Annals of Library and Information Studies
Vol. 55, March 2008, pp.35-44

Citation analysis of *Journal of Oilseeds Research* 1993 – 2004

Surendra Kumar[a] and S. Kumar[b]
[a]Documentation Officer, National Research Centre for Soybean, Khandwa Road,Indore – 452017
E- mail: skumar9861@rediffmail.com

[b] Professor, School of Studies in Library & Information Science, Vikram University, Ujjain-10,
E-mail: skumarram2000@yahoo.co.in

Analyses 8093 citations given in the *Journal of Oilseeds Research* (JOR) published during 1993 to 2004). Out of 8093 citations, 5642 are given in main articles and 2551 in short communications of the JOR. It also analyses types of documents cited and identifies core journals. The paper also covers the analysis of authorship patterns of citations alongwith calculation of collaboration coefficient. Geographical distribution of cited references has also been analysed. Concludes that 20 core periodicals cover more than 50% references and also indicates that collaborative research is prevalent in oil seeds research.

Introduction

Citation analysis is mathematical analysis of references or citations appended at the end of each scientific communication as an essential part of it. The author(s) of a paper customarily presents a bibliography or references as authentic source of information having research value or to substantiate the point of view of ideas expressed in the cited papers. Analysis of cited papers is used as a measure of impact of individual articles, periodicals, authors, etc. and has become an accepted practice in almost all scientific communications and a well established part of information research. A quantitative approach to the description of documents is gaining ground both in research and in practice. Bibliometrics can be used for identifying the core periodicals and the characteristic features of a discipline such as authorship pattern and scattering of literature in different bibliographical forms, etc.

Citation analysis as a tool is used to identify the core references in a subject by counting the citations appended at the end of each scientific article. It is basically a technique, which involves the process of collection, counting, analysis and interpretation of citations given in research writing and thereby helping in identification of significant sources of information. White is of the opinion that, citation analysis plays a promontory role for easy identification of earlier research. It is one of the important areas of research in the field of library and information science[1].

Sengupta has defined biblometrics as organisation, classification and quantitative evaluation of publication pattern of macro and micro -communication along with their authorship by mathematical and statistical calculations. Such studies can help in selection of documents saving millions of rupees of the organizations. It helps in planning and organisation of resource sharing, networking and consortia. The institutions may eliminate rarely cited titles from their subscription lists and also weed out unused material to save costly stocking space and reduce maintenance cost[2].

Many studies on citations analysis exists. Mete and Deshmukh have done a citation analysis of *Annals of Library Science and Documentation*[3]. Mubeen has carried out citation analysis of doctoral dissertation in chemistry[4], Bandhyopadhyay of doctoral dissertation in mathematics[5], Dutta, Das and Sen have done comparative study of citation patterns among eight scholarly journals published by National Institute of Science Communication and Information Resources[6]. Shokeen and Kaushik have carried out the studied citation analysis of *Indian Journal of Plant Physiology*[7]. Deshpande has worked on citation analysis of dissertations in library and information science[8]. Das and Sen have studied the citation pattern of *Journal of*

Biosciences[9]. Dutta and Sen have studied citation pattern of *Indian Journal of Chemistry*[10]. Subramanyam has reviewed the bibliometric studies on research collaboraration[11].

Journals on oilseeds

William Carey established the first agricultural society in India named Agricultural and Horticultural Society of India at Calcutta in 1820[12]. A regular journal on oilseeds in India appeared in 1948, called *Oils and Oilseeds Journal* by Bombay Oilseeds and Oil Exchange Limited. In mid 1950s several commodity committees were established under the auspices of Indian Council of Agricultural Research. One of the commodity committee was Indian Central Oilseeds Committee, which started publishing *Indian Oilseeds Journal* from 1955 but ceased its publication in 1965. The Indian Society of Oilseeds Research (ISOR) was established in 1983, which brought out "*Journal of Oilseeds Research*" since 1984 as two issues per volume per year. The *Journal of Oilseeds Research* is abstracted in Agrindex**,** Biological Abstract, Field Crops Abstracts; Tropical Oil seeds Abstracts, Soybean Abstract etc. Two bibliometric studies on this journal have been published, one by Kalayane and Sen from the year 1984-1992[13] and another by Kumar and Kumar for the year 1993-2001[14].

