

The Rank List of Most Cited Journals in Chemistry

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Abstract - Citation Analysis is chosen for the present study. There are 52609 citations were collected from 194 PhD theses submitted to the Department of Chemistry, Bangalore University, Bangalore during the period from (1972-2014). The citations were analyzed according to following objectives of the study such as: year wise submission of theses for the award of PhD degree, average citations and distribution citations per theses, types of documents cited by researchers and rank list of most cited journals.

Keywords: Citation Analysis, PhD Theses, Chemistry, Bangalore University, Rank list, Journals.

Introduction:

Due to increasing growth rate, cost of journals and maintenance of space in libraries, the librarians were facing problems in subscription of journals. In this context the librarians were found various ways and means to collect and select journals in an effective way. The collection of relevant journals in different disciplines, the citation analysis is one such tool designed by the librarian to help the users in selection of journals. The present study chosen as rank list of most cited journals in chemistry as investigated through citations of PhD theses.

Review of Literature:

Mondal and Roy. (2018). Their results of the study reveals that journals are most cited with 1284 citations (64.18%) citations. Followed by Textbooks with 663(33.04%), conference proceedings with 34 (1.69%) and Half-life literature identified 21.6 years. **Mahajan and Kumar. (2017).** They analyzed 8488 citations from 35 Ph.D. theses in History submitted to Punjab University from 2002 to 2012. The outcome of the study found that the highest 8(22.86%) theses submitted in 2007. Books citations are the most important sources cited by the researchers with 4597(54.16%), followed by journals citations with 1151(13.56%) among single-author papers highest with 4784 (83.33%). **Geetha and Others. (2016).** They collected 4490 citations from 32 theses on computer Science submitted to five top universities from 2014-15. The findings of the study reveal that the highest 2420 (53.89%) journals were cited by researchers. Followed by books with 1093(24.34%) citations. Among IEEE journal cited with first rank with 332(46.95%) of total journals, followed by Journal of ACM occupied the second rank with 113(15.98%) of citations.

Jayaprakash and Kannappanavar. (2015). They examine the 2431 citations from Doctoral dissertations in Commerce submitted to Goa University, Goa. The study shows that journal articles were the most important citation used by the research scholar with 1505 (61.90%) citations, 490(20.15%) book citations followed by reports with 115(4.73%) citations, web-based source is 93(3.82%) citations, 82(3.37%) citations of working papers, Conference Proceedings 43(1.76%) citations, Survey 33(1.35%) Citations, Newspaper 41(1.68%) citations and Theses received 29(1.19%) citations, which is the lowest number of citations used by the research scholars. **Somashekara. (2015).** He analyses citations of 181 doctoral theses in Science subject submitted to University of Mysore, Bangalore University and Karnataka University from 2006 – 2010 and analyzed an average number of citations per theses, subject-wise distribution, form-wise distribution, the applicability of Bradford's Law and half-life of journals. The findings show that scholarly journals were most preferred sources by research scholar account for 17848 (78.45%) followed by books with 2322 (10.21%) and e-resources with 156 (0.69%).

Kannappanavar and Roopahree (2011). Their finding of the study reveals that the Journals are highly cited as compared to other forms of documents. The study also observed that Multi author's articles are high compare with single author publication. United States contributes more than (48%) of research articles. It is also observed from the study that a greater number of journals cited from the period between 1996 and 2000 followed by 2001–2006 and 1990–1995 'Genetics' is the most highly cited journal followed by 'Science' and respectively. **Veerabasavaiah (2011).** He analyzed 2392 citations from 21 doctoral theses. The finding of the study that journals were the most preferred sources of information used by the researchers, accounting 1676 (70.06%) of total citations. The *Journal of Poultry Science* was ranked the highest, with 532 (31.74%) citations. The result of the study also books cited with 2nd rank and respectively. **Veerabasavaiah and Padmavathi (2014).** A total of 6688 citations in 42 doctoral theses in education analyzed according to year wise submission of theses and identified that highest number of theses submitted in 2009. 12(28.57%), 11 theses submitted in 2010 (26.19%); 5 (11.91%) in 2004; 4 (9.53%) in 2003; 3(7.14%) in 2011 and 2012; and 2 (4.76%) in 2005 and 2008. they analyzed bibliographic form-wise distribution of citations. The higher 2637 (39.43%), citations from journals, 2537 (37.93%) from books, followed by other sources. In the ranked list, Journal of Applied Psychology occupied the first rank, accounting to 137 (5.20%) citations, followed by Indian Educational Review with 97 (3.68%) and the Journal of Educational Research with 75 (2.85%) citations.

