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Scientific Products of Iran in ISI from 1993 through 2007

A. Noroozi Chakoli, Ph. D.
Shahed University
email: Noroozi.reza@gmail.com

M. Hassanzadeh, Ph. D.
Tarbiat Modares University
Corresponding Author: hasanzadeh@modares.ac.ir

H. Nourmohamadi, Ph.D.
Shahed University
Email: nourmohammadih@gmail.com

Abstract

Using indicators and statistics of ISI, this paper comparatively evaluates Iran indexed scientific productions from 1993 through 2007. Considering the number of indexed scientific productions in WOS, Iran was in a satisfactory position in terms of the growth rate. According to the statistics of ESI, Iran was in the second place after Turkey among Islamic countries and the fortieth in the world, during the last ten years. Most of the scientific productions of Iran were published in English "article" formats. According to JCR statistics, three Iranian Journals in 2005 were indexed in SCI section of this database and three more journals were added to it in 2006. Shiraz University has had the most journals in JCR in 2006.

Keywords: Production of Science, Scientific Products, Iran, Institute for Scientific Information (ISI), Web of Science, Essential Science Indicators (ESI), Journal Citation Reports (JCR).

Introduction

One of the most important requirements for indexing scientific products in international indexes is their acceptable quality. Therefore, the number of indexed scientific products and the number of citations are considered as the most important indicators for evaluating the scientific products of each country (Godin, 2005). Thus, Iranian research policy makers have always been interested to evaluate their scientific products. In order to achieve their purpose, they have used *Bibliometric Indicators* which are considered to be a component of *Scientometrics Indicators.* These indicators include 'the number of scientific products', 'the number of citations', 'citations per scientific product', 'the impact factor', 'the median impact factor', 'the aggregate impact factor', 'cited half life', 'citing half life', 'the total number of citations', etc. Bibliometric indicators are known to be among the most important *Output Indicators*.

WOS, JCR and ESI databases have been used here in order to investigate the position of Iranian scientific products from 1993 through 2007.

Method

1. The data in this research was collected from WOS, JCR and in some cases ESI, February 20 and March 19, 2008.

2. According to the nature of JCR, the citation report of publications in each year is presented in the following year. Therefore, the data employed in this research, which have been the most recent data available in JCR, belong to the year 2006.

3. In assessing the development of scientific products, the entities which have had at least one scientific product have been considered acceptable. The entities with no products were not included in the assessment.

4. Iranian papers in WOS from 1993 through 2007 refer to all scientific products which have been indexed in WOS during the above-mentioned 15 years.

5. WOS was searched by country (cu) field by limiting it to the mentioned years.

Iranian Scientific Products in WOS from 1993 through 2007

As shown in Table 1, Iran had 38554 scientific papers in WOS during the 15 years between 1993 and 2007. Although the number of Iranian papers has constantly increased, there has been a greater increase during the years 1998, 2003, 2005 and 2007 (Thomson Scientific, 2008a).

Table 1
Iranian Scientific Papers in 15 years

Growth %	Number	Year
-	310	1993
21.61	377	1994
24.27	470	1995
27.2	598	1996
14.04	682	1997
51.91	1036	1998
16.22	1204	1999
15.20	1387	2000
25.09	1735	2001
28.18	2224	2002
47.62	3283	2003
17.42	3855	2004
44.80	5582	2005
20.92	6750	2006
34.24	9061	2007

Table 2 demonstrates that the number of Iranian papers in WOS has had a considerable

growth during the five years between 2003 and 2007.

Table 2

Iranian Scientific Papers in WOS, by periods of 5 years

Growth	2003-2007	Growth	1998-2002	1993-1997
276.15%	28531	211.12%	7585	2438

Figure 1 shows a sharp increase since 1998. Significant increase, however, has occurred since 2003.

