RESEARCH ARTICLE

SCIENTOMETRIC ANALYSIS OF ASIAN COUNTRIES MATHEMATICS PUBLICATIONS

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ABSTRACT

This paper discusses about the Asian countries Mathematics publications during the period of 1996-2016 and its citation available in the Scimago Journal and Country Rank data base by the authors from top 15 countries (based on publications). The relevant data are collected from Scimago Journal and Country Rank data base and it was analyzed. It shows among the Asian countries Mathematics publications totally 833461 articles were published. Among the publications, maximum of 418170 (50.17%) articles published by China followed by Japan with 129674 (15.56%) publications and India is in 3rd place with 77303 (9.28%) publications during the study period.

Keywords: Asian Countries, Mathematics, Scimago Journal and Country Rank, Citations, Self Citations, Citable Documents, H- Index.

1. INTRODUCTION

The true measurement of assessing the quality and quantity of a journal is the Citation Index. While discussing citation, one needs to know the citation. Simply, when another refers other works in his/her article, we describe the article referred is cited. In other words the citation is called as the earlier work which is referred in the present work. The quality of a given work can precisely be deemed through the number of citations that it gets. Therefore, a firm piece of article or research paper is carrying more number of citations get more impact than the work carrying less citation. Therefore, we always refer to some indexing and abstracting databases like Web of Science, Scopus, or even Google Scholars to know the impact of a particular journal, a article or a particular author. Scimago Journal and Country Rank database developed by Scimago Lab and powered by Scopus

2. REVIEW OF LITERATURE

Senthilkumar *et al.* (1) this study analyzes the Astrophysics research output in India from 1989 to 2014. The study revealed that the highest number of publications is in the year 2013 with 913 records having a GCS of 4342 and LCS of 324. The major source of publication in Astrophysics research comes in the form of articles. Rajneesh *et al.* (2) have analyzed research output of Computer Science Literature, articles published in the "Journal of the ACM", for ten years in from 1999 to 2008. The study envisages that a total number of 336 papers comprise of 10799 citations. The highest average citations per article were 37.25 the overall average of the citations per article is 32.14. Journals and conference proceedings and both of them together

have shared 77% of the total citations. 3926 (36.88%) citations authored by a single author, whereas 6719 citations (63.12%) were multiple authors. It is evident that Computer science is one of the emerging disciplines. Krishnan *et al.* (3) have studied the Current science Publications research output, for the period of 2000 to 2013. Among 2357 records, the most productive author was Aswal, V.K. with 108 papers and the highest number of records 334 published in 2011 and 322 records in the year 2010. Total 73.8% of the literature was published records were articles. India was the top produced country with 1363 publications (57.8%) followed by USA with 293 publications (12.4%). Most productive Institution was Bhabha Atomic Research Center (BARC), which topped with 143 publications. Seeman *et al.* (4) have analyzed the growth rate of environmental science literature output in nineteen Universities of South India the period of 2000 - 2012 were retrieved from Web of Science database Among total 6784 journal articles, the highest output was in the year 2012 that accounts for 13.97% and the 7694 journal articles occupy predominant position sharing 88.17% of total research output. A core set of 38 journals has covered about one third of the total publications made by the environmental science researchers in selected universities from South India. Khatun *et al.* (5) have examined the periodical articles on diarrheal disease research in Bangladesh. The articles were derived from PubMed, Web of Science and Scopus databases from the period of 1971 to 2009 (38 Years). The total number of retrieved records was 1.521 PubMed 488; WoS 419; and Scopus 614). The unique 711 records were retained for analysis. The literature growth increased with an average 18.23 articles published

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per year. The majority of journals 99 (65.55%) were published in the USA and UK.

