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Citation Analysis on Current Science Publications: A Global Perspective

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KEYWORDS

Current Science;
Citation Analysis;
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A B S T R A C T

The study analyzes current science research publication of 2357 records were downloaded and analyzed by using the histcite software application from 2000 to 2013. The data is analyzed to know the authorship pattern, degree of collaboration and geographical distribution of papers, year-wise research output, geographical distribution of research output, nature of collaboration, characteristics of highly productive institution and the channel of communication used by the scientists.

Introduction

The basic units of bibliometrics are all facets of written communications, such as, primary and secondary periodicals, articles and abstracts published in them, bibliographies of articles, books, monographs and other media of communication. It has sound theoretical base with contribution from Pritchard, Lotkas, Gross, Bradford, Zipf, Garfield, Vickery and many others. Many scientometric studies have appeared in the literature to focus on the performance of science in the journal of current science.

Literature review

Previous studies demonstrated that there is a related research, Cusi, Andree M. &

MacQueen (2012) the literature concerning social cognitive performance in people with bipolar disorder (BD) reveals a mixed pattern of findings. We compared performance between patients with BD and matched controls on two social cognitive. Hall, Jeremy; Philip, Ruth C; et. al.². (2012) behavioral studies have shown that, at a population level, women perform better on tests of social cognition and empathy than men. Furthermore Autism Spectrum Disorders (ASDs), which are characterized by impairments in social functioning and empathy, occur more commonly in males than females. MacLeod, Andrew K. et. al.³ (2012) differences in genomic structure between individuals are ubiquitous features

of human genetic variation. Specific copy number variants (CNVs) have been associated with susceptibility to numerous complex psychiatric disorders, including attention-deficit-hyperactivity disorder, autism-spectrum disorders and schizophrenia. Michaelson et. al. (2012), De novo mutation plays an important role in autism spectrum disorders (ASDs).

Notably, pathogenic copy number variants (CNVs) are characterized by high mutation rates. Findings suggest that regional hypermutation is a significant factor shaping patterns of genetic variation and disease risk in humans. Tsai, Nien-Pei; Wilkerson et. al. (2012), the activity-dependent transcription factor myocyte enhancer factor 2 (MEF2) induces excitatory synapse elimination in mouse neurons, which requires fragile X mental retardation protein (FMRP), an RNA-binding protein implicated in human cognitive dysfunction and autism. findings reveal roles for multiple autism-linked genes in activity.

Limitations of the study

The study undertaken is limited to 13.5 years, i.e. 2000- May 2013. It is a small scale study, which may need to be indicated by the states.

Objectives of the study

The main objective of this study is to study the citation analysis of current science publications in respect of;

To identify the source-wise and year-wise distribution of current science publications output of the study from 2000 to 2013.

To compare and measure the analysis continent-wise and country wise publication of current science journal.

To identify the institution-wise research concentration on current science journal.

Materials and Methods

Data was collected from the Science Citation Index (SCI) which is available via the Web of Science (WoS). SCI database is one of the very comprehensive databases covering all aspects of science. The study period (2000-2013) is selected as the database is available in machine from since 1982. The search string “current science” in the “Basic search” field of SCI was used for the years 2000 - May 2013 to download the records on the journal ‘current science’. A total of 2357 records were downloaded and analyzed by using the Histcite software application as per the objectives of the study.

Result and Discussion

The most productive author is Aswal VK with 108 papers dealing with current science journal and each 4.6% TLCS 113, TGCS 722, TLCR 118 of all papers published in this research journal. The authors of the seminal publication on current science given Table 1, Bahadur P 37 (1.6%), TLCS 42, TGCS 359, TLCR 60 and Yamanaka N (3.0%), TLCS 17, TGCS 154, TLCR 4, appear on rank 2, respectively. It can be clearly visualized in the table 1.