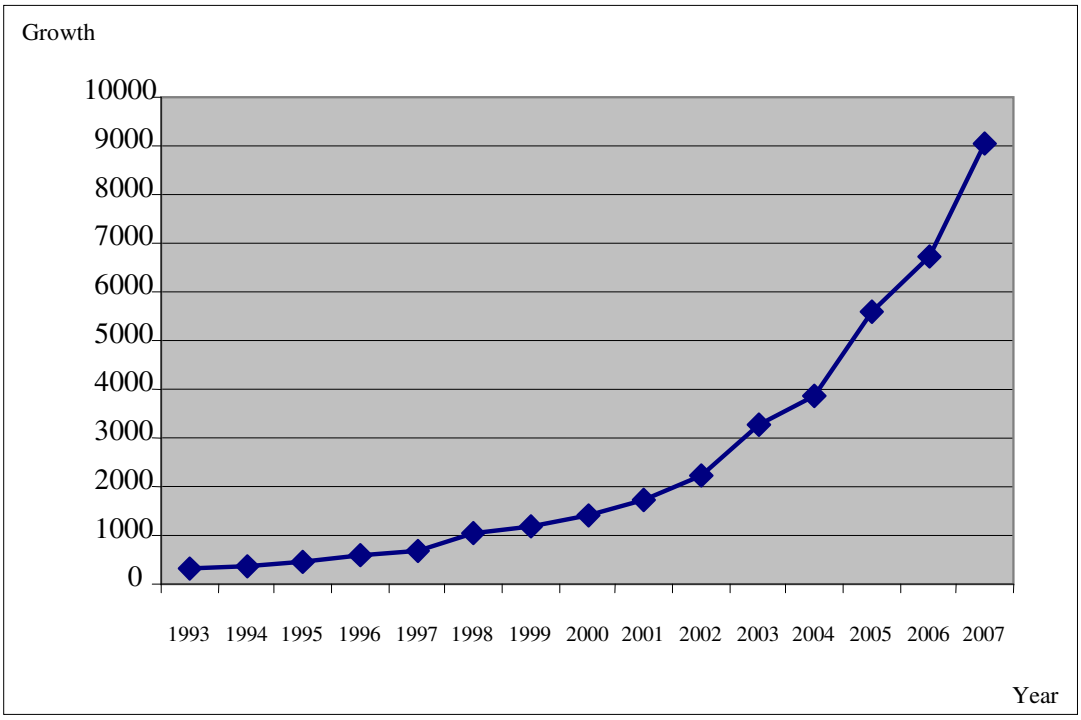

Figure 1. Growth Rate of Iranian Scientific Papers in WOS (1993-2007)

It should be mentioned that in addition to WOS, ESI also deals with evaluating scientific papers and ranking countries. According to the latest data retrieved from ESI, during the years between January 1, 1997 and December 31, 2007, Islamic Republic of Iran, with 32050 papers and outpacing Egypt, is now in the fortieth place among 145 ranked countries. Furthermore, Iran is in the second place after Turkey in the Islamic world in both ESI and WOS. According to the statistics of ESI, Iranian papers have been cited 104631 times during these 11 years.

Iranian Scientific Products between 1993 and 2007 by Type of Document

As shown in Table 3, 'articles' had the greatest contribution to the production of Iranian papers during the 15 years under study. However, it should be mentioned that

Iranian researchers have paid attention to other types of documents as well. In general, Iranian papers have been published in 18 different types. *'Abstract of Conferences', 'Editorials', 'Reviews', and 'Letter to editor/Editor-in-Chief's Letter'* are among other types of documents which enjoy the greatest share following '*articles'*.

According to Noroozi Chakoli and Nourmohammadi (2007), although it was possible to index 34 types of documents in WOS, Iranian researchers published their papers in only 18 types between 1993 and 2007. They did not publish any papers in the 16 remaining types. *'Poetry', 'Scripts', 'Hardware Reviews', 'theater Reviews', 'Film Reviews', 'Fiction, and Creative Prose'* were among the types which did not appeal to Iranian researchers.

