Indian Journal of Information Sources and Services
ISSN: 2231-6094 Vol. 9 No. 1, 2019, pp. 76-84

The Journal of Horticultural Science and Biotechnology (2008-2017): A Scientometric Study

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Abstract **- The Journal of Horticultural Science and Biotechnology is a bimonthly peer-reviewed journal published by Taylor and Francis. The present bibliometric analysis depends on 1059 articles distributed from 2008 to 2017 in 60 issues of the journal. An effort has been made to consider distinctive bibliometric markers, for instance year-wise conveyance of articles, length of the articles, authorship pattern, author productivity, year-wise appearance of references, dissemination of cited references, different forms of resources used and cited by authors in their research work, ranked list of prolific authors, journals and organizations.**
Keywords: **Bibliometrics, Authorship Pattern, Citation Study, Journal of Horticultural Science and Biotechnology**

I. INTRODUCTION

Horticulture is the scientific term for the act of gardening. It first came into use around the 18th century as a practice of growing garden crops under intensive cultivation(Lang, 2007). The horticulturist is engaged with determination and effective use of soil, atmosphere, water, and other natural resources to the full potentiality for increasing the production and productivity of Horticultural yields like organic products, vegetables, fruits, spices, ornamentals, plantation and medicinal aromatic crops in addition to post-harvest management of horticulture products. This is especially basic for the present situation to meet the developing populace as they are appropriately called as defensive nourishments since they are wealthy in vitamins and minerals.

Enormous research is carried out in the field of Horticulture and Nanotechnology and the research results and applications have been brought out as research articles, books, reports, thesis, conference papers and website pages and in numerous different configurations of imparting the exploration. There are many journals published around the world in the field of Horticulture Science. In this study, The Journal of Horticultural Science and Biotechnology which is a vital and famous journal in the field of Horticultural Science and Biotechnology published in The United Kingdom is preferred based on its subscription at Authors' institute. This small covering data for a decade is an attempt to explore scholarly communication through different bibliometric indicators.

II. LITERATURE REVIEW

A Bibliometric study conducted by (Hadimani, Mamdapur, & Mavin, 2016) analyzed that research activities of Indian Journal of Agronomy during 2009-2013 based on 379 articles publication output, its growth rate, ranked prolific authors and quality of papers published and rank of the global context. Another study done by (Shah, 2016)revealed that a total of 81 article publication in 6 volumes of International Journal of Agriculture science during 2009-2014 based on publication outcome of the collaborative research, the degree of collaboration is 0.8765 which is the dominance of collaborative research compare to individual contributions. (Reddy & Shankarappa, 2015) did a study on Indian Journal of Agricultural Sciences for the period of 2006-2015, the author was found that 2010 has more citation, Kumar, A was the most productive author, top 10 authors had contributed 27.08% of the articles out of 2348 publication. (Suresh, Hema, & Sankara Subramaniam, 2015)a scientometric study conducted on Indian Journal of Horticulture during 2010-2014 total publication was 714 articles, out of that 233 (32.63%) highest published in the year of 2010, the highest number of publication was 341 articles from more than three authors and Indian agricultural research institute was highest of publication contribution. (Umamaheswari, Kalaiselvan, & Thilakar, 2014) studies on scientometric analysis of the Indian Journal of Agronomy this covered from 2008-2012, this period 319 papers published out of the highest number of published 74 in the year 2012, a maximum number of the article was from the subject cereal crops 33.86% and a trend was toward triple authorship. (Thanuskodi, 2012) bibliometric studies on Indian Journal of Agricultural Research for the period 2001-2010 result shows that out of 602 articles joint authors contributed 564 articles and most of the contributions were from Indian 98.67% and rest from foreign authors. Other studies conducted by (Biswas, Roy, & Sen, 2007) on Journal Economic Botany during 1994-2003, authors were found that contribution of two or three authors published about 80% of articles, publication originate from 45 different countries, the highest number of published 46 articles and 2033 citations was found in the year of 2003. (Nabi Hassan & Singh, 2003)conducted studies on Himachal Journal of Agricultural Research for the period of

1990-1999, authors were found that 1991 was more number article published, a highest contribution from two or three collaborative authorship, 68% literature cited from periodical journal articles and highest frequency of cited journal was Indian Journal of Agricultural Science.