3. METHODOLOGY

This study aims to discuss about the Asian countries Mathematics publications and its citation available in the Scimago Journal and Country Rank data base by the top 15 countries (based on publications) (6). The relevant data are collected from Scimago Journal and Country Rank database. Based on the available sources, the following discussions are made.
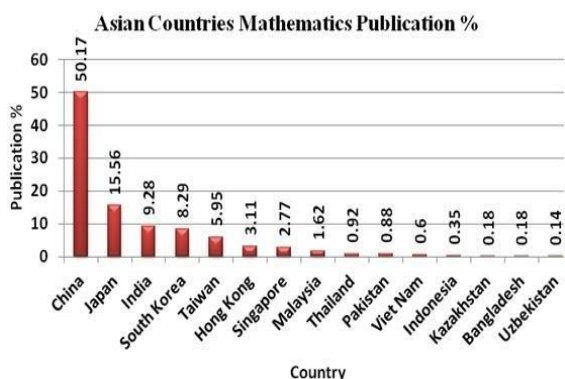
4. ANALYSIS AND INTERPRETATION

The distributions of the Asian countries Mathematics publications by the top 15 countries that is available in Scimago Journal and Country Rank data base which were analyzed in the Table 1.

4.1. Asian countries mathematics publications (Top 15 Countries)

Table 1. Asian Countries Mathematics Publications (Top 15 Countries)

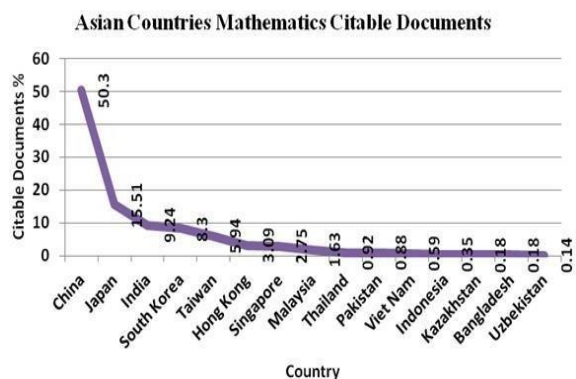| S. No.	Country	Mathematics Publication	%
1	China	418170	50.17
2	Japan	129674	15.56
3	India	77303	9.28
4	South Korea	69104	8.29
5	Taiwan	49578	5.95
6	Hong Kong	25910	3.11
7	Singapore	23107	2.77
8	Malaysia	13528	1.62
9	Thailand	7649	0.92
10	Pakistan	7366	0.88
11	Viet Nam	4968	0.60
12	Indonesia	2890	0.35
13	Kazakhstan	1535	0.18
14	Bangladesh	1492	0.18
15	Uzbekistan	1187	0.14
	Total	833461	100

Publications From 1996 to 2016, totally 833461 articles was published which are indexed in Scimago database. Among the publications, maximum of 418170 (50.17%) articles published by China and followed by Japan with 129674 (15.56%) publications and India is in 3rd place with 77303 (9.28%) publications.

4.2. Asian countries mathematics citable documents

Table 2. Asian Countries Mathematics Citable Documents

S. No.	Country	Mathematics Citable Documents	%
1	China	414307	50.30
2	Japan	127731	15.51
3	India	76183	9.24
4	South Korea	68341	8.30
5	Taiwan	48902	5.94
6	Hong Kong	25422	3.09
7	Singapore	22660	2.75
8	Malaysia	13391	1.63
9	Thailand	7564	0.92
10	Pakistan	7259	0.88
11	Viet Nam	4855	0.59
12	Indonesia	2862	0.35
13	Kazakhstan	1512	0.18
14	Bangladesh	1469	0.18
15	Uzbekistan	1175	0.14
	Total	823633	100

The above Table presents the country-wise distribution of Asian Countries Mathematics citable documents (includes articles, reviews and conferences papers), from top 15 countries from 1996 to 2016, 823633 citable documents were available which are indexed in Scimago database. Among the citable documents maximum of 414307 (50.30%) by China followed by Japan with 127731 (15.51%) and India contributed 76183 (9.24%) citable documents.