Table 3

Iran Scientific Products between 1993 and 2007, by Type of Document

Type of Document	1993-1997 (1st period)	Percentage of 1st period	1998-2002 (2nd period)	Percentage of 2nd period	Growth of 2nd period	2003-2007 (3rd period)	Percentage of 3rd period	Growth of 3rd period
Article	2124	87.12	6804	89.72	220.68	24469	85.76	259.57
Meeting Abstract	113	4.63	563	7.42	398.23	2962	10.38	426.11
Letter	61	2.50	93	1.22	52.45	447	1.57	380.64
Review	10	0.41	48	0.63	380	292	1.02	508.33
Editorial Material	12	0.49	55	0.72	358.33	246	0.86	347.27
Correction	-	-	12	0.16	-	71	0.25	491.66
NEWS Item	-	-	1	0.01	-	20	0.07	1900
Book Review	2	0.08	4	0.05	100	19	0.06	375
Biography	-	-	2	0.02	-	4	0.014	300
Note	108	4.43	-	-	-	-	-	-
Correction, Addition	5	0.20	-	-	-	-	-	-
Bibliography	-	-	1	0.01	-	-	-	-
Software Review	-	-	1	0.01	-	-	-	-
Reprint	-	-	1	0.01	-	-	-	-
TV Review, RadioReview	2	0.08	-	-	-	-	-	-
Databases Review	-	-	-	-	-	1	0.003	-
Discussion	1	0.04	-	-	-	-	-	-

The increase in the variety of papers in Iran could be an indicative of Iranian researchers' special attention to other types of documents rather than research articles

which could be indexed in "Institute for Scientific Information".

Iranian Scientific Papers from 1993 to 2007 by Language

The variety of languages used by Iranian scholars could indicate shared scientific interactions between them and researchers in other countries. These interactions might include the exchange of instructors and students, the conduct of shared research projects, etc (Noroozi Chakoli & Nourmohammadi, 2007). According to Thomson Scientific 2007, it was possible to index sources in 49 different languages in WOS at the time of this research. In other words, non-English sources which comply with 'evaluative criteria of journals in ISI' could be included in WOS. Persian happens to be among these 49 languages; therefore, Persian journals can be indexed in WOS if they adhere to 'evaluative criteria of journals in ISI'. However, the study reveals that although all Iranian papers were published in WOS in 9 different languages, Persian itself was not among them.

According to Ammon, 2001, most of the papers in the world are published in English. Table 4 demonstrates that English is vastly employed by Iranian researchers.

Table 4

Iranian Papers in WOS between 1993 and 2007, by Language

Language	1993-1997 (1st period)	Percentage of 1st period	1998- 2002 (2nd period)	Percentage of 2nd period	Growth of 2nd period	2003-2007 (3rd period)	Percentage of 3rd period	Growth of 3rd period
English	2419	99.22	7561	99.68	212.56	28500	99.89	276.93
French	12	50	12	0.16	0	17	0.06	41.66
German	4	0.116	8	0.11	100	6	0.02	-25
Russian	2	0.08	3	0.04	50	1	0.003	-66.66
Polish	1	0.04	1	0.01	0	-	-	-
Chinese	-	-	-	-	-	3	0.01	-
Italian	-	-	-	-	-	2	0.007	-
Spanish	-	-	-	-	-	1	0.003	-
Turkish	-	-	-	-	-	1	0.003	-

It should be mentioned that Iranian papers were published in 5 different languages during the first 2 periods. However, the variety of languages of Iranian papers has increased in the last period, i.e. during the years 2003 -2007. As can be observed in Table 4, Iranian researchers used 'Chinese', 'Spanish', 'Italian' and 'Turkish' as well. Although 'Polish' was used in the first two periods, it was not employed during the third period by Iranian researchers. In connection with the variety of languages employed by scholars around the world, of paramount significance is the launching of a system in Iran called the Islamic World Science Citation Center (ISC) whose major function is the citation analysis of the

scientists' articles in the journals published in the national languages. Therefore, the main bulk of scientific articles written by Iranian scientists and published in Persian in Iranian scientific journals is indexed in ISC (Mehrad & Maghsoodi, 2006).

Iranian Scientific Papers in 2007 by Subject Area

Evaluating scientific papers by their subject area is one of the most important studies that requires scientometrics indicators. However, it should be made clear that it is essentially inaccurate to compare different fields of study with each other, regarding the number of papers they publish. Nonetheless, comparison of scientific products in a special field with similar fields of study in the countries of the same level can be a suitable context for providing information about the position of each field of study in associated countries (Gange & Archambault, 2004). Considering these points, the top 20 subject areas which constituted the highest number of Iranian papers in WOS from 1993 to 2007 are presented in Tables 5, 6 and 7 by periods of 5 years in descending order.