Objectives of the Study:

The following objectives of the study were drawn from the present study

- To know the year wise submission of PhD theses in chemistry for to award Degree
- To find out average number of citations distribution in each theses
- To identify types documents cited by researchers
- To prepare ranking list of most highly cited journals

Scope and Limitations of the Study:

There are 194 PhD theses submitted to Department of Chemistry, Bangalore University, Bangalore during period (1972-2014). A total 52609 bibliographical reference were selected from theses and they were analyzed according to the objectives of the present study.

Methodology

Citation Analysis Technique is used for present study, the study restricted to the analysis of citations from PhD theses submitted to Chemistry Department, Bangalore University, Bangalore. The titles of each theses and its references were collected and entered in excel sheet according to AACR2 standard bibliographical format were adopted.

Data Analysis:

Table -1: Year wise Submission of PhD Theses in Chemistry

Sl. No.	Year	No. of theses	No. of citations	%
1	1972	1	100	0.19
2	1977	1	200	0.38
3	1982	2	363	0.69
4	1983	1	95	0.18
5	1984	1	247	0.47
6	1985	3	788	1.5
7	1987	5	1001	1.9
8	1988	7	1513	2.88
9	1989	6	2216	4.21
10	1990	12	3028	5.76
11	1991	3	882	1.68
12	1992	3	1172	2.23
13	1993	3	1157	2.2
14	1994	7	2372	4.51
15	1995	2	405	0.77
16	1996	7	1667	3.17
17	1998	2	197	0.37
18	1999	4	876	1.67
19	2000	3	856	1.63
20	2001	3	745	1.41
21	2002	2	520	0.99
22	2003	5	1392	2.64
23	2004	8	2704	5.14
24	2005	5	1272	2.42
25	2007	7	1367	2.6
26	2008	14	3382	6.43
27	2009	14	3619	6.88
28	2010	10	3042	5.78
29	2011	15	3969	7.54
30	2012	13	4126	7.84
31	2013	18	5334	10.14
32	2014	7	2002	3.8
	Total	194	52609	100

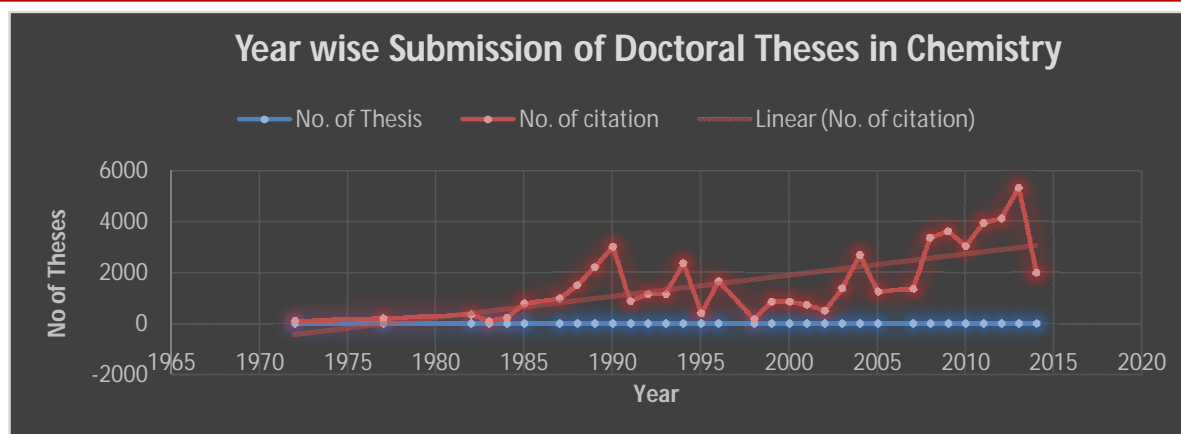


Table-1 shows the year wise submission and awarded of PhD degree in Chemistry. The highest 18 (10.14%) theses submitted in 2013, followed by 15 (7.54%) theses submitted in 2011, 12 (5.76%) theses submitted in 1990 and respectively.