Methodology

The 8093 references given in 24 issues of JOR Vol. 10 - 21 (1993 - 2004) have been analysed in this paper. The analysis includes 5642 references given in main articles and 2451 in short communications.

Objective

The objective is to study the:

1. year wise distribution of citations;
2. number of citations per article;
3. types of documents cited and frequency of citations;
4. ranked list of periodicals (in order of rank) of citations;
5. authorship pattern and collaboration coefficient of citations;
6. journals with number of citations; and
7. geographical distribution of cited journals.

Analysis of citation in JOR

The analysis of papers published during this period has been made for main articles and short communications under various heads.

Year-wise distribution of citations

In the 12 volumes studied 1060 papers have been published citing 8093 references. Out of these citations, 5642 (69.71%) are given in main articles (MA) and 2451 (30.29 %) are given in short communications (SC). On an average 470 references have been given per volume of two issues for main articles. The average citation per issue is 235 references. Similarly 204 references have been published per volume in short communications i.e., 102 per issue. On an average 674.42 references are cited per volume i.e. 337 references per issue (Table 1).

Number of citations per article

It was found that 445 papers have 1-5 references and 410 (38.28%) papers have 6-10 references. It was found that only 12 papers have not cited any reference (Table 2).

Types of documents cited

Journals are most cited form of documents with 70.48% citations being from journals followed by 14.28% citations from books and monographs. Theses with 3.87% references (Ph. D & M.Sc.) and conference / seminars proceedings with only 3.75% references rank next. Citations from other documents such as annual reports, newsletters, advances, etc., are marginal (Table 3).

Journals cited in JOR

It was found that 5704 citations were from 1122 journals. A rank list of the journal shows that twenty journals account for 50% of the total citations with the top ten journals accounting for 40.41% of the citations. It was further found that 73 journals out of the 1122 journals account for nearly 70% the total references and the remaining 1049 journals (93%) account for the remaining 30% of the citations (Table 4).

Collaboration coefficient of citation

Tables 5, 6 and 7 show authorship pattern of references in MAs and SCs of JOR during 12 years from 1994-

Table 1 — Volume-wise and year wise distribution of citations

Sr. no.	Year & Vol.	Citations MA	SC	Total	Cumulative Average	%	Cumulative %
1.	1993/10	444	167	611	611	7.55	7.55
2.	1994/11	362	136	498	1109	6.16	13.70
3.	1995/12	310	150	460	1569	5.69	19.39
4.	1996/13	333	178	511	2080	6.31	25.70
5.	1997/14	542	131	673	2753	8.33	34.02
6.	1998/15	560	146	706	3459	8.72	42.74
7.	1999/16	473	259	732	4191	9.04	51.79
8.	2000/17	522	200	722	4913	8.92	60.71
9.	2001/18	479	168	647	5560	7.99	68.70
10.	2002/19	489	228	717	6277	8.86	77.56
11.	2003/20	608	329	937	7214	11.58	89.14
12.	2004/21	520	359	879	8093	10.86	100
13.	Total	5642 (69.71%)	2451 (30.29%)	8093 100	—	—	—
14.	Average per volume	470.17	204.25	674.42	674.42	—	—