The above Table shows that the country-wise distribution of Asian Countries Mathematics

4.3. Asian countries mathematics citations

Table 3. Asian Countries Mathematics Citations.

S. No.	Country	Mathematics Citations	%
1	China	2126508	41.53
2	Japan	854615	16.69
3	India	471974	9.22
4	South Korea	446103	8.71
5	Taiwan	425341	8.31
6	Hong Kong	353458	6.90
7	Singapore	252969	4.94
8	Malaysia	58238	1.14
9	Thailand	33912	0.66
10	Pakistan	49702	0.97
11	Viet Nam	24797	0.48
12	Indonesia	7350	0.14
13	Kazakhstan	3823	0.07
14	Bangladesh	7086	0.14
15	Uzbekistan	4912	0.10
	Total	5120788	100

The above Table shows the distribution of Asian Countries Mathematics citations, from top 15 countries from 1996 to 2016. Among the citations maximum of 2126508 (41.53%) by China followed by Japan with 854615 (16.69%) and India contributed 471974 (9.22%) Citations.
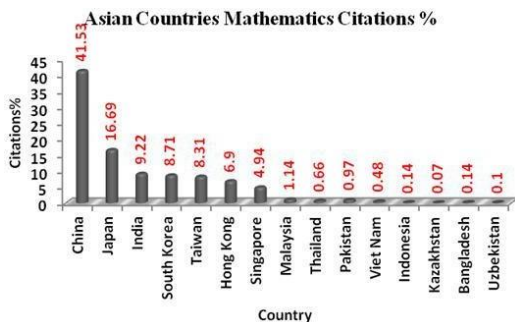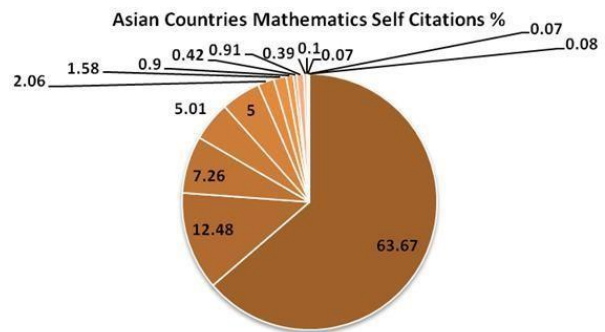

4.3. Asian countries mathematics self citations

Table 4. Asian Countries Mathematics Self Citations

S. No.	Country	Mathematics Self Citations	%
1	China	1376546	63.67
2	Japan	269878	12.48
3	India	156953	7.26
4	South Korea	108313	5.01
5	Taiwan	108068	5.00
6	Hong Kong	44632	2.06
7	Singapore	34073	1.58
8	Malaysia	19448	0.90
9	Thailand	8949	0.42
10	Pakistan	19619	0.91
11	Viet Nam	8515	0.39
12	Indonesia	2111	0.10
13	Kazakhstan	1617	0.07
14	Bangladesh	1430	0.07
15	Uzbekistan	1870	0.08
	Total	2162022	100

The above Table reveals the distribution of Asian Countries Mathematics self citations, from top 15 countries from 1996 to 2016. Among the Asian Countries Mathematics self citations maximum of 1376546 (63.67%) by China followed by Japan with 269878 (12.48%) and India's self citation is 156953 (7.26%)
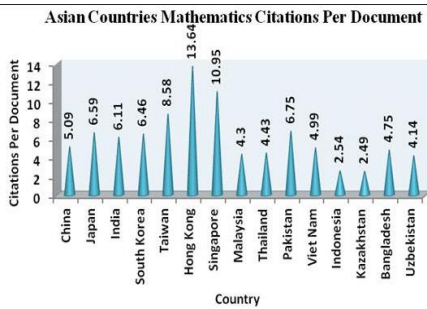