The most productive citation is current science with 474 papers dealing with current science journal and 20.1%, TLCS 404, TGCS 1348, TLCR 193 of all papers published in this research journal. The journal of the seminal publication on current journal given table 2, journal of physical chemistry b, appear on rank 2

Table.1 Author's wise document distribution (First -20 Documents)

S.No	Author	Records	Percent	TLCS	TLCS/t	TLCSx	TGCS	TGCS/t	TLCR	TLCsb	TLCSe
1	Aswal VK	108	4.6	113	16.05	7	722	102.91	118	31	0
2	Bahadur P	37	1.6	42	6.33	2	359	53.59	60	10	0
3	Kumar S	35	1.5	37	4.26	25	361	44.04	28	3	0
4	Goyal PS	34	1.4	53	5.06	8	364	36.10	24	13	9
5	Hassan PA	22	0.9	31	5.64	1	210	32.42	33	7	0
6	Agoramoorthy G	21	0.9	7	1.08	3	62	10.96	7	4	0
7	Balasubramaniam R	20	0.8	17	2.20	5	32	4.51	13	7	0
8	Bilham R	20	0.8	146	14.80	103	634	61.79	58	27	34
9	Balaram P	19	0.8	81	11.55	12	372	62.25	71	37	3
10	Hsu MJ	15	0.6	6	0.83	2	49	8.33	6	4	0
11	Maheshwari DK	14	0.6	19	2.25	6	81	11.16	14	2	0
12	Singh SK	14	0.6	25	4.64	17	128	24.50	15	2	0
13	Kumar A	13	0.6	4	0.60	3	61	12.70	6	1	0
14	Moulik SP	13	0.6	10	1.78	2	138	19.79	15	3	0
15	Shamala N	13	0.6	64	9.61	9	305	53.90	62	31	3
16	Thewissen JGM	13	0.6	57	5.50	31	327	29.63	26	11	5
17	Vasudev PG	13	0.6	64	9.61	9	305	53.90	62	31	3
18	Joshi JV	12	0.5	21	2.16	5	115	11.92	12	4	7
19	Kumar R	12	0.5	6	0.91	5	129	20.12	4	1	0
20	Arunachalam S	11	0.5	19	2.45	14	31	4.27	9	17	0

Table.2 Journal wise document distribution (First -20 Documents)

S. No	Journal	Records	Percent	TLCS	TLCS/t	TGCS	TGCS/t	TLCR
1	Current science	474	20.1	404	46.92	1348	159.69	193
2	Journal of physical chemistry b	29	1.2	61	7.91	581	66.06	24
3	Journal of colloid and interface science	24	1.0	37	5.77	328	44.26	32
4	Scientometrics	23	1.0	19	2.43	137	19.56	15
5	African journal of biotechnology	20	0.8	1	0.14	56	9.72	7
6	Bulletin of the seismological society of america	19	0.8	43	6.54	285	37.96	32
7	Pramana-journal of physics	19	0.8	6	0.66	62	6.98	17
8	Acta physiologiae plantarum	18	0.8	24	4.07	112	17.78	17
9	Environmental monitoring and assessment	18	0.8	5	1.28	32	7.65	9
10	Colloids and surfaces a-physicochemical and engineering aspects	16	0.7	15	2.54	154	21.01	22
11	Plant cell tissue and organ culture	14	0.6	10	1.76	128	19.91	14
12	Biodiversity and conservation	13	0.6	3	0.43	70	11.05	7
13	Journal of the geological society of india	13	0.6	6	1.30	27	4.29	11
14	Scientia horticulturae	13	0.6	26	4.27	69	11.07	21
15	Langmuir	12	0.5	16	2.52	123	18.06	12
16	Atmospheric environment	11	0.5	29	4.36	165	25.60	17
17	In vitro cellular & developmental biology-plant	11	0.5	9	1.43	56	7.30	4
18	Plos one	11	0.5	0	0.00	44	12.68	9
19	Natural hazards	10	0.4	3	0.75	63	8.88	18
20	Journal of environmental biology	9	0.4	0	0.00	38	6.16	1

(1.2%), TCLS 61, TGCS 581, TLCR 66.06 respectively.