III. SOURCE JOURNAL

The Journal of Horticultural Science and Biotechnology (from now on JHORTSCIB) once in the past known as Journal of Pomology and Horticultural Science (1919-1947) and later by Journal of Horticultural Science (1948-1997). As of now known as The Journal of Horticultural Science and Biotechnology (1998-current) distributed by Taylor and Francis in both printed (ISSN: 1462-0316) and electronic (ISSN: 2380-4084). In the specific first issue, noticed that "Horticultural Science" make great accomplices. Spotlights on the physiology, pathology, and agronomy of temperate, sub-tropical and tropical fruits, vegetables, ornamentals and modern yields developed in the open and under insurance, the journal supports this by publishing six issues per year (Accessible from the URL:https://www.tandfonline.com /action/journalInformation?journalCode=thsb20.

IV. OBJECTIVES OF THE STUDY

The objectives of the study are as per the following:

1. To outline year-wise dissemination of articles
2. To examine the authorship pattern of the contributions
3. To study the range and percentage of references per article
4. To analyze the utilization of different kinds of resources utilized and cited by the authors
5. To identify and prepare ranked list of prolific authors, journals and organizations
6. To identify and prepare a geographical list of contributions and State-wise list of Indian contributions
7. To prepare the list of highly cited articles published during the period 2008-2017
8. To prepare a list of keywords used in the published articles

V. METHODOLOGY

The data necessary for the analysis was collected from both print and online journal for the period 2008-2017. The research articles are reflected in this investigation. The references attached to each article were carefully checked and ordered specifically tables using Microsoft Excel. The insights with respect to a number of articles published, author names, affiliations and cited references are documented for each article.

Citation analysis and required bibliometric measures are associated to investigate the goals of the investigation. We also used Web of Science databases for the indexed documents published in the journal between 2008 and 2017. Citation and bibliometric network analyses were generated according to the records in WoS databases.

VI. ANALYSIS OF DATA

The following segment discusses the analysis of the data collected and exhibited under various table headings according to the objectives of the study.

A. Year-Wise Distribution of Contributions and Citations

Table 1 displays the volume and year-wise circulation of distributed articles of The Journal of Horticultural Science and Biotechnology. In 10 volumes containing 60 issues, 1059 articles have been published during the period 2008-2017. The study revealed that the highest numbers of 150 articles (14.16%) are published in the years 2009 and lowest numbers of 74 articles (6.99%) are published in the year 2017. The average number of articles published per year is 105.9 and the average article per issue is 17.65. It can also be noted that the number of articles published from 2011-2015 is almost consistent.

In all 33,554 citations were found appended to 1059 articles. From Table I obviously, a most noteworthy number of 3,893 (11.60%) references were added in the year 2008, trailed by 3,842 (11.45%) references in the year 2009. The year 2010 recorded slightest number of references i.e., 2,466 (7.35%). It merits saying here that, however, most astounding quantities of papers are distributed in the year 2008, it has resulted in a maximum number of references. The average number of references per paper is very nearly 31.69. This also shows that authors have utilized distinctive kinds of resource types in writing papers.

B. Authorship Pattern

The initiation design is broke down to decide the level of single and numerous authors. Table II reveals that most extreme quantities of articles were contributed by three authors with 203 articles (19.17 %). It is very closely trailed by five authors who contributed 199 articles (18.79%), four authors contributed 188 articles (17.75%) and taken after by six authors who contributed 153 articles (14.45%). The analysis reveals that collaborative contributions are more predominant than solo contributions.

C. Distribution of Length of Articles

The page length of articles is presented in Table III where it is discovered that 794 articles (74.98%) had page length in the range of 6-10 pages taken after by 224 articles (21.15%) in the page range of 0-5. There are 41 articles (3.87%) having more than or equivalent to 11 pages. There are only two articles published with more than or equal to 21 pages during the study period.