Table 2 — Number of citations per article

Sr. no.	Year & Vol.	Paper	Citations 0	1-5	6-10	11-15	16-20	21-30	31-	Total articles
1.	1993/10	M A	—	9	15	12	2	2	1	41
		SC	2	19	12	2	—	—	—	35
2.	1994/11	M A	—	11	22	8	2	—	—	43
		SC	1	16	7	1	1	—	—	26
3.	1995/12	M A	1	12	17	10	—	—	—	40
		SC	—	28	8	—	—	—	—	36
4.	1996/13	M A	1	13	12	7	2	2	—	37
		SC	2	22	13	1	—	—	—	38
5.	1997/14	M A	—	10	26	8	2	3	1	50
		SC	—	26	5	—	—	—	—	31
6.	1998/15	M A	1	14	32	8	1	1	2	59
		SC	—	18	11	—	—	—	—	29
7.	1999/16	M A	—	14	25	8	1	1	1	50
		SC	—	28	12	5	—	—	—	45
8.	2000/17	M A	1	15	24	12	4	2	1	59
		SC	1	13	14	2	2	—	—	32
9.	2001/18	M A	—	19	23	9	4	1	-	56
		SC	—	26	9	1	—	—	—	36
10.	2002/19	M A	—	12	21	7	7	1	1	49
		SC	1	31	10	4	—	—	—	46
11.	2003/20	M A	—	8	23	7	4	1	4	47
		SC	1	27	22	3	—	—	—	53
12.	2004/21	M A	—	19	22	12	2	2	1	58
		SC	—	35	25	4	—	—	—	64
Main articles			4	156	262	108	31	16	12	589
Short commn.			8	289	148	23	3	—	—	471
Total			12	445	410	131	34	16	12	1060
%		MA+SC	1.13	41.98	38.68	12.35	3.20	1.51	1.13	100

Table 3 — Types of documents cited

Sl. No.	Documents	No. of citations Main article	%	No. of citations Short commn.	%	Total	Total %	Rank
1	Periodicals/ Journals	3970	70.37	1734	70.75	5704	70.48	I
2	Books / Monographs	819	14.52	337	13.75	1156	14.28	II
3	Symposiums / Conf./Seminars / Workshops / Proceeding	335	5.93	130	5.3	465	3.75	IV
4	Thesis; Ph. D	100	1.77	41	1.67	141	1.74	
	M. Sc.	103	1.83	69	2.82	172	2.13	III
5	Annual Progress Reports	61	1.08	19	0.77	80	0.99	VII
6	Annual Reports	65	1.15	38	1.55	103	1.27	VI
7	Bulletins/Newsletters	138	2.44	58	2.37	196	2.42	V
8	Annual Reviews / Advances	32	0.52	20	0.82	52	0.64	VIII
9	Others	19	0.34	5	0.20	24	0.30	IX
	Total	5642 (69.76%)	100	2451 (30.24%)	100	8093	100	-

Table 4 — Rank list of periodicals cited

Sl. No.	Name of journal	Citations Main Articles	Citations Short Com.	Total citations	Cumulative citations	Percen tage	Cumula tive %
1.	*Indian Journal of Agronomy*	333	161	494	494	8.66	8.66
2.	*Journal of Oilseeds Research*	310	172	482	976	8.49	17.11
3.	*Indian Journal of Agricultural Science*	230	91	321	1297	5.63	22.74
4.	*Crop Science*	197	48	245	1542	4.30	27.03
5.	*Madras Agricultural Journal*	111	57	168	1710	2.95	29.98
6	*Agronomy Journal*	97	52	149	1859	2.61	32.59
7	*Jr. of Maharashtra Agricultural University*	79	43	122	1981	2.14	34.73
8	*Indian Journal of Society of Soil Science*	75	36	111	2092	1.95	36.68
9	*Indian Journal of Genetics*	80	30	110	2202	1.93	38.60
10	*Indian Journal of Entomology*	72	28	100	2302	1.75	40.36
11.	*Indian Farming*	52	20	72	2374	1.26	41.62
12.	*Indian Journal of Genetics & Plant Breeding*	54	8	62	2436	1.09	42.70
13.	*Indian Phytopathology*	36	26	62	2498	1.09	43.79
14.	*Phytopathology*	40	18	58	2556	1.02	44.81
15.	*Plant and Soil*	35	22	57	2613	1.00	45.63
16.	*Heredity*	36	18	54	2667	0.95	46.76
17.	*Fertilizer News*	39	14	53	27.20	0.92	47.69
18.	*Theoretical Applied Genetics*	49	1	50	2770	0.88	48.56
19.	*Current Science*	23	23	46	2816	0.81	49.37
20.	*Peanut Science*	36	9	45	2861	0.79	50.37
21.	*Mysore Journal of Agricultural Research*	31	11	42	29.3	0.73	50.89
22.	*Journal of American Oil Chemistry*	40	1	41	2944	0.72	51.61
23.	*Crop Research*	33	8	41	2985	0.72	52.33
24.	*Seed Research*	20	21	41	3026	0.72	53.05
25.	*Plant Physiology*	26	10	36	3062	0.64	53.68
26.	*Seed Science & Technology*	28	8	36	3098	0.64	54.31
27.	*Andhra Agricultural Journal*	20	15	35	3133	0.61	54.93
28.	*Crop Improvement*	28	6	34	3167	0.60	55.52