Table-2: Average citations distribution per theses

Table - Average Number of Citations per Theses		
No. of Theses Submitted	No. of Citations	Average Citations
194	52609	271.18

Table-2 Shows the average citations accounts with 271.18 citations per theses.

Table-3: Types of documents referred by researchers

Sl. No.	Bibliographic Form	No. of Citations	%	Cumulative Citations	Cumulative %
1	Journals	39184	74.48	39184	74.48
2	Textbooks	9925	18.87	49109	93.35
3	Conferences Proceedings	1039	1.97	50148	95.32
4	Reference sources	605	1.15	50753	96.47
5	Patents	588	1.12	51341	97.59
6	Theses/Dissertations	347	0.66	51688	98.25
7	Abstracts	157	0.30	51845	98.55
8	Web resources	202	0.38	52047	98.93
9	Miscellaneous Information (Incomplete References)	562	1.07	52609	100.00
	Total	52609	100		

Table-3 represents types of documents referred by researchers with total citations of 52609 citations, the highest 39184 (74.48%) journal citations were referred by the researchers followed by Textbooks with 9925 (18.87%). Theses and dissertation cited with 347 (0.66%) and respectively.

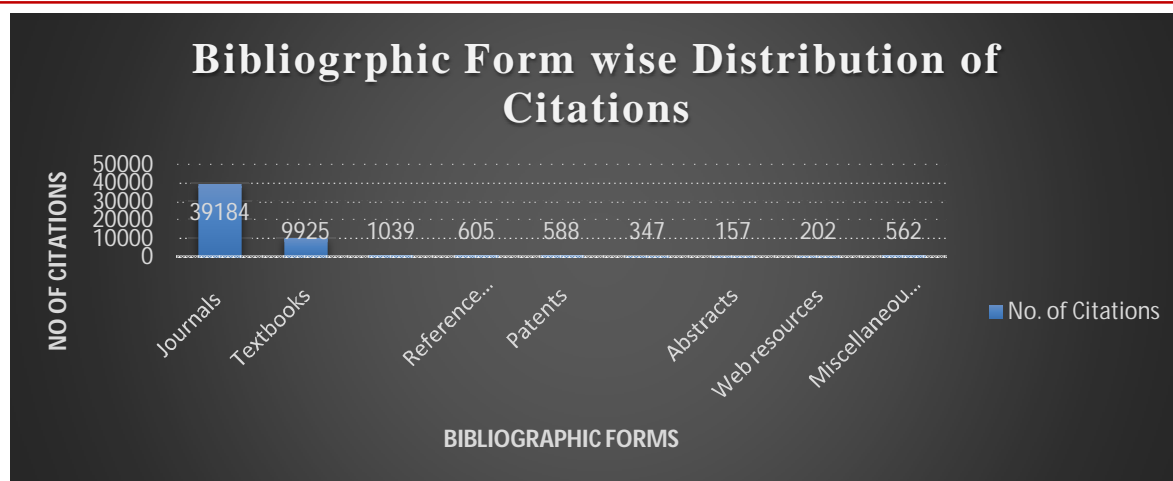


Table-4: Ranked list of highly cited journals in chemistry

Sl No	Rank	Journal Name	No of Citations	%	Cumulative Citation	Cumulative %	Country of Origin
1	1	Journal of the American Chemical Society	1868	4.77	1868	4.77	USA
2	2	Journal of Organic Chemistry-ABC	1561	3.98	3429	8.75	USA
3	3	Tetrahedrons Letters	1061	2.71	4490	11.46	UK
4	4	Acta Crystallographica	686	1.75	5176	13.21	USA
5	5	Journal of Physical Chemistry	669	1.71	5845	14.92	USA
6	6	Journal of Materials Chemistry	641	1.64	6486	16.55	UK
7	7	Journal of the Electrochemical Society	587	1.50	7073	18.05	USA
8	8	Chemistry of Materials	584	1.49	7657	19.54	USA
9	9	Journal of the Chemical Society	524	1.34	8181	20.88	UK
10	10	Journal of Biological Chemistry	502	1.28	8683	22.16	USA
11	11	Journal of Medicinal Chemistry	464	1.18	9147	23.34	USA
12	12	Indian Journal of Chemistry	450	1.15	9597	24.49	India
13	13	Journal of Organometallic Chemistry	435	1.11	10032	25.60	Netherlands
14	14	Chemical Reviews	425	1.08	10457	26.69	USA
15	15	Inorganic Chemistry	413	1.05	10870	27.74	USA
16	16	Clays and Clay Minerals	400	1.02	11270	28.76	USA
17	17	Journal of Catalysis	391	1.00	11661	29.76	USA
18	18	Nature Chemistry	382	0.97	12043	30.73	UK
19	19	International Journal of Peptide Research and Therapeutics	360	0.92	12403	31.65	Germany
20	20	Syntheses	359	0.92	12762	32.57	Germany
21	21	Journal of Electroanalytical Chemistry	348	0.89	13110	33.46	Netherlands
22	22	Catalysis Today	342	0.87	13452	34.33	Netherlands
23	23	Plant Physiology	332	0.85	13784	35.18	USA
24	25	Journal of Molecular Catalysis A: Chemical	320	0.82	14104	35.99	China
25	24	Science	319	0.81	14423	36.81	USA
26	26	Journal of Solid-State Chemistry	310	0.79	14733	37.60	USA
27	27	Electrochimica Acta	304	0.78	15037	38.38	UK
28	28	Tetrahedron	301	0.77	15338	39.14	USA
29	29	Journal of Chemical Physics	291	0.74	15629	39.89	USA
30	30	Chemical Communications	270	0.69	15899	40.58	UK
31	31	Biochemical Journal	266	0.68	16165	41.25	UK
32	32	Analytical Chemistry	264	0.67	16429	41.93	USA