D. Year-Wise Appearance of Citations

Table IV investigates the data on the range and percentage of references per article. Obviously, the articles having references ranging from 21-30 were most elevated with 400 articles (37.77%) trailed by 31-40 range with 318 articles (30.03%)

TABLE I YEAR-WISE DISTRIBUTION OF CONTRIBUTIONS AND CITATIONS

Year	Volume	Issues	Total Publications	Percentage	No. of Citations
2008	83	6	130	12.28	3893
2009	84	6	150	14.16	3842
2010	85	6	94	8.88	2466
2011	86	6	105	9.92	3200
2012	87	6	107	10.10	3420
2013	88	6	109	10.29	3725
2014	89	6	103	9.73	3728
2015	90	6	105	9.92	3673
2016	91	6	82	7.74	2681
2017	92	6	74	6.99	2926
10 Years	10 Volumes	60 Issues	1059 Articles	100	33554

TABLE II AUTHORSHIP PATTERN

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total	%
Single	7	4	4	8	3	5	3	3	2	2	41	3.87
Two	15	21	11	17	14	11	17	6	7	9	128	12.09
Three	32	38	16	21	22	20	11	20	10	13	203	19.17
Four	23	27	23	19	18	19	21	21	15	13	199	18.79
Five	25	23	20	17	22	15	17	21	17	11	188	17.75
Six	13	23	7	11	15	19	14	20	17	14	153	14.45
Seven	10	7	3	6	8	12	6	6	4	8	70	6.61
Eight	4	5	6	3	2	6	8	2	3	2	41	3.87
Nine			1	1	1	2	3	3	5	1	17	1.61
Ten		1	1		2		1	1	2		8	0.76
Eleven			1	2			1	2			6	0.57
Twelve		1	1							1	3	0.28
Thirteen	1										1	0.09
Fifteen							1				1	0.09
Total	130	150	94	105	107	109	103	105	82	74	1059	100

TABLE III LENGTH OF ARTICLES

Year	0-5	6-10	11-15	16-20	21-25	>=26	Total
2008	39	89	1		1		130
2009	57	92				1	150
2010	34	60					94
2011	25	79	1				105
2012	26	80	1				107
2013	14	90	4	1			109
2014	13	85	4	1			103
2015	13	88	4				105
2016	3	72	7				82
2017		59	14	1			74
Total	224	794	36	3	1	1	1059
%	21.15	74.98	3.4	0.28	0.09	0.09	100

TABLE IV YEAR-WISE APPEARANCE OF CITATIONS

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total	%
1-10	3	7	2	2							14	1.32
11-20	25	36	21	21	13	11	10	9	3	6	155	14.64
21-30	55	74	43	38	39	39	29	35	33	15	400	37.77
31-40	36	24	26	30	38	34	38	38	32	22	318	30.03
41-50	9	6	2	10	11	17	17	15	11	18	116	10.95
51-60	1	1		2	4	4	5	3	3	6	29	2.74
61-70				1	1	2	1	2		5	12	1.13
71-80								1		1	2	0.19
81-90		1									1	0.09
91-100		1								1	2	0.19
>=101	1			1	1	2	3	2			10	0.94
Total	130	150	94	105	107	109	103	105	82	74	1059	100

E. Form-wise Distribution of References

Table V offers the year-wise reprieve up of different types of resources utilized by the authors. Among the referred to references, journals 29,407 (87.64%) are the intensely utilized resources followed by books 2,607 (7.77%). Journal articles convey beginning data which could be the explanation behind exceptionally favored wellspring of data among the authors adding to this journal. A considerable lot of the bibliometric studies on single journal have demonstrated journals articles as the most favored decision of resource by the authors. Interestingly, Web pages 363 (1.8%) is additionally progressively referred to by authors.

The other sort of resources, for example, conference proceedings, thesis, reports, manuals, handbooks, newsletters, symposium, encyclopedias, yearbooks, software's, patents, tech. bulletin, dictionary, standards, seminars, and workshops etc., and so forth have minimum pulled in the consideration of the authors and accounted just 1177 (3.51%) of aggregate references.

TABLE V FORM-WISE DISTRIBUTION OF REFERENCES

Resources Type	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total	%
Journals	3361	3279	2133	2755	2962	3307	3277	3311	2418	2604	29407	87.64
Books	351	315	227	297	309	281	275	227	159	166	2607	7.77
Web Pages	41	58	25	17	25	49	36	37	26	49	363	1.08
Conf. Procs.	24	44	21	36	25	26	42	41	13	27	299	0.89
Thesis	18	28	14	30	24	18	34	20	13	12	211	0.63
Reports	22	49	10	18	23	10	13	6	6	18	175	0.52
Manuals	14	15	3	9	10	8	9	5	16	9	98	0.29
Handbooks	12	15	8	8	6	5	5	13	2	4	78	0.23
Newsletters	15	2	2	5	6	5	13	5	5	4	62	0.18
Symposium	16	14	6	1	6	4	1	1	3	9	61	0.18
Others	19	23	17	24	24	12	23	7	20	24	193	0.58
Total	3893	3842	2466	3200	3420	3725	3728	3673	2681	2926	33554	100