Table 5

Iranian Papers in WOS (from 1993 to 1997), by Subject Area

No	Subject Area	Number	Percentage
1	CHEMISTRY, MULTIDISCIPLINARY	203	8.33
2	CHEMISTRY, ANALYTICAL	122	5.00
3	PHARMACOLOGY & PHARMACY	122	5.00
4	ENGINEERING, CHEMICAL	109	4.47
5	CHEMISTRY, ORGANIC	92	3.77
6	CHEMISTRY, PHYSICAL	92	3.77
7	ENGINEERING, ELECTRICAL & ELECTRONIC	90	3.69
8	SURGERY	79	3.24
9	IMMUNOLOGY	72	2.95
10	ENGINEERING, MECHANICAL	71	2.91
11	PHYSICS, MULTIDISCIPLINARY	69	2.83
12	MATERIALS SCIENCE, MULTIDISCIPLINARY	68	2.79
13	MATHEMATICS	68	2.79
14	PLANT SCIENCES	68	2.79
15	ENGINEERING, CIVIL	66	2.71
16	NUCLEAR SCIENCE & TECHNOLOGY	66	2.71
17	VETERINARY SCIENCES	64	2.63
18	BIOCHEMISTRY & MOLECULAR BIOLOGY	61	2.50
19	MECHANICS	56	2.30
20	POLYMER SCIENCE	56	2.30

Table 5 shows that from 1993 to 1997, Iran had the highest number of papers in subject

areas such as *'Chemistry', 'Pharmacology & Pharmacy', 'Engineering, Eletrical & Electronic', 'Surgery', 'Immunology', 'Engineering, Mechanical', 'Physics', 'Veterinary Sciences',* and other subject areas of pure sciences and engineering.

These 20 subject areas, with 2438 papers, comprised 69.48 percent of all Iranian papers in WOS from 1993 to 1997. The remaining 30.52 percent belonged to other subject areas.

A comparison between Tables 5 and 6 reveals that there is a great similarity between the subject areas of the first two periods. However, there is a slight change in the contribution of some subject areas in comparison with the previous period. Considering the fact that 5364 Iranian papers in WOS consisted of the top 20 subject areas presented in Table 6, it should be mentioned that these subject areas account for 70.72 percent of Iranian papers in WOS from 1998 to 2002. The remaining subject areas had a 29.28 percent contribution during the same period.

Table 6

Iranian Papers in WOS (from 1998 to 2002), by Subject Area

No	Subject Area	Number	Percentage
1	Chemistry, Multidisciplinary	608	8.01
2	Chemistry, Organic	520	6.85
3	Chemistry, Analytical	515	6.79
4	Pharmacology & Pharmacy	394	5.19
5	Engineering, Chemical	385	5.07
6	Polymer Science	299	3.94
7	Chemistry, Physical	269	3.54
8	Mathematics	258	3.14
9	Chemistry, Inorganic & Nuclear	214	2.82
10	Engineering, Electrical & Electronic	207	2.72
11	Multidisciplinary Sciences	205	2.70
12	Physics, Multidisciplinary	203	2.67
13	Materials Science, Multidisciplinary	199	2.62
14	Plant Sciences	166	2.19
15	Mathematics, Applied	160	2.11
16	Mechanics	159	2.09
17	Physics, Particles & Fields	152	2.00
18	Surgery	152	2.00
19	Immunology	151	1.99
20	Physics, Condensed Matter	148	1.95

A comparison between the top 20 subject areas in Table 7 and those presented in Tables 5 and 6 shows that most of the subject areas which had the highest contribution during the last two periods still maintained their position during the years between 2003

and 2007.