29.	*Indian Jr. of Plant Physiology*	25	6	31	3198	0.55	56.06
30.	*Annals of Agricultural Research*	23	8	31	3229	0.54	56.61
31.	*Indian Journal of Mycology and Plant Pathology*	15	15	30	3259	0.53	57.13
32.	*Experimental Agriculture*	26	4	30	3289	0.53	57.66
33.	*Canadian Journal of Plant Science*	29	1	30	3319	0.53	58.19
34.	*Helia*	22	7	29	3348	0.51	58.70
35.	*Field Crop Abstract*	15	11	26	3374	0.46	59.15
36.	*Journal of Research (PAU)*	12	14	26	3400	0.46	59.60
37.	*Indian Journal of Plant Protection*	20	3	23	3423	0.40	60.01
38.	*Australian Journal of Biological Sc.*	15	8	23	3446	0.40	60.41
39.	*Indian Agriculturist*	13	9	22	3468	0.39	60.80
40.	*Pesticides*	18	4	22	3490	0.39	61.18
41.	*Indian Jr. of Agricultural Research*	20	2	22	3512	0.39	61.57
42.	*Australian Journal of Agricultural*	19	3	22	3534	0.39	61.96
43.	*Indian Journal of Weed Science*	18	1	19	3553	0.33	62.29
44.	*Journal of Agricultural Science*	16	3	19	3572	0.33	62.62
45.	*Plant Disease*	19	-	19	3591	0.33	62.95
46.	*Agricultural Situation in India*	15	4	19	3610	0.33	63.29
47.	*JNKVV Research Journal*	16	2	18	3628	0.32	63.60
48.	*Annals of Arid zone*	13	5	18	3646	0.32	63.92
49.	*Euphytica*	15	3	18	3664	0.32	64.24
50.	*Annals of Botany*	16	1	17	3681	0.30	64.53
51.	*Indian Jr. of Economy Entomology*	17	-	17	3698	0.30	64.83
52.	*Plant Breeding*	16	1	17	3715	0.30	65.13
53.	*Journal of Science of Food and Agriculture*	14	2	16	3731	0.28	64.41
54.	*SABRAO Jr.*	13	2	15	3746	0.26	65.67
55.	*Physiologia Planetarium*	12	2	14	3760	0.25	65.92
56.	*Australian Journal of Plant Physiology*	12	1	13	3773	0.23	66.15
57.	*Soil Science*	12	—	12	3785	0.21	66.36
58.	*Canadian Jr. of Genetics & Cytogenetics*	10	1	11	3796	0.19	66.55
59.	*Oil Seed Journal*	1	10	11	3807	0.19	66.74
60.	*HAU Journal of Research*	9	2	11	3818	0.19	66.94
61.	*Journal of Agriculture (Cambridge)*	7	4	11	3829	0.19	67.13
62.	*Tropical Agriculture*	7	4	11	3840	0.19	67.32
63.	*Journal of Oil Technology Asson. of India*	10	-	10	3850	0.18	67.50
64.	*Plant Disease Reporter*	9	1	10	3860	0.18	67.67
65.	*Karnataka Journal of Agricultural Science*	6	4	10	3870	0.18	67.85
66.	*Canadian Journal of Botany*	9	1	10	3880	0.18	68.02
67.	*Science*	9	1	10	3890	0.18	68.20
68.	*Field Crop Abstract*	5	4	9	3899	0.16	68.36
69.	*Journal of Economic Entomology*	5	4	9	3908	0.16	68.51
70.	*Journal of Genetics*	6	2	8	3916	0.14	68.65
71.	*Annals of Applied Biology*	8	-	8	3924	0.14	68.79
72.	*Journal of Biol. Control*	4	4	8	3930	0.14	68.93
73.	*Science & Culture*	6	2	8	3940	0.14	69.07
		2817	1123	3940	—	—	—
74.	17 journals. with 7 citations each	49 (7)	70 (10)	119	4059	2.09	71.16
75.	18 journals. with 6 citations each	84 (14)	24 (4)	108	4167	1.89	73.05
76.	17 journals with 5 citations each	65 (13)	20 (4)	85	4252	1.49	74.54
77	39 journals with 4 citations each	84 (21)	72 (18)	156	4408	2.73	77.28
78	66 journals with 3 citations each	105 (35)	93 (31)	198	46.6	3.47	80.75
79.	206 journals with 2 citations each	292 (146)	120 (60)	412	5018	7.22	87.97
80.	686 journals with 1 citation each	474 (474)	212 (212)	686	5704	12.03	100
	Grand Total 1122 journals	1153	611	1764		—	—
		3970	1734	5704			