F. List of Highly Contributing Institutions/Organizations

Table VI shows the maintop 10 institutions that have contributed to this journal. Nanjing Agricultural University, Nanjing, China has contributed 169 (3.56%) articles followed by Indian Agricultural Research Institute, New Delhi, India with 113 (2.38%) articles and Agricultural Research Organisation, The Volcani Centre, Israel with 75 (1.48%) articles. In all authors partnered with 1020 establishments have added to this journal. It is moreover observed that a significant number of the authors are collaborated with various foundations because of exchanges or change from one organization to another. Such authors have been incorporated under the affiliation the circulating form of the articles.

TABLE VI LIST OF HIGHLY CONTRIBUTING INSTITUTIONS/ORGANIZATIONS

S. No.	Institution/Organization	Total	%	Rank
1	Nanjing Agricultural University, Nanjing, China	169	3.56	1
2	Indian Agricultural Research Institute, New Delhi, India	113	2.38	2
3	Agricultural Research Organization, The Volcani Center, Israel	75	1.58	3
4	China Agricultural University, Beijing, China	70	1.48	4
5	Beijing University of Agriculture, Beijing, China	65	1.37	5
6	South China Agricultural University, Guangzhou, China	56	1.18	6
7	Indian Institute of Horticultural Research, Bangalore, India	51	1.08	7
8	Northwest A & F University, Yangling Shaanxi, China	49	1.03	8
9	Jiangsu Academy of Agricultural Sciences, Nanjing, China	38	0.80	9
10	University of Tehran, Tehran, Iran	38	0.80	9
11	Zhejiang University, Hangzhou, China	38	0.80	9
12	Agricultural Biotechnology Research Institute of Iran, Karaj, Iran	32	0.67	10

G. Highly Contributing Indian Institutions/Organizations

Table VII exhibits the top 10 highly productive Indian institutions w.r.t state-wise appearances of citations have contributed to this journal. The dispersed information demonstrates an aggregate of 503 contributors from 95 individual institutes were involved. It is seen that Indian Agricultural Research Institute, New Delhi contributed 113 (22.47%), followed by Indian Institute of Horticultural Research, Bangalore 51 (10.14%), took after National Research Centre for Banana, Tiruchirapalli contributed 22 (4.37%) and University of Agricultural Sciences, GKVK, Bangalore contributed 17 (3.38%).

TABLE VII HIGHLY CONTRIBUTING INDIAN INSTITUTIONS/ORGANIZATIONS

S. No.	Institutions/Organizations	Total	%	Rank
1	Indian Agricultural Research Institute, New Delhi	113	22.47	1
2	Indian Institute of Horticultural Research, Bangalore	51	10.14	2
3	National Research Centre for Banana, Tiruchirapalli	22	4.37	3
4	University of Agricultural Sciences, GKVK, Bangalore	17	3.38	4
5	National Bureau of Plant Genetic Resources, New Delhi	15	2.98	5
6	Indian Institute of Vegetable Research, Varanasi	13	2.58	6
7	Banaras Hindu University, Varanasi	11	2.19	7
8	Central Institute of Medicinal & Aromatic Plants, Lucknow	11	2.19	7
9	National Research Centre for Plant Biotechnology, New Delhi	11	2.19	7
10	G.B. Pant Institute of Himalayan Environment & Development, Almora	9	1.79	8
11	University of Delhi, New Delhi	9	1.79	8
12	University of Kerala, Thiruvananthapuram	8	1.59	9
13	Central Institute of Medicinal & Aromatic Plants, Bangalore	7	1.39	10
14	Karnataka University, Dharwad	7	1.39	10
15	Punjab Agricultural University, Ludhiana	7	1.39	10
16	Tamil Nadu Agricultural University, Coimbatore	7	1.39	10
17	Other Indian Institutes	185	36.78	
Total		503	100	

H. Ranked List of Prolific Authors

Table VIII reveals the list of prolific authors who have contributed no less than at least 2 articles amid the time of the study. There are 3,778 authors contributing 1,059 articles to the Journal of Horticultural Science and Biotechnology during the study period 2008-2017. The most driving authors are Sonsteby, A contributed 28 articles, Heide, O. M. contributed 14 articles, Jung, Seok-Kyu contributed 11 articles, Hyun-Sug Choi and Rady

Mostafa M contributed 10 articles each, and S. L. Zhang contributing 9 articles. There are 3 authors contributed 8 articles each, 4 authors contributed 7 each, 5 authors contributed 6 articles each, 12 authors contributed 5 articles each, 43 authors contributed 4 articles each. As many as 110 authors contributed 3 articles each, 421 authors contribute 2 articles each and 3,174 authors contributed 1 article each during the period of 2008-2017.