33	33	Inorganic Chemistry Communications	263	0.67	16692	42.60	Netherlands
34	34	Angewandte Chemie	248	0.63	16940	43.23	UK
35	35	Biochimica et Biophysica Acta	220	0.56	17160	43.79	Netherlands
36	36	Journal of Magnetic Resonance	218	0.56	17378	44.35	USA
37	37	Biochemical and Biophysical Research Communications	217	0.55	17595	44.90	USA
38	38	Journal of Heterocyclic Chemistry	211	0.54	17806	45.44	USA
39	38	Physical Review	211	0.54	18017	45.98	USA
40	39	Bioorganic and Medicinal Chemistry Letters	208	0.53	18225	46.51	UK
41	40	Inorganica Chimica Acta	203	0.52	18428	47.03	Netherlands
42	41	Synthetic Metals	194	0.50	18622	47.52	Netherlands
43	42	Transition Metal Chemistry	193	0.49	18815	48.02	Netherlands
44	43	Journal of the Chemical Society, Chemical Communications	192	0.49	19007	48.51	UK
45	44	European Journal of Biochemistry	191	0.49	19198	48.99	UK
46	45	Organic Letters	183	0.47	19381	49.46	USA
47	46	Chemistry Letters	177	0.45	19558	49.91	Japan
48	47	Cancer Research	171	0.44	19729	50.35	USA
49	48	Journal of Applied Physics	165	0.42	19894	50.77	USA
50	48	Talanta	165	0.42	20059	51.19	Netherlands
51	49	Applied Clay Science	164	0.42	20223	51.61	Netherlands
52	49	FEBS Letters	164	0.42	20387	52.03	USA
53	50	European Journal of Pharmacology	163	0.42	20550	52.44	Netherlands
54	51	Life Sciences	161	0.41	20711	52.86	USA
55	52	Solid State Science	160	0.41	20871	53.26	France
56	54	Journal of Biochemistry	154	0.39	21025	53.66	UK
57	55	Applied catalysis A: General	153	0.39	21178	54.05	Netherlands
58	55	Langmuir	153	0.39	21331	54.44	USA
59	56	Canadian Journal of Chemistry	150	0.38	21481	54.82	Canada
60	57	Materials Research Bulletin	147	0.38	21628	55.20	UK
61	58	American Journal of Physiology	146	0.37	21774	55.57	USA
62	58	Chemical and Pharmaceutical Bulletin	146	0.37	21920	55.94	Japan
63	59	Accounts of Chemical Research	143	0.36	22063	56.31	USA
64	60	Helvetica Chimica Acta	142	0.36	22205	56.67	USA
65	60	Industrial & Engineering Chemistry Research	142	0.36	22347	57.03	India
66	61	Journal of the Indian Chemical Society	139	0.35	22486	57.39	India
67	62	Bulletin of the Chemical Society of Japan	138	0.35	22624	57.74	Japan
68	62	Phytochemistry	138	0.35	22762	58.09	UK
69	63	Current Science	128	0.33	22890	58.42	India
70	64	Chemical Physics Letters	127	0.32	23017	58.74	Netherlands
71	65	European Journal of Inorganic Chemistry	125	0.32	23142	59.06	Germany
72	65	Journal of Hazardous Materials	125	0.32	23267	59.38	Netherlands
73	65	Materials Chemistry and Physics	125	0.32	23392	59.70	Netherlands