The high frequency keywords will enable us to understand the various aspects of current science publication under study. The high frequency keywords were: India 310 (13.2%, TCLS 295, TGCS 1828), Indian 118 (5.0%, TCLS 120, TGCS 897), Using 101 (4.3 %, TCLS 55, TGCS 732), Science 98 (4.2%, TCLS 59, TGCS 291) and Effect 95 (4.0%, TCLS 50, TGCS 602). Analysis of the keywords appeared either on the title or assigned by the indexer or the author himself will help in knowing in which direction the knowledge grows.

During 2000 - 2013 a total of 2357 publications were published in current science journal by global. The highest number of publications 334 was produced in 2011 and 322 in 2010 Table 4 is given year wise growth and collaboration rate in current science. It can be clearly visualized from the table 4 that growth of the literature was very low during 2013. It indicates that research in current science received a major impetus this period.

Current science research journal cited scientists communicated their research results through a variety of communication channels. Table – 5 provides the distribution of publications in various channels of communication. It was observed that 73.8 percent of the literature was published in Article followed by 11.5 percent in Letter and 7.7 percent in Review,

The most productive Language is English with 2344 papers dealing with current science journal and each 99.4% TLCS 1649, TGCS 19314, of all papers published in this research journal. The seminal publication on current science given Table

6 Panish 5 (0.2%) and Chinese 2 respectively. It can be clearly visualized from the above table.

There were 708 institutions involved in research activity in Current Science Research Journal. Table-7 provides publication productivity of top 20 institutions. Bhabha Atom Research Center topped the list with 143 publications (6.1 %, TLCS 132, TGCS 879) followed by Indian Institute of Science with 110 publications (4.7 %, TLCS 180, TGCS 1679), respectively.

There were as many as 68 countries carrying out research in the journal of Current Science Table 8 provides a list of collaboration countries whose research output is more than 50 publications. India is top producing country with 1363 publications (57.8%, TLCS 1091, TGCS 9042 followed by USA with 293 publications (12.4%, TLCS 14, TGCS 402), Peoples R China with 30 Publications (11.3%, TLCS 370, TGCS 4821), respectively.

The most cited reference is Arora a, 2002, current science India, v82, p1227 with 146 paper 6.2 % of all papers published in this research journal. The cited reference of the seminal publication on current science given Table 9, appear on rank 2 & 3 Aswal Vk, 2000, Current Science India, V79, P947 And Murashige T, 1962, *Physiol Plantarum*, V15, P473, [Doi 10.1111/J.1399-3054.1962.Tb08052.X](https://doi.org/10.1111/J.1399-3054.1962.Tb08052.X) respectively. It can be clearly visualized from the above table and histogram chart below

In this study the literature current science journal, a promising new material, has been analyzed by scientometric methods. The average Number of Publications produced

Table.3 Word wise distribution of Documents (First -20 Documents)

S. No	Word	Records	Percent	TLCS	TGCS
1	INDIA	310	13.2	295	1828
2	INDIAN	118	5.0	120	897
3	USING	101	4.3	55	732
4	SCIENCE	98	4.2	59	291
5	EFFECT	95	4.0	50	602
6	PLANT	82	3.5	52	528
7	WATER	81	3.4	95	1392
8	ANALYSIS	75	3.2	30	673
9	GENETIC	69	2.9	34	377
10	GROWTH	69	2.9	43	351
11	STRESS	64	2.7	27	568
12	BASED	62	2.6	41	1186
13	RESEARCH	62	2.6	41	205
14	VITRO	61	2.6	51	298
15	SPECIES	57	2.4	52	398
16	INDUCED	55	2.3	46	476
17	ACTIVITY	52	2.2	14	324
18	STRUCTURE	51	2.2	61	628
19	EFFECTS	49	2.1	21	578
20	PROPERTIES	48	2.0	37	464