TABLE VIII RANKED LIST OF PROLIFIC AUTHORS

S. No.	Name of the Author	Total	Rank
1	A. Sonsteby	28	1
2	O. M. Heide	14	2
3	Seok-Kyu Jung	11	3
4	Hyun-Sug Choi	10	4
5	Rady Mostafa M	10	4
6	S. L. Zhang	9	5
7	3 Authors contributing 8 each	24	
8	4 Authors contributing 7 each	28	
9	5 Authors contributing 6 each	30	
10	12 Authors contributing 5 each	60	
11	43 Authors contributing 4 each	172	
12	110 Authors contributing 3 each	330	
13	421 Authors contributing 2 each	1502	
14	3174 Authors contributing 1 each	3174	
Total		3778	

I. Geographical Distribution of Contributions-World

An attempt has been made to study the geographical distribution of contributions. It is revealed from Table IX that the majority of contributors are from China with 1,427 (30.09%) contributors followed by India with 503 (10.61%) contributions and Japan with 332 (6.94%) contributions. Authors from 73 countries have published their research in The Journal of Horticultural Science and Biotechnology. According to WoS databases, China was a predominant country with 247 indexed articles (25.62%) followed by India, the USA, Japan and Iran (12.97, 8.19, 7.88 and 5.81%, respectively) (Fig.1).Nearly all countries produced documents except some countries in Africa (Fig. 2).

J. State-Wise Distribution of Indian Contributions

An attempt is also made to study the contributions made by the authors of different States of India. It is revealed from Table X that majority of contributors are from New Delhi with 151 (30.02%) contributions followed by Karnataka with 92 (18.29%) and Uttar Pradesh with 58 (11.53%) contributions. Least number of papers have been contributed by Assam, Madhya Pradesh and Mizoram with 1 (0.20%) contributions followed by Andhra Pradesh with 2 (0.40%) contributions each.

TABLE IX GEOGRAPHICAL DISTRIBUTION OF CONTRIBUTIONS-WORLD

S. No	Name of the Country	Total	%
1	China	1427	30.09
2	India	503	10.61
3	Japan	332	7.00
4	Italy	213	4.49
5	Iran	208	4.39
6	Spain	205	4.32
7	USA	185	3.9
8	South Korea	165	3.48
9	Israel	119	2.51
10	Australia	111	2.34
11	Other Countries	1274	26.87
Total		4742	100

K. Ranked List of Journals

Table XI provides the rank list of top 10 journals favored by the authors amid the distribution period of 2008-2017 of The Journal of Horticultural Science and Biotechnology. The 29,407 references were scattered in 2,981 periodicals. The top 10 journals represent 13,271 (45.13%) of aggregate 29,407 journals referred to by the authors. Acta Horticulture tops as the highly favored journal among the authors contributing to the source journal with1079 (3.67%) citations taken after by Plant Physiology with 1034 (3.52%) citations and Scientia Horticulture with 1008 (3.43%) citations.

TABLE X STATE-WISE DISTRIBUTION OF INDIAN CONTRIBUTIONS

S. No.	Name of the State	Total	%
1	New Delhi	151	30.02
2	Karnataka	92	18.29
3	Uttar Pradesh	58	11.53
4	Himachal Pradesh	38	7.55
5	Tamil Nadu	35	6.96
6	Uttarakhand	23	4.57
7	Maharashtra	13	2.58
8	Haryana	11	2.19
9	Jammu and Kashmir	11	2.19
10	Kerala	11	2.19
11	Meghalaya	11	2.19
12	Other Indian States	49	9.74
Total		503	100

L. Citation Analysis

According to WoS databases, H-index of the literature including published articles in The Journal of Horticultural Science and Biotechnology between 2008 and 2017 was calculated as 22. Documents were cited 4,400 times (4225 times without self-citations). The number of citations increased gradually by year and peaked in 2017 with 728 times.