2004. Table 5 gives authorship pattern of journals referred in MAs & SCs during this period. It reveals that collaboration coefficient is very high during all the years and ranges between 0.76 to 0.84. This is to note that higher the value of collaboration coefficient, less are the number of single authored papers. This trend shows that collaboration among oilseeds research scientists is very high. Only 18.24% references are single authored (13.17 % MAs & 5.07 % SCs) while 81.76% papers referred are written jointly. The table also reveals that 39.62 % papers (27.35% MAs & 12.27% SCs) referred are two authored papers and 26.17% (18.09% MAs & 8.08% SCs) are 3 authored papers. More than 3 authors have authored 15.97 % of the papers (MAs & SCs).

Similarly, authorship pattern of books cited in articles have been analyzed in (Table 6). 39.53% and 15.83% and 54.3% books cited by MA and SC respectively are single authored. The collaboration coefficient in quite low ranging from 0.33 to 0.54 for books. Table 7 shows authorship pattern of all types of documents referred in the articles of JOR. For conference papers, the single authored articles are 39.10% MAs & 42.30% SCa while in other types of documents such as newsletter, newspapers, and pamphlets etc. 69.50 % MAs & 70.40% SCs are single authored references. From the table it can be inferred that trend in journals are of joint authorship while the trend is reverse in books, seminars and conference papers.

The degree of collaboration has also been calculated on the basis of total articles and total authorship cited in the JOR as below.

(a) Joint authors: Total articles

MAs 5642-1699 = 3943

SCs 2451-703 = 1748

Total 8093-2402 = 5691

$$\text{So } C = \frac{5691}{5691+2402} = 0.70$$

$$C = \frac{Nm}{Nm+Ns}$$

Where,

C = degree of collaboration in a discipline.

Nm= number of multi-authored research paper in the discipline published during a year,

Ns = number of single authored research papers in the discipline during the period.

(b) Joint authors: Total authorship

MAs 12684-1699 = 10985

SCs 5531-703 = 4828

Total 18215-2402 =15813

$$\text{So } C = \frac{15813}{2402+15813} = 0.87$$

$$C = \frac{Nm}{Nm+Ns}$$

Where,

C = degree of collaboration in a discipline.

Nm= number of multi authored research paper in the discipline published during a year,

Ns = number of single authored research papers in the discipline during the period.

Thus the overall degree of collaboration in citation study of oilseeds research is 0.70 for total articles and 0.87 for total authorship. These joint research dominate our single research in agriculture.