Table.4 Year wise distribution of documents

S. No	Publication Year	Records	Percent	TLCS	TGCS
1	2000	13	0.6	19	98
2	2001	37	1.6	141	1143
3	2002	54	2.3	127	1321
4	2003	104	4.4	129	961
5	2004	114	4.8	186	2037
6	2005	164	7.0	228	2479
7	2006	172	7.3	156	2533
8	2007	168	7.1	139	2335
9	2008	260	11.0	200	2256
10	2009	299	12.7	153	1991
11	2010	322	13.7	106	1310
12	2011	334	14.2	59	756
13	2012	312	13.2	6	118
14	2013	4	0.2	0	0

Figure.1 Year wise distribution of documents

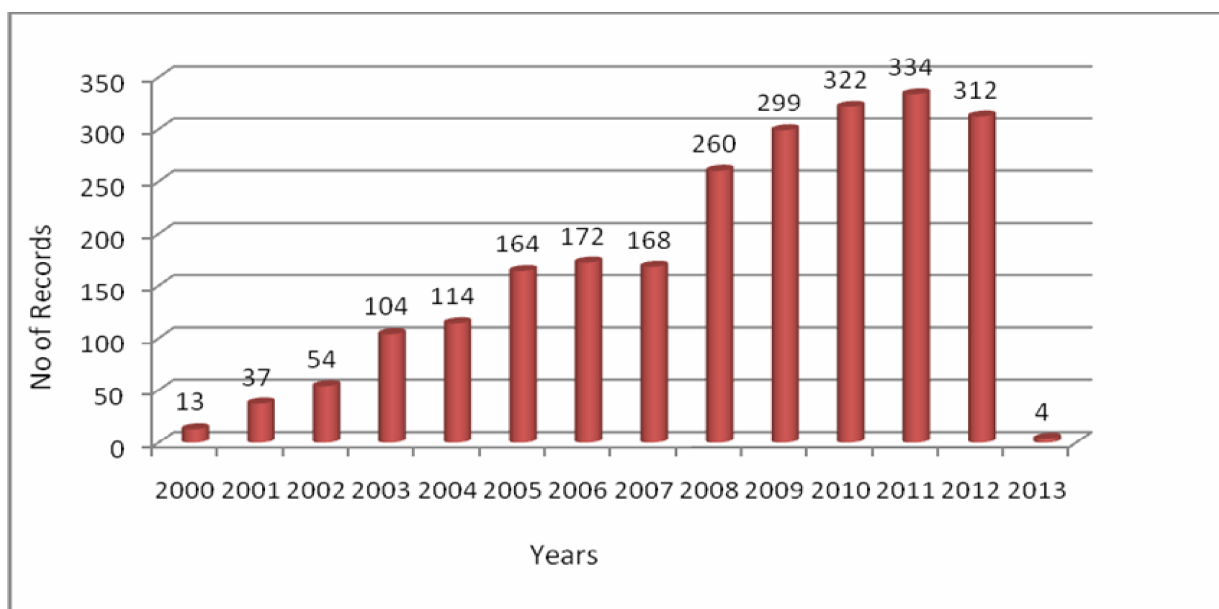


Table.5 Source wise distribution documents

S. No	Document Type	Records	Percent	TLCS	TGCS
1	Article	1739	73.8	1325	12962
2	Letter	270	11.5	81	199
3	Review	181	7.7	125	4942
4	Editorial Material	76	3.2	71	281
5	Article; Proceedings Paper	58	2.5	42	528
6	Review; Book Chapter	12	0.5	2	245
7	News Item	9	0.4	3	10
8	Correction	8	0.3	0	0
9	Article; Book Chapter	2	0.1	0	171
10	Meeting Abstract	1	0.0	0	0
11	Software Review	1	0.0	0	0