74	66	Solid State Ionics	123	0.31	23515	60.01	Netherlands
75	67	Plant Science	121	0.31	23636	60.32	Netherlands
76	68	Journal of Experimental Botany	120	0.31	23756	60.63	UK
77	68	Materials Letters	120	0.31	23876	60.93	Netherlands
78	69	Archives of Biochemistry and Biophysics	118	0.30	23994	61.23	USA
79	70	Journal of polymer Science: B:	116	0.30	24110	61.53	USA

		Polymer Physics					
80	70	Polyhedron	116	0.30	24226	61.83	UK
81	71	Corrosion Science	113	0.29	24339	62.11	UK
82	71	Journal of Power Sources	113	0.29	24452	62.40	Netherlands
83	72	Advanced Materials	112	0.29	24564	62.69	USA
84	72	Environmental Science & Technology	112	0.29	24676	62.97	USA
85	72	Proceedings of the National Academy of Sciences	112	0.29	24788	63.26	USA
86	73	Molecular Pharmacology	111	0.28	24899	63.54	USA
87	74	Transactions of the Faraday Society	110	0.28	25009	63.82	UK
88	75	Annals of the New York Academy of Sciences	109	0.28	25118	64.10	USA
89	75	European Journal of Medicinal Chemistry	109	0.28	25227	64.38	France
90-736	76	646 Title of Journals Cited 13957 Times	13957	35.62	39184	100.00	
		Total	39184	100.00			

Table-4 Shows ranked list of most cited journals in chemistry. There are 736 journals were identified from the study. The journals were ranked up to 89 with 109 citation with total of 25227 citations. The Journal of the American Chemical Society occupied with first rank with 1868 (4.77%) citations, followed by 'Journal of Organic Chemistry' second rank with 1561 (3.98%) citations. 'Tetrahedron Letters' third rank with 1061 (2.71%) citations and fourth rank is 'Acta Crystallographica' with 686 (1.75%) and fifth Rank 'Journal of Physical Chemistry' with 669 (1.71%) and respectively.

Findings:

The findings of the study identified from Table-1 that the highest 18 (10.14%) PhD Theses submitted followed by 15 (7.54%) submitted and respectively, In table-3 it is observed that the journals are highly cited with 39184 (74.48%) and it is followed by books and conferences proceedings etc., from Table-4 it is noticed that the Journal of the American Chemical Society is highly referred with 1868 citations from a total of 39184 citations.

Conclusions:

The present study helps in selections of journals for librarians, information professional and policy makers in subscription of journals. It can be considered as tool for selection of journals for higher education libraries, this study also helps in weeding out of unused journals from libraries.

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