4.4. Ranking of asian countries mathematics citations per document

Table 5. Ranking of Asian Countries Mathematics Citations Per Document

S. No.	Country	Citations Per Document	Ranking
1	China	5.09	VIII
2	Japan	6.59	V
3	India	6.11	VII
4	South Korea	6.46	VI
5	Taiwan	8.58	III
6	Hong Kong	13.64	I
7	Singapore	10.95	II
8	Malaysia	4.3	XII
9	Thailand	4.43	XI
10	Pakistan	6.75	IV
11	Viet Nam	4.99	IX
12	Indonesia	2.54	XIV
13	Kazakhstan	2.49	XV
14	Bangladesh	4.75	X
15	Uzbekistan	4.14	XIII

The above Table depicts that the ranking of Asian Countries Mathematics Citations per Document (Average citations to documents published during 1996-2016), from top 15 countries. Among the Ranking of citations per document study Hong Kong is in first rank with 13.64 followed by Singapore with 10.95 in second rank and Taiwan is in third rank with 8.58 citations per document used.

Asian Countries Mathematics Citations Per Document

4.5. Ranking of asian countries mathematicsh index

Table 6. Ranking of Asian Countries Mathematics H Index

S. No.	Country	H Index	Ranking
1	China	239	I
2	Japan	195	II
3	India	146	VII
4	South Korea	156	IV
5	Taiwan	153	V
6	Hong Kong	178	III
7	Singapore	151	VI
8	Malaysia	69	VIII
9	Thailand	61	X
10	Pakistan	67	IX
11	Viet Nam	52	XI
12	Indonesia	31	XIII
13	Kazakhstan	22	XV
14	Bangladesh	35	XII
15	Uzbekistan	27	XIV

The data presented in the above table shows that the ranking of Asian Countries Mathematics distribution of H Index (country's number of articles (h) that have received at least h citations) the China is in the first rank with 239 H indexes followed by Japan with 195H indexes respectively and Hong Kong is in third rank with 178 H indexes. Also India is in Seventh rank with 146 H Indexes.

Asian Countries Mathematics H Index
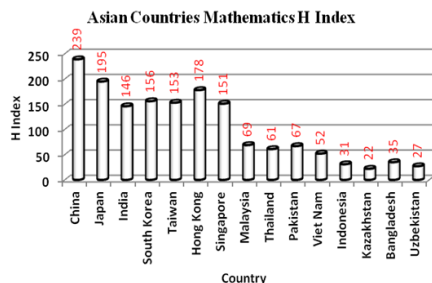
5. CONCLUSION

The superiority and magnitude of research are made obtainable through indexing journals with citations of various articles. There is wanting, for providing citations to other articles which authors cite. For reviewing the prior articles which are very much important for behind your article value added point for publishing. It is a good practice to give self citation for their previous works and it follows up of the previous one and improved one. During the study period from 1996 to 2016, among the publications, maximum of 418170 (50.17%) articles published by China and followed by Japan with 129674 (15.56%) publications and India is in 3rd place with 77303 (9.28%) publications. The above citable documents study shows that maximum of 414307 (50.30%) by China followed by Japan with 127731 (15.51%) and India contributed 76183 (9.24%) citable documents. The study envisages that maximum number of citations 2126508 (41.53%) by China followed by Japan with 854615 (16.69%) and India contributed 471974 (9.22%) citations. The above study reveals that maximum number of self citations 1376546 (63.67%) by China followed by Japan with 269878 (12.48%) and India's self citation is 156953 (7.26%). Among the Ranking of citations per document study Hong Kong is in first rank with 13.64 followed by Singapore with 10.95 in second rank and Taiwan is in third rank with 8.58 citations per document used. The H Index study shows that China is in the first rank with 239 H indexes followed by Japan with 195H indexes and Hong Kong is in third rank with 178 H indexes. India is in Seventh rank with 146 H Indexes. It is concluded that the maximum number of Asian Countries Mathematics publications, Citable documents, citations, self citations and H index are in the rank of China and Japan respectively.

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