Table 7

Iranian Papers in WOS (from 2003 to 2007), by Subject Area

No	Subject Area	Number	Percentage
1	Chemistry, Multidisciplinary	1967	6.89
2	Chemistry, Analytical	1284	4.50
3	Chemistry, Physical	1220	4.28
4	Pharmacology & Pharmacy	1151	4.03
5	Engineering, Chemical	1102	3.86
6	Chemistry, Organic	1069	3.75
7	Polymer Science	1013	3.55
8	Engineering, Electrical & Electronic	974	3.41
9	Materials Science, Multidisciplinary	964	3.38
10	Mathematics, Applied	957	3.35
11	Chemistry, Inorganic & Nuclear	878	3.08
12	Biochemistry & Molecular Biology	731	2.56
13	Immunology	711	2.49
14	Physics, Applied	667	2.34
15	Mechanics	623	2.18
16	Mathematics	602	2.11
17	Physics, Multidisciplinary	890	2.07
18	Surgery	585	2.05
19	Neurosciences	561	1.97
20	Plant Sciences	561	1.97

In general, it can be stated that the subject areas in Table 7, with 18510 papers, comprised 64.88 percent of all Iranian papers in WOS between 2003 and 2007. Therefore, it can be concluded that the contribution of the remaining subject areas in the third period was 35.12 percent. Since the contribution of other subject areas during the first two periods was 30.52 and 29.28 percent respectively, it can be affirmed that there was an increase in the contribution of other subject areas to the publication of Iranian papers during the third period.

Iranian Organizational Contributors to WOS between 1993 and 2007

Twenty Iranian organizations which had the most number of papers in WOS between 1993 and 2007 are listed in Table 8. It should be mentioned that 78.33 percent of Iranian papers in WOS belonged to these organizations which are mainly considered as academic organizations. ‘Tehran University’, ‘Sharif University of Technology’, ‘Tehran University of Medical Sciences’, ‘Shiraz University’ and ‘Tarbiat Modares University’ had the most

number of papers in WOS between 1993 and 2007, and were considered as the top 5 Iranian organizations between 1993 and 2007.

Table 8

Iranian organizational contributors to WOS between 1993 and 2007

No	Organization	Number	Percentage
1	Tehran University	4428	11.49
2	Sharif University of Technology	2848	7.39
3	Tehran University of Medical Sciences	2758	7.15
4	Shiraz University	2581	6.69
5	Tarbiat Modares University	2436	6.32
6	Amir Kabir University of Technology	1825	4.73
7	Isfahan University of Technology	1459	3.78
8	Shahid Beheshti University of Medical Sciences	1395	3.62
9	Institute for Studies in Theoretical Physics and Mathematics	1325	3.44
10	Shahid Beheshti University	1124	2.92
11	Iran University of Science and Technology	1150	2.98
12	Tabriz University	1107	2.48
13	Isfahan University	953	2.47
14	Ferdowsi University of Mashad	938	2.43
15	Buali Sina University of Hamedan	858	2.23
16	Razi University	817	2.12
17	Iran University of Medical Sciences	587	1.52
18	Mazandaran University	563	1.46
19	Shahid Bahonar University of Kerman	537	1.39
20	Isfahan University of Medical Sciences	511	1.33

Institute for Studies in Theoretical Physics and Mathematics is the only research institute which is among these top 20 organizations. It should be mentioned that the number of non-academic organizations with scientific papers in WOS during the first two periods, i.e. 1993- 1997 and 1998- 2007, was respectively 19 and 28 organizations; however, it has gone up to 32 organizations between 2003 and 2007. Most of the non-academic organizations include research centers, unaffiliated bodies and centers affiliated to some ministries. Furthermore, the study reveals that the top 5 Iranian universities had continuously the highest number of papers in WOS between 1993 and 2007. However, their rank underwent a little change in the third five years. For instance, 'Shiraz University' descended from the second to the fifth rank while 'Tehran University of Medical Sciences'

ascended from the fifth to the second rank.

It must also be noted that *Islamic Azad Universities* were not ranked or compared in this study because the scientific products of its different branches were not separated in WOS.

Sources Publishing Iranian Papers in 2007

The top 20 sources which had the greatest contribution to the publication of Iranian papers in WOS between 1993 and 2007 are presented in Table 9.

