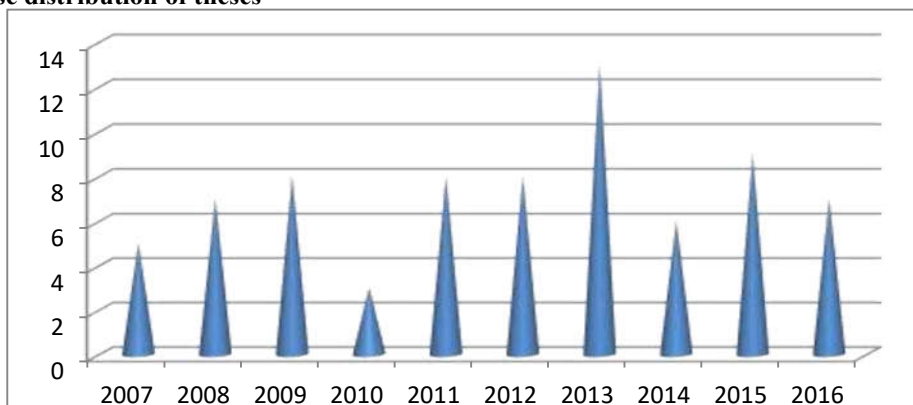


Table-2 Authorship pattern of citation

Authorship pattern	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Single	371	233	308	277	524	320	625	325	327	266	3576 (33.68%)
Two	329	456	403	184	492	439	625	307	468	379	4109 (38.69%)
Three	134	215	173	44	152	198	271	126	214	194	1721 (16.21%)
Four	47	78	70	25	77	94	112	79	111	89	782 (7.36%)
Five & above	28	37	33	18	37	52	46	52	73	55	431 (4.05%)
Total	909	1019	987	548	1,282	1,103	1,706	889	1,193	983	10,619 (100%)

Table 2 reveals that the authorship pattern of total citations. Among the 10,619 citations, two authors citations occupy the first rank 4109 (38.69%) whereas single author citations obtains second rank 3576 (33.68%), the three authors citation occupies third rank 1721 (16.21%), the four authors citations and five and above authors citations occupies, fourth and fifth ranks respectively. The year wise analysis indicated that two author's citations record a predominant in all the years of citations.

Table-3 Form wise distribution of citations

S.No	Rank	Sources of citation	No. of citations	Percentages	Cumulative percentage
1	1	Journals	8118	76.45	76.45
2	2	Books	1116	10.51	86.96
3	3	Conference proceedings	937	8.82	95.78
4	4	Theses	304	2.86	98.64
5	5	Reports	99	0.93	99.57
6	6	Seminar	45	0.43	100.00
		Total	10,619	100.00	

Table 3 shows that the form-wise distribution of citation. Among the total number of 10,619 citations, journals received only 1,116 (10.51%) citations (76.45%) whereas the books received only 1,116 (10.51%) citations. The remaining forms of conference proceedings, theses, report, and seminars, received 937(8.82%), 304(2.86%), 99(0.93%), 45(0.43%) citations respectively.

The reason behind it journals are consisting current information when compared with other form. Naturally the researchers always preferred journals only for their research work.