Geographical distribution of cited references

The paper has also studied the geographical distribution references cited in the articles during the period. Table 8 reveals that India, USA, The Netherlands have 3002 (52.62%), 706 (12.38%) and 142 (3.12%) citations from periodicals respectively UK is at 6th place. Contributions from other countries is not much significant.

Indian V/s foreign journals

Table 9 shows that there are only 485 Indian journals (43.23%) while 637 (56.77%) are foreign journals. It reveals that foreign journals are still favoured documents of researchers. But in first ten core journals, only 2 foreign journals appear in the list (Table 4). These ten core journals cover 40.36% citations while the two foreign

Table 5 — Authorship Pattern of references. (Main Articles and Short Com.): Journals

Sr. No.	Year & Vol.	Single Author		Two Authors		Three Authors		Four Authors		Five Authors		Six Authors		Seven Authors		G. Total N=5704	% Total Author ship	Total author ship	Mean Coff. ship	Coll *
	Col Code	A1		A2		A3		A4		A5		A6		A7		X	—		Y	Y÷X
1.		MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA+SC	—	—	—	—
2.	1993 /10	72	23	115	39	89	32	21	3	4	2	—	—	2	—	402	7.05	906	2.25	0.76
3.	1994/11	45	17	104	48	71	25	28	13	3	3	3	1	1	—	362	6.35	879	2.43	0.83
4.	1995 /12	38	14	98	36	59	39	18	11	6	3	—	1	—	—	323	5.66	781	2.42	0.84
5.	1996 /13	45	17	89	47	61	41	33	14	5	4	1	—	—	1(8)	358	6.28	887	2.48	0.83
6.	1997 /14	75	19	173	44	98	22	50	11	11	—	4	—	—	—	507	8.89	1211	2.39	0.81
7.	1998 /15	72	11	149	47	100	28	44	11	16	3	4	4	1	—	490	8.59	1229	2.51	0.83
8.	1999 /16	79	25	148	69	76	47	33	23	11	5	3	2	1	—	522	9.15	1248	2.39	0.80
9.	2000 /17	59	28	152	61	104	42	50	17	11	3	1	1	—	1(8)	530	9.29	1309	2.47	0.84
10.	2001 /18	64	20	130	44	96	29	39	11	9	5	—	1	1	—	449	7.87	1090	2.43	0.81
11.	2002 /19	57	36	122	71	85	32	50	31	11	5	4	3	2	1	510	8.94	1297	2.54	0.82
12.	2003 /20	89	35	142	90	101	59	51	40	10	5	5	1	4 (7) 2 (8) 1(16)	—	635	11.13	1574	2.48	0.80
13.	2004 /21	56	44	138	104	92	65	47	27	16	11	6	5	4	1	616	10.80	1587	2.58	0.84
14.	Total	751	289	1560	700	1032	461	464	212	113	49	31	19	19	4	5704	100	13998	2.45	0.84
	%	13.17	5.07	27.35	12.27	18.09	8.08	8.13	3.72	1.98	0.86	0.55	0.33	0.33	0.07	100	—	—	—	—
15.	Authorship	751	289	3120	1400	3096	1383	1856	848	565	245	186	114	115	30	13998	—	—	—	—
	% (n =13998)	5.37	2.06	22.29	10.00	22.12	9.88	13.26	6.06	4.04	1.75	1.33	0.81	0.82	0.21	100	—	—	—	—