Table 9

Sources Publishing Iranian Papers in WOS between 1993 and 2007

No	Title	Country	Number of Iranian Papers in source	Percentage
1	Applied Mathematics and Computation	USA	544	1.41
2	Phosphorus Sulfur And Silicon And The Related Elements	England	458	1.19
3	Iranian Journal of Science And Technology	Iran	422	1.09
4	Iranian Polymer Journal	Iran	414	1.07
5	Synthetic Communications	USA	357	0.93
6	Journal Of Chemical Research-S	England	337	0.87
7	Asian Journal of Chemistry	India	331	0.86
8	Transplantation Proceedings	USA	311	0.81
9	Journal of Applied Polymer Science	USA	284	0.74
10	Talanta	The Netherlands	230	0.60
11	Tetrahedron Letters	England	218	0.57
12	Journal Of Essential Oil Research	USA	201	0.52
13	Analytica Chimica Acta	The Netherlands	198	0.51
14	Saudi Medical Journal	Saudi Arabia	191	0.50
15	Journal Of Molecular Structure-Theochem	The Netherlands	177	0.46
16	Acta Crystallographica Section E-Structure Reports Online	England	171	0.44
17	Fluid Phase Equilibria	The Netherlands	166	0.43
18	Monatshefte Fur Chemie	Austria	153	0.40
19	Journal Of Materials Processing Technology	Switzerland	152	0.39
20	Analytical Letters	USA	135	0.35

The data reveals that the two Iranian journals in this list which are active in 'Science and Technology' and 'Polymer' had the greatest contribution to the publication of Iranian papers in WOS between 1993 and 2007 second only to American and British journals. Other sources with the greatest contribution to the publication of Iranian papers in WOS are respectively related to the United States of America, England, the Netherlands, India, Saudi Arabia, Austria and Switzerland. This implies that Iranian scientists have mainly communicated with American, English and Dutch journals to publish their papers.

Most of Iranian papers in WOS were published in APPLIED MATHEMATICS AND COMPUTATION between 1993 and 2007 (Noroozi Chakoli & Nourmohammadi, 2007). This journal which deals with APPLIED MATHEMATICS belongs to the United States of America.

The study of the contribution of sources in WOS in publication of Iranian papers between 1993 and 2007 is quite revealing. It shows that the rise in the number of Iranian papers in WOS has resulted in an increase in the number of sources publishing Iranian papers. Furthermore, the average contribution of each source to the publication of Iranian papers has also gone up. Therefore, it can be claimed that international journals have gradually shown more interest in publishing Iranian papers and have published more Iranian papers in their journals. The growth of research in Iran and the quality of the presented data in Iranian papers can be definitely considered as some of the most important reasons of international journals for publishing more Iranian papers during the last 15 years.

'The number of Iranian papers', 'the number of sources publishing Iranian papers' and 'the average contribution of each source in publishing Iranian papers' during 1993 and 2007 are demonstrated in Table 10.

Table 10

The Average Contribution of Sources Publishing Iranian Papers in WOS between 1993 and 2007

Indicators	1993-1997	1998-2002	2003-2007
Number of Iranian Papers	2438	7585	28531
Number of Source Publishing Iranian Papers	944	1781	3825
Average Contribution of each Source in Publishing Iranian Papers	4.26	4.26	7.46

Considering the fact that most of the publishers of Iranian papers are among reliable international journals, it can be concluded that the studies of Iranian researchers have been enjoying the required quality and potentiality to attract international journals and scientific communities. As can be seen in Table 10, the number of sources has quadrupled in the third five years in comparison with the first 5 years of the study.

Iranian Journals in WOS and JCR

The data concerning Iranian journals in WOS between 1993 and 1997 is presented in Table 11. It is shown that only three Iranian journals were included in WOS during these 5 years. Table 11 also reveals two more points: relatively high share of Iranian papers in Iranian journals and appreciable contribution of non-Iranian journals to publishing Iranian papers. On the same basis, the second journal which is published by 'Jahad-e-Daneshgahi' dedicated a greater portion of its scientific papers to the publication of Iranian papers. In comparison with the other journals during the said 5 years, it also had a greater contribution to the publication of Iranian papers in WOS.