TABLE XI RANKED LIST OF JOURNALS

S. No.	Name of the Journal	Total	%	Rank
1	Acta Horticulture	1079	3.67	1
2	Plant Physiology	1034	3.52	2
3	Scientia Horticulture	1008	3.43	3
4	HortScience	733	2.49	4
5	Journal of the American Society for Horticultural Science	714	2.43	5
6	The Journal of Horticultural Science and Biotechnology	685	2.33	6
7	Postharvest Biology and Technology	675	2.3	7
8	Theoretical and Applied Genetics	609	2.07	8
9	Journal of Experimental Botany	579	1.97	9
10	Physiologia Plantarum	527	1.79	10

M. Distribution of Citations

Table XII presents information on the dispersion example of citations of papers. The citations information introduced in Table XIII is retrieved from Taylor and Francis online. It is clear from the table that 73 (33.18%) articles have received more than 11 citations and 267 articles have not received any citations. There are 207 (38.56%) articles which have received 5 citations and 100 (8.16%) articles which have received 3 citations. It can also be noted that the 1059 articles retrieved between the period 2008-2017 have received a total of 3677 citations.

TABLE XII DISTRIBUTION OF CITATIONS

No. Citations	No. of Papers	Total Citations
0	267	0
1	207	207
2	144	288
3	100	300
4	61	244
5-10	207	1418
11-20	61	816
21-30	8	219
31-40	1	39
41-50	2	90
51-60	1	56
Total	1059	3677

N. Highly Cited Articles

Table XIII depicts data on the highly cited articles. Out of 10 highly cited articles, 3 articles have received more than 40 citations.

TABLE XIII THE MOST CITED ARTICLES PUBLISHED IN THE JOURNAL OF HORTICULTURAL SCIENCE AND BIOTECHNOLOGY BETWEEN 2008 AND 2017

S. No.	Title	Authors	Bibliographic Details	T&F Citations	Google Scholar Citations	Web of Science	
						Total citations	Average citations per year
1	Horticultural applications of jasmonates	Rohwer, C. L., and Erwin, J. E.	Vol. 83, No. 3 (2008): 283-304	56	127	66	6.00
2	Root development in horticultural plants grown under abiotic stress conditions – a review	Franco, J. A., Banon,S., Vicente, M. J., and Martinez-Sanchez, J. J.	Vol. 86, No. 6 (2011): 543-556	47	85	55	6.88
3	Physiology and genetics of flowering in cultivated and wild strawberries – a review	Heide, O. M., Stavang, J. A. and Sonsteby, A.	Vol. 88, No. 1 (2013): 1-18	43	56	47	7.83
4	Selecting models of apple flowering time and understanding how global warming has had an impact on this trait	Legave, J. M., Farrera, I., Almeras, T., and Calleja, M.	Vol. 83, No. 1 (2008): 76-84	39	78	59	5.36
5	Anatomy and physiology of graft incompatibility in solanaceous plants	Kawaguchi, M., Taji, A., Backhouse, D., and Oda, M.	Vol. 83, No. 5 (2008): 581-588	28	61	35	3.18
6	Composition and properties of purified phenolics preparations obtained from an extract of industrial blackcurrant (Ribes nigrum L.) pomace	Sojka, M., Guyot, S., Kołodziejczyk, K., Krol, B., and Baron, A.	Vol. 84, No. 6 (2009): 100-106	27	47	26	2.09
7	Physiological and biochemical changes at the rootstock-scion interface in graft combinations between Cucurbita rootstocks and a melon scion	Aloni, B., Karni, L., Deventurero, G., Levin, Z., Cohen, R., Katzir, N., and Joel, D. M.	Vol. 83, No. 6 (2008): 777-783	26	57	38	3.45
8	Comparative impacts of water stress on the leaf anatomy of a drought-resistant and a drought-sensitive olive cultivar	Ennajeh, M., Vadel, A. M., Cochard, H., and Khemira, H.	Vol. 83, No. 6 (2010): 289-294	25	73	41	4.56
9	Pre-harvest growth and development, measured as accumulated degree days, determine the post-harvest green life of banana fruit	Jullien, A., Chillet, M., and Malezieux, E.	Vol. 83, No. 6 (2008): 506-512	24	28	28	2.55
10	An overview of climate and crop yield in closed greenhouses	De Gelder, A., Bot, G. P. A., and Marcelis, L. F. M.	Vol. 87, No. 3 (2012):193-202	24	41	26	3.71

The 10 articles presented in Table XIII have received 339 citations which are 9.22% of total 3677 citations received for 1059. An attempt is made to check the citations for articles listed in Table14 from Google Scholar and it is revealed that the articles have received much better citations compared to Taylor and Francis online. The one obvious reason for this could be that the Google Scholar indexes the huge number of journals.