$$* \frac{\Sigma(A2 \text{ to } A7) - A1}{\Sigma(A2 \text{ to } A7)}$$

Table 6 — Authorship Pattern of references. (Main Articles & Short Com.): Books

Sr. No.	Year & Vol.	Single Author		Two Authors		Three Authors		Four Authors		Five Authors		Six Authors		Seven Authors		G. Total	% Total N=1156	Total Author ship	Mean author ship	Coll Coff. *
	Col Code	A1		A2		A3		A4		A5		A6		A7		X	—	Y		Y÷X
1.		MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA	SC	MA+SC	—	—	—	—
2.	1993 /10	35	12	8	11	6	2	5	2	1	—	1	—	—	—	83	7.18	148	1.78	0.43
3.	1994/11	28	7	13	3	6	3	2	—	—	—	—	—	—	—	62	5.36	102	1.65	0.43
4.	1995 /12	16	8	4	5	1	—	—	—	1	1	—	—	—	—	36	3.11	55	1.53	0.33
5.	1996 /13	33	12	8	7	4	3	—	4	—	1	—	—	—	1(8)	73	6.32	125	1.71	0.38
6.	1997 /14	35	6	14	8	7	3	2	—	—	—	—	—	—	—	75	6.49	123	1.64	0.45
7.	1998 /15	33	11	29	4	4	1	9	—	1	—	—	1	2 1(8)	—	96	8.30	194	2.02	0.54
8.	1999 /16	41	29	18	6	4	5	3	1	3	—	—	—	1	1 (11)	112	9.69	194	1.73	0.37
9.	2000 /17	44	19	16	8	10	3	7	2	—	2	—	—	1	—	111	9.60	203	1.83	0.43
10.	2001 /18	36	16	18	12	10	3	6	1	—	—	—	—	1(8) 1,	—	104	9.00	194	1.87	0.50
11.	2002 /19	51	12	19	8	4	3	1	2	—	—	1	—	—	—	102	8.82	156	1.53	0.38
12.	2003 /20	57	20	36	8	13	2	7	2	—	2	4	—	1 (7) 1 (8)	—	153	13.24	295	1.93	0.49
13.	2004 /21	48	31	28	17	12	5	4	1	—	—	—	—	2 (8) 1(9)	—	149	12.89	265	1.78	0.40
14.	Total	457	183	211	97	81	33	46	15	6	6	6	1	12	2	1156	100	2054	1.78	0.44
	%	39.53	15.83	18.25	8.39	7.00	2.85	3.98	1.30	0.52	0.52	0.52	0.09	1.04	0.18	100				
15.	Authorship	457	183	422	194	243	99	184	60	30	30	36	6	91	19	2054	—		—	0.69
	% n =2054	22.25	8.91	220.55	9.44	11.83	4.82	8.96	2.92	1.46	1.46	1.75	0.29	4.43	0.93	100	—		—	—

* $\frac{\Sigma(A2 \text{ to } A7) - A1}{\Sigma(A2 \text{ to } A7}$

Table 7 — Collaborations patterns of cited References (Main Articles & Short Communication)

Sr. No.	Authors	Journals/ Periodicals		Books / Monographs		Con. / Seminars / Workshops/ Symp./ Proc.		Others		Total MA+SC	% Total n=8095	Total Authorship	Mean Authorship
		Authorship		Authorship		Authorship		Authorship		X	—	Y	Y ÷ X
Col code		MA	SC	MA	SC	MA	SC	MA	SC	—			
1.	Single Author	751	289	457	183	131	55	360	176	2402	29.68	2402	1.00
	%	(13.17)	(5.07)	(39.53)	(15.83)	(39.10)	(42.30)	(69.50)	(70.40)				
	Two Authors	1560	700	211	97	112	40	74	39	2833	35.00	5666	2.00
3.	Three Authors	1032	461	81	33	52	21	43	24	1747	21.59	5241	3.00
4.	Four Authors	464	212	46	15	19	10	32	7	805	9.95	3220	4.00
5.	Five Authors	113	49	6	6	13	2	2	4	195	2.38	975	5.00
6.	Six Authors	31	19	6	1	7	2	4	—	70	0.86	420	6.00
7.	Seven Authors	19	2(8) 2	12	2	1	—	3	4	43	0.54	303*	7.05
8.	Total	3970	1736*	819	337	335	130	518	250	8095*	100	18217*	2.25
	%	49.04	21.45	10.12	4.16	4.14	1.61	6.40	3.08	100			
9.	Coll Coff.	0.81	0.83	0.44	0.18	0.61	0.58	0.31	0.30	0.70	—	—	—