Fig: 2 Form wise distribution of citations

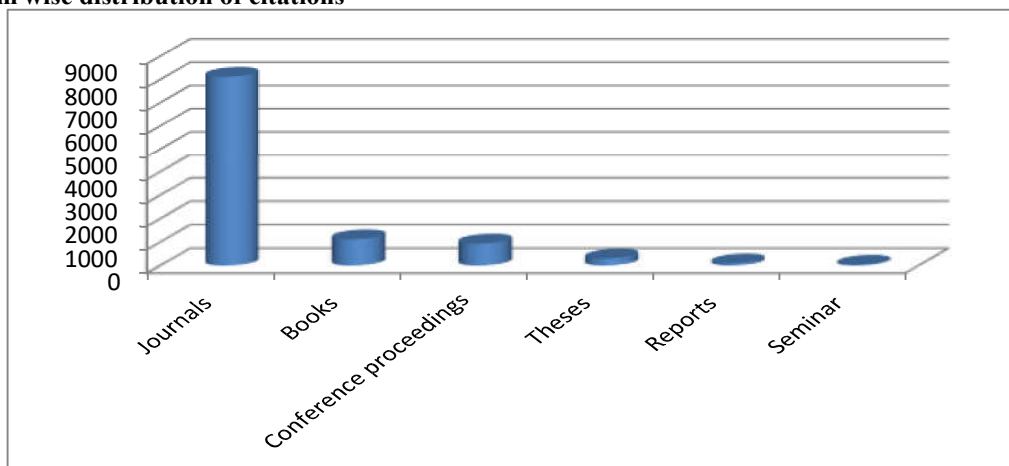


Table-4 Country wise distribution of cited journals

S.No	Country wise publication	No. of journals	% of journals	No. of citations	% of citations
1	U.S.A	202	18.83	2982	36.73
2	U.K	158	14.73	2262	27.86
3	India	86	8.01	1690	20.81
4	Australia	52	4.85	307	3.78
5	Netherland	25	2.33	260	3.21
6	Germany	19	1.78	69	0.85
7	Canada	14	1.30	19	0.23
8	Poland	8	0.75	15	0.18
9	Pakistan	5	0.47	10	0.12
10	Rest Journals	504	46.97	504	6.21
	Total	1073	100.00	8118	100.00

Table 5 reveals that the country wise distribution of cited journals. Among the total number 1073 journals, USA journals occupies first rank (18.83%). UK journals occupies second rank (14.73%). Indian journals occupies third rank (8.01%). After India, the other countries whose journals were most referred were Australia (4.85%), Netherland (2.33%), Germany (1.78%), Canada (1.30%), Poland (0.75%), and Pakistan (0.47%). The rest of journals covered with several countries and contributed (46.97%) journals.

It could be seen clearly from the above discussion USA journals (18.83%) occupies first in order. It shows that USA journals published more standard articles in the subject of Botany when compared with other country journals.

Fig: 3 Country wise distribution of cited journals

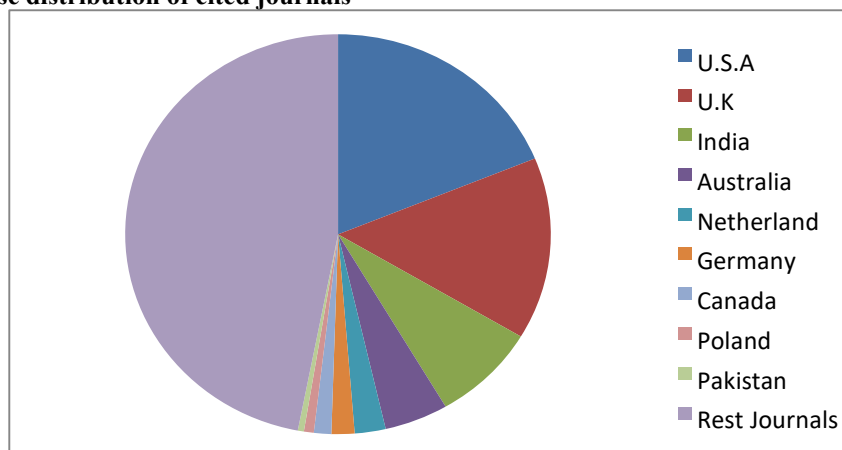


Table-5 Subject wise distribution of ranked journals

S. No	Subject	Total	Percentages of citations
1	Botany	5601	68.99
2	Biology	1705	21.00
3	Agriculture	659	8.12
4	Environmental Studies	79	0.97
5	Medical Sciences	45	0.55
6	Zoology	20	0.25
7	Economics	9	0.12
	Total	8118	100.00

Table 5 shows the subject wise distribution of ranked journals. The total number of 8118 reference consist 1,073 journals. Theses journals are divided into 7 subjects according to Ulrich’s international periodical directory. The majority of the journals from Botany subject, it has been cited by 5,601 citation out of the 8,118 citations, which is accounting for 67.99%. It is interesting to note that the Biology subject occupies the second place. It has been cited 1705 reference which is accounting for 21.00%. The Agriculture is the third place with 659 citations and 8.12% of citations. The other subjects like Environmental studies have 79 citations with 0.97%, Medical Sciences Subject Has 45 Citations With 0.55% Zoology has citations with 0.25% and finally Economics has 9 citations with 0.12%.