O. Bibliometric Network Analyses

The most used keywords between 2008 and 2017 were "gene expression", "anthocyanin", "ethylene" and "*Vitis vinifera*", Table XIV. We detected limited bibliometric network pattern among connected keywords in where the keywords of "genetic expression", "genetic diversity", "anthocyanin" and "ethylene" centered (Fig.1).Centres in a bibliometric network of the countries producing articles in The Journal of Horticultural Science and Biotechnology were China, the USA, Spain, Iran, and Italy (Fig.2). Chinese Academy of Sciences and Nanjing Agricultural University were the most collaborative institutions in a bibliometric network of the organizations (Fig. 3).

TABLE XIV THE MOST USED KEYWORDS IN THE ARTICLES PUBLISHED IN THE JOURNAL OF HORTICULTURAL SCIENCE AND BIOTECHNOLOGY BETWEEN 2008 TO 2017

Keyword (Occurrence, total link strength)	
1. Gene expression (7, 24)	2. Anthocyanin (5, 19)
3. Ethylene (5, 16)	4. Vitis vinifera (5, 13)
5. Grapevine (5, 9)	6. Genetic diversity (4, 17)
7. ISSR (4, 17)	8. Tomato (3, 14)
9. Solanum lycopersicum (3, 13)	10. Vase life (3, 11)
11. Phenolics (3, 10)	12. Light (3, 9)
13. Quality (3, 9)	14. Mulberry (3, 6)
15. Self-incompatibility (3, 4)	16. Ascorbate-glutathione cycle (2, 10)
17. Ascorbic acid (2, 10)	18. Calcium (2, 10)
19. Firmness (2, 10)	20. Hydroponics (2, 10)