Table.6 Language wise documents distribution

S. No	Language	Records	Percent	TLCS	TGCS
1	English	2344	99.4	1649	19314
2	Spanish	5	0.2	0	13
3	Chinese	2	0.1	0	0
4	Portuguese	2	0.1	0	3
5	French	1	0.0	0	0
6	German	1	0.0	0	0
7	Japanese	1	0.0	0	1
8	Polish	1	0.0	0	7

Table.7 Institution wise distribution documents (First -20 Documents)

S. No	Institution	Records	Percent	TLCS	TGCS
1	Bhabha Atom Research Center	143	6.1	132	879
2	Indian Institute of Science	110	4.7	180	1679
3	Indian Inst Technol	67	2.8	85	498
4	Banaras Hindu Univ	37	1.6	54	369
5	Wadia Inst Himalayan Geol	35	1.5	61	358
6	Natl Inst Oceanog	33	1.4	14	102
7	Univ Delhi	30	1.3	8	502
8	Chinese Acad Sci	24	1.0	24	205
9	CSIR	23	1.0	12	308
10	Unknown	23	1.0	9	30
11	Veer Narmad S Gujarat Univ	23	1.0	10	122
12	Univ Colorado	22	0.9	155	683
13	Indian Agr Res Inst	21	0.9	16	105
14	Aligarh Muslim Univ	20	0.8	26	235
15	Jadavpur Univ	20	0.8	12	148
16	Jawaharlal Nehru Ctr Adv Sci Res	18	0.8	45	506
17	US Geol Survey	17	0.7	27	354
18	Tajen Univ	16	0.7	4	56
19	Natl Geophys Res Inst	15	0.6	1	54
20	Natl Sun Yat Sen Univ	15	0.6	6	49

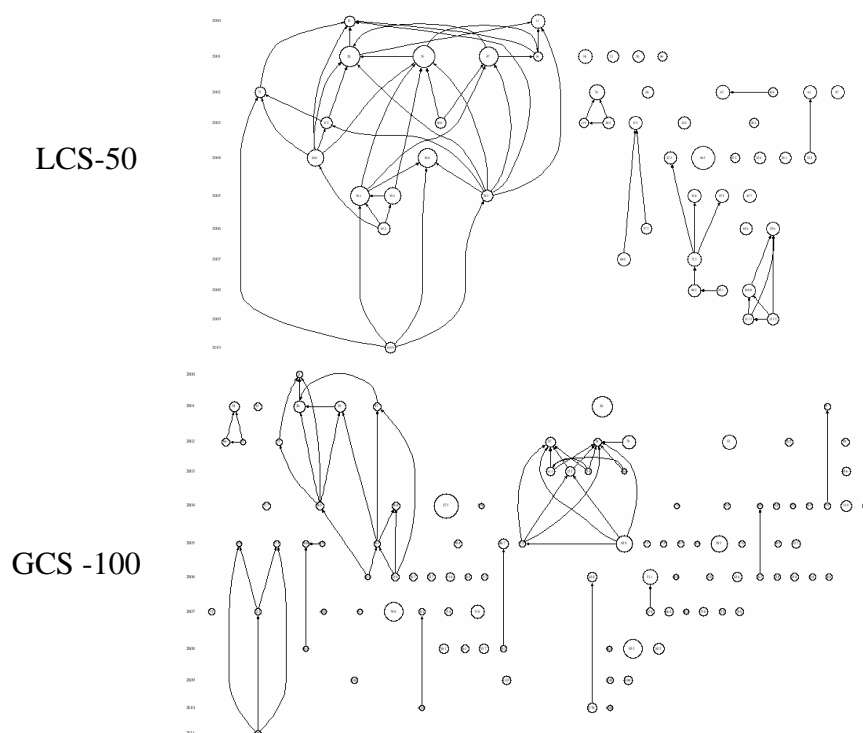
Table.8 Country wise documents distribution (first -20 Countries)