Table -6 Authorship pattern of journal citations

No. of Author	Total Citations	%	Indian Author	%	Foreign Author	%
One	2683	33.05	805	9.90	1878	23.14
Two	3281	40.42	428	5.27	2853	35.14
Three	1427	17.58	132	1.63	1295	15.95
Four	493	6.07	108	1.33	385	4.74
Five and above	234	2.88	83	1.02	151	1.86
Total	8118	100.00	1556	19.16	6562	80.84

The table 6 reveals that the percentage of single and multiple authors of Indian and Foreign authors. Authorship pattern of journal citations indicates that put of 8118 citations 2683 (33.05%) are single author. In the single authorship, Indian author’s citation contributed 805 (9.90%), while foreign author contributed 1878 (23.14%). There are 3281 (40.42%) total citations in two authorship. In this Two authorship, 428 (5.27%) are Indian authors contributed and 2853 (35.14%) total citations in the three authorship, 132 (1.63%) are Indian authors contributed and 1295 (15.95%) contributed Foreign authors. There are 493 (6.07%) total citations in the Four authorship, 108 (1.33%) contributed by Indian authors and 385 (4.74%) contributed by Foreign authors. There are 234 (2.88%) total citations in the five and above authorship, 83 (1.02%) contributed by Indian author and 151 (1.86%) contributed by Foreign authors.

Overall the contribution indicates that the foreign authors contributed 80.84% and Indian authors contributed 19.16%.

Findings

- The findings of the year wise distribution of theses reveals the following facts. The maximum number of 13 (17.57%) theses were submitted in the year 2013.
- The findings of the year wise distribution of theses and citations reveals the following facts. The total numbers of 74 theses consisting 10,619 citations. The average citations per theses was 143.50 during the period of study.
- The findings of the form wise distribution of citation reveals the following facts. The journals citation were occupies first position.
- The finding of the country wise distribution of journal citations reveals the following facts. USA journals citation was occupies the first position.

- The findings of the subject wise distribution of journals reveals the following facts. Most of the journals were under the Botany subject only.
- The findings of authorship pattern of journals citations reveals the following facts. The Foreign author's contribution was more than Indian author's contribution.

Conclusion

In the present age of the volume of scientific literature is increasingly and the prices of the periodicals are spiraling high, a librarian faces problems to subscribe and acquire them due to paucity of funds. At this function, compilation of ranked list of periodicals with the help of citation analysis study can be useful guide to libraries for acquiring standard periodicals within the limited funds.

By using the citation measures the relative value of each journal can be ascertained. Furthermore, a library can take necessary steps to improve its performance by using the sources and acquiring the required literature base on such type of studies. This study also measures the effectiveness of information services and resources available to botany researches.

Reference

- [1]. Garfield, E. (1971): "Information science and information conscious society," *Journal of the American Society for information science*, 22:71-73.
- [2]. Garg, K.C and Rao, M.K.D., (1988): "Bibliometric analysis of scientific productivity: A case study of an Indian physics laboratory," *Scientometrics*, 13:261-269.
- [3]. Haitun, S.D. (1983) "Scientometrics state and perspectives" *Science*, 10: 10-20.
- [4]. Lancaster, F.W. etal. (2015) "Some publication patterns in Indian and Japanses science. A biblometric comparision," *International forum on information and documentation*, 9: 11-16.
- [5]. Mode, H.F.etal. , (2005), (23-29) "the application of bibliometric indicators," *Scientometrics*, 8:177-203.
- [6]. MOLD, H.F. (2010) and Vrines,M "possible in acquires occurring in citation analysis ," *Journal of information science*,15: 95-107.