Table 11

Iranian Journals in WOS, during 1993-1997

No	Title	Publisher	ISSN	Number of Scientific Papers in Journal	Number of Iranian Papers in Journal	Share of Iranian Papers in Journal	Share of Journal in Publishing Iranian Papers
1	Iranian Polymer Journal	Institute for Studies of Iranian Polymer	1026-1265	22	13	59.09	0.53
2	Iranian Journal of Chemistry & Chemical Engineering-International English	Jahad-e-Daneshgahi	1021-9986	45	43	95.55	1.76
3	Iranian Journal of Science and Technology	Shiraz University	0360-1307	53	39	73.58	1.60

Table 12 demonstrates that the three journals mentioned above were also included in WOS between 1998 and 2002. However, there was an increase in the number of published scientific papers of each journal as well as the percentage of Iranian papers in them in comparison with the preceding five years. Furthermore, the second journal published by Jahad-e-Daneshgahi similarly dedicated a greater percentage of its scientific papers to the publication of Iranian papers. On the contrary, IRANIAN POLYMER JOURNAL which belongs to 'Institute for Studies of Iranian Polymer' had the least contribution in this regard.

Table 12

Iranian Journals in WOS, during 1998-2002

No	Title	Publisher	ISSN	Number of Scientific Papers in Journal	Number of Iranian Papers in Journal	Percentage of Iranian Papers in Journal	Percentage of Journal in Publishing Iranian Papers
1	Iranian Polymer Journal	Institute for Studies of Iranian Polymer	1026-1265	167	110	65.87	1.45
2	Iranian Journal of Chemistry & Chemical Engineering-International English	Jahad-e-Daneshgahi	1021-9986	97	94	96.91	1.24
3	Iranian Journal of Science and Technology	Shiraz University	0360-1307	211	189	89.57	2.49

By contrast, IRANIAN JOURNAL OF SCIENCE AND TECHNOLOGY published by 'Shiraz University' contributed a greater proportion of Iranian papers in WOS. 'Institute for Studies of Iranian Polymer' had less contribution in this regard. Therefore, the journal of 'Shiraz University' had a greater contribution to publishing Iranian papers while contribution of the journal of 'Jahad-e-Daneshgahi' decreased during 1998-2002.

Although only three journals were included in WOS between 1993 and 2002, the number of Iranian journals tripled during 2003 and 2007 as is shown in Table 13. It should be mentioned that the 9 journals were not included in WOS during the whole 5 years; rather, they were indexed in WOS in one or more years between 2003 and 2007.

Table 12

Iranian Journals in WOS, during 2003-2007

No	Title	Publisher	ISSN	Number of Scientific Papers in Journal	Number of Iranian Papers in Journal	Percentage of Iranian Papers in Journal	Percentage of Journal in Publishing Iranian Papers
1	Journal of the Iranian Chemical Society	Iran Chemical Society	1735-207X	166	93	56.02	0.33
2	Iranian Polymer Journal	Institute for Studies of Iranian Polymer	1026-1265	406	291	71.67	1.02
3	Iranian Journal of Science and Technology Transaction B-Engineering	Shiraz University	1028-6284	142	127	89.43	0.44
4	Iranian Journal of Public Health	Tehran University of Medical Sciences	0304-4556	113	107	93.80	0.37
5	Iranian Journal of Chemistry & Chemical Engineering-International English	Jahad-e-Daneshgahi	1021-9986	163	141	86.50	0.49
6	Daru-Journal of Faculty Of Pharmacy	Tehran University of Medical Sciences	1560-8115	30	٢٥	83.33	0.09
7	Iranian Journal of Fisheries Sciences	Institute for Studies of Iran Fisheries	1562-2916	9	9	100	0.03
8	Iranian Journal of Science And Technology	Shiraz University	0360-1307	63	52	82.53	0.18
9	Iranian Journal of Science And Technology Transaction A-Science	Shiraz University	1028-6276	213	194	9.08	0.68

Therefore, these journals were included in WOS during one, two or more years between 2003 and 2007. It can be stated that the rise in the number of Iranian journals indexed in WOS can be considered as one of the most important indicators of the increase in quality and quantity of Iran research activities at the international level. It also implies that Iranian journals are gaining more credibility than before with ISI. According to the study, *'IRANIAN JOURNAL OF FISHERIES SCIENCES', 'IRANIAN JOURNAL OF PUBLIC HEALTH',* and *'IRANIAN JOURNAL OF SCIENCE AND TECHNOLOGY TRANSACTION B-ENGINEERING',* which are respectively published by 'Institute for Studies of Iran Fisheries', 'Tehran University of Medical Sciences' and ' Shiraz University' have dedicated a greater percentage of their scientific papers to the publication of Iranian papers. Moreover, *'IRANIAN POLYMER JOURNAL'* and *'IRANIAN JOURNAL OF SCIENCE AND TECHNOLOGY TRANSACTION A-SCIENCE'* have a greater contribution to the publication of Iranian scientific papers in WOS in comparison with the other Iranian journals.