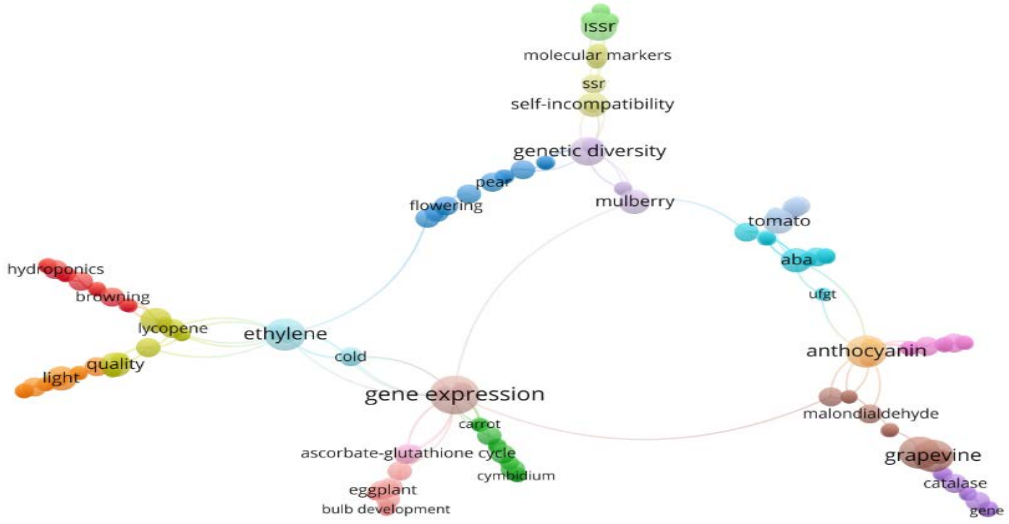

Fig.1 Bibliometric Network Pattern among Connected Keywords

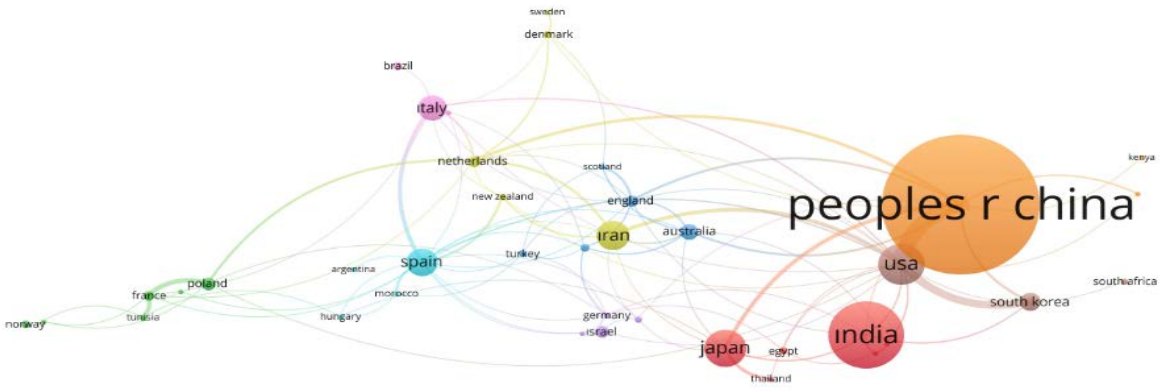

Fig. 2 Bibliometric Network Countries Producing Articles

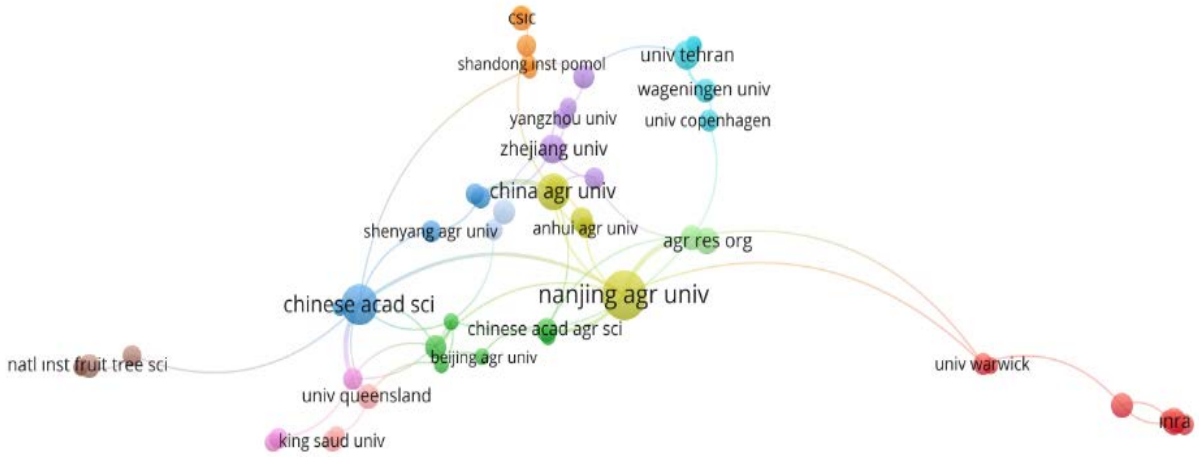

Fig. 3 Collaborative Institutions Contributions-Bibliometric Network

VII. FINDINGS AND CONCLUSION

The present study provided the scholarly communication trend of The Journal of Horticultural Science and Biotechnology 2008-2017 through bibliometric indicators. The examination uncovers that the recurrence of distribution was routinely being distributed bi-monthly. The journal has distributed 10 volumes with 60 issues containing 1,059 articles amid for the time frame. The multi composed articles have demonstrated an expanding pattern with 96.13% commitments. Among the referred to references, journals are the most favoured type of sources counseled with 29,407 (87.64%) references taken after by books 2,607 (7.77%). The top three authors Sonsteby, A., Heide, O. M., and Jung, Seok-Kyu are with 28, 14 and 11 articles respectively. Acta Horticulture topped the ranked list of journals with 1079 (3.67%). In its 10 year publication phase, this journal has proved itself in terms of quality of contents, editing and has given a platform to the researchers to publish their research. Hence, it can be concluded that The Journal of Horticultural Science and Biotechnology is most ideal journal for scholarly communication and publish the research work in the field of agriculture and horticulture areas not only for Indian researchers but also for the researchers around the world.

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