Table 8 — Geographical distribution of citations

Sr. No.	Name of country	No.of citations M A	No.of citations SC	Total MA +SC	Cumulative citations	% of citations	% of cumulative citations	Rank
1.	India	2058	944	3002	3002	52.62	52.62	I
2.	USA	531	175	706	3708	12.38	65.00	II
3.	Netherlands	118	60	178	3886	3.12	68.13	III
4.	UK	113	43	156	4042	2.73	70.86	IV
5.	Germany	79	72	151	4193	2.65	73.51	V
6.	Denmark.	31	31	62	4255	1.09	74.60	VI
7.	Canada	54	3	57	4312	1.00	75.42	VII
8.	Australia	39	12	51	4363	0.89	76.49	VIII
9.	Scotland	28	10	38	4401	0.67	77.16	IX
10.	Unidentified	919	384	1303	5704	22.84	100	__
11.	Total	3970	1734	5704	—	100	—	—

Table 9 – Indian vs foreign journals

Journals	Main Articles	Short Communication	Total	%
Indian journals	326 (43. 94)	159 (41.84 %)	485	43.23
Foreign journals	416 (56.06)	221(58.16 %)	637	56.77

journals cover only 6.11% citations. Similarly if the list of 20 journals in the list are examined, 50.37% citations are covered by them but have only 7 foreign journal titles.

Conclusion

Eight thousand and ninety three citations referred by the contributors of 1060 papers in *Journal of Oilseeds Research* shows that like other such studies, journals are most referred, self-citations is high and author collaboration is high. Core journals have been identified which shall be useful to scientists and liraries interested in the area of oilseeds research.

References

1. White E C, Bibliometrics from curiosity to convention, *Special Libraries*, 76 (1) (1985) 38-39.
2. Sengupta I N, Choosing microbiology periodicals to study of growth literature in the field, *Annals of Library Science and Documentation*, 21 (3) (1974) 95-111.
3. Mete Mahendra V and Deshmukh P P, Citation analysis of *Annals of Library Science and Documentation*, *Annals of Library Science and Documentation*, 43 (1) (1996) 11-25.
4. Mubeen M A, Citation analysis of doctoral dissertations in chemistry, *Annals of Library Science and Documentation*, 43 (2) (1996) 48-58.
5. Bandyopadhyay A K, Citation analysis of doctoral dissertation in mathematics using Dbase III+, *Annals of Library Science and Documentation*, 43 (3) (1996) 81-107.
6. Dutta B, Das A K and Sen B K, A comparative study of citation patterns among eight scholarly journals published by National Institution of Science Communication and Information Resources, *Annals of Library and Information Studies*, 49 (4) (2002) 127-134.
7. Shokeen A and Kaushik S K, *Indian Journal of Plant Physiology*: a citation analysis, *Annals of Library and Information Studies*, 51(3) (2004) 104-107.
8. Despande M, Citation study of dissertation in library and information science, *Annals of Library Science and Documentation*, 44(2) (1997) 41-53.
9. Das A K and Sen B K, *Journal of Biosciences* – An analysis of citation pattern, *Annals of Library and Information Studies*, 48 (2) (2001) 59-63.
10. Datta B and Sen B K, *Indian Journal of Chemistry Section A* – An analysis of citations, *Annals of Library and Information Studies*, 48(3) (2001) 121-127.
11. Subramanyam K, Bibliometrics studies of research collaboration: a review, *Journal of Information Science*, 6 (1) (1983) 33-38.
12. Cary W, Remarks on the state of agriculture in the district of Dinapur, *Asiatick Research*, 10 (1808) 1-26
13. Kalyane K and Sen B K, A bibliometric study of the *Journal of Oilseeds Research*, *Annals of Library and Documentation*, 42 (4) (1995) 121-141.
14. Kumar S and Kumar S, A bibliometric studies of the *Journal of Oilseeds Research*, since 1993-2001, *SRELS Journal of Information Management*, 42 (3) (2005) 305-334.