Another important point in Table 13 is the considerable contribution of journals of non-academic bodies alongside academic organizations between 2003 and 2007. The first, second, fifth and seventh journals in Table 13 belong to non-academic organizations in Iran. This statistics indicates that although non-academic bodies had less contribution to indexing scientific papers in comparison with academic organizations during 1993- 2007, they enjoyed comparatively satisfactory position because the number of non-academic bodies is less than the number of academic organizations in WOS.

In addition to the journals in WOS, an investigation of Iranian journals in JCR also reveals useful data. Considering the fact that reports of this database are always presented with a one-year delay, the data available for this research dates back to the year 2006. Citation reports of JCR show that Iran had no journals in the SSCI section of this database in 2006 and six Iranian journals were included in SCI which are presented in Table 14.The first journal listed in this Table belongs to "Iranian Chemical Society", the second and third belong respectively to "Iran Polymer Institute" and "Jahad-e-Daneshgahi" and the last three journals belong to "Shiraz University". Although *Journal of the Iranian Chemical Society* had not been included in the journals of JCR until the year 2006, it had the highest impact factor (IF) among these six Iranian journals.

Table 14

Iranian Journals in SCI Section of JCR in 2006

No.	Journal	Total Number of Citations	Impact Factor	Indicator	Articles	Cited Half Life	Citing Half Life
1	Journal of the Iranian Chemical Society	46	0.644	0.154	52		
2	Iranian Polymer Journal	160	0.386	0.0120	83	3.2	8
3	Iranian Journal of Chemistry & Chemical Engineering-International English Edition	63	0.209	0.000	17		
4	Iranian Journal of Science and Technology	28	0.100		0		
5	Iranian Journal of Science and Technology B	8	0.064	0.000	44		
6	Iranian Journal of Science and Technology A	5	0.041	0.000	14		

The study reveals that *Iranian Journal of Science and Technology A, Iranian Journal of Science and Technology B* and *Journal of the Iranian Chemical society*, which belong to "Shiraz University" and "Iranian Chemical Society", were added to the journals indexed in JCR in 200

Table 15

Iranian Journals in SCI Section of JCR in 2005

No.	Journal	Total Number of Citations	Impact Factor	Indicator	Articles	Cited Half Life	Citing Half Life
1	Iranian Journal of Chemistry & Chemical Engineering-International English Edition	60	0.327	0.075	35		<10
2	Iranian Journal of Science and Technology	28	0.057	0	11		<10
3	Iranian Polymer Journal	120	0.316	٠.097	113	3.6	9.6

In 2005, however, the three journals introduced in Table 15 were the only Iranian

journals which were included in SCI. Another significant point to be mentioned is the commendable achievement of "Shiraz University" in having its three technical journals indexed in JCR. As mentioned earlier, half of Iranian journals indexed in JCR in 2006 belonged to "Shiraz University".

Conclusion

This research reveals that there has been a considerable growth in the number of Iranian papers at the international level during the fifteen years between 1993 and 2003. Besides, there has been a greater variety in the type of documents and languages of Iranian papers. The improvement of Iran scientific rank in ESI and the increase in the number of Iranian journals in JCR indicate the increase in the scientific activities of Iranian researchers during the years under study. "Tehran University", "Sharif University of Technology" and "Tehran University of Medical Sciences" succeeded in publishing a greater number of papers in WOS. "Shiraz University" enjoyed notable achievement in publishing three journals in JCR database. "Institute for Studies in Theoretical Physics and Mathematics" was the only non-academic organization among the top 20 organizations in WOS.

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