S.No	Country	Records	Percent	TLCS	TGCS
1	INDIA	1363	57.8	1091	9042
2	USA	293	12.4	370	4821
3	PEOPLES R CHINA	105	4.5	56	849
4	UNKNOWN	91	3.9	60	788
5	UK	88	3.7	94	1284
6	GERMANY	81	3.4	45	1029
7	FRANCE	57	2.4	27	581
8	CANADA	53	2.2	37	709
9	JAPAN	51	2.2	43	571
10	ITALY	49	2.1	36	598
11	TAIWAN	45	1.9	34	181
12	AUSTRALIA	41	1.7	32	531
13	SPAIN	39	1.7	11	490
14	BRAZIL	34	1.4	3	108
15	IRAN	30	1.3	5	200
16	PAKISTAN	25	1.1	11	107
17	POLAND	23	1.0	3	206
18	SWITZERLAND	23	1.0	18	497
19	SOUTH AFRICA	22	0.9	15	123
20	TURKEY	22	0.9	7	224

Table.9 Cited reference wise documents distribution (first -20 Countries)

S.No	Author / Year / Journal	Records	Percent
1	Arora A, 2002, CURR SCI INDIA, V82, P1227	146	6.2
2	Aswal VK, 2000, CURR SCI INDIA, V79, P947	141	6.0
3	MURASHIGE T, 1962, PHYSIOL PLANTARUM, V15, P473, DOI 10.1111/j.1399-3054.1962.tb08052.x	110	4.7
4	HAYTER JB, 1983, COLLOID POLYM SCI, V261, P1022, DOI 10.1007/BF01421709	58	2.5
5	BRADFORD MM, 1976, ANAL BIOCHEM, V72, P248, DOI 10.1006/abio.1976.9999	50	2.1
6	Banerjee S, 2006, CURR SCI INDIA, V90, P1378	46	2.0
7	Mittler R, 2002, TRENDS PLANT SCI, V7, P405, DOI 10.1016/S1360-1385(02)02312-9	42	1.8
8	Babu SS, 2001, CURR SCI INDIA, V81, P1208	37	1.6
9	Chen S.H., 1987, METHODS EXPT PHYSI B, V23B, P489	37	1.6
10	Arora NK, 2001, CURR SCI INDIA, V81, P673	35	1.5
11	Myers N, 2000, NATURE, V403, P853, DOI 10.1038/35002501	34	1.4
12	HAYTER JB, 1981, MOL PHYS, V42, P109, DOI 10.1080/00268978100100091	33	1.4
13	HEATH RL, 1968, ARCH BIOCHEM BIOPHYS, V125, P189, DOI 10.1016/0003-9861(68)90654-1	33	1.4
14	Ananda K, 2003, CURR SCI INDIA, V85, P1002	32	1.4
15	NAKANO Y, 1981, PLANT CELL PHYSIOL, V22, P867	30	1.3
16	SEEBER L., 1981, M EWING SERIES, V4, P259	30	1.3
17	Aswal VK, 2000, PHYS REV E, V61, P2947, DOI 10.1103/PhysRevE.61.2947	29	1.2
18	Bambawale OM, 2004, CURR SCI INDIA, V86, P1628	29	1.2
19	Ambraseys N, 2000, CURR SCI INDIA, V79, P45	28	1.2
20	Bilham R, 2001, SCIENCE, V293, P1442, DOI 10.1126/science.1062584	28	1.2

Figure.2 histogram chart



per year was 7.15%. The highest number of publications 334 was produced in 2011. The most productive author Aswal VK with 108 papers dealing with current science journal. Most productive research in country is India other 68 countries. The most productive Journal is current Science of defense with 33 papers dealing with this journal. Types of documents, the format of Journal article is the highest. Finally, the Scientometrics have more contributed and communicated in English language. Most productive research Institution there are Bhabha Atom Research Center is topped with 143 publications. The review was conducted through this study is very helpful for the identifying the potential feature.

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