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Research Article

Contribution of Tabriz Academia in Research Activities

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ABSTRACT

Background: Scientometric data is used in evaluating research activities and the publications indexed in known databases are one of the most frequently used tools in scientometric investigations. ***Methods:*** The number of publications from Tabriz, Tabriz University of Medical Sciences and its affiliated research centers during last two decades was investigated using the gathered data from Scopus® and the findings were discussed in comparison to the number of publications from Iran. ***Results:*** Sharp increased pattern was observed for the publications of Tabriz University of Medical Sciences which is in agreement with the increased pattern of national publications. ***Conclusion:*** The increased rate of publication number in national level was obtained for Tabriz affiliation and an increase in relative contribution of Tabriz among national publications was observed from year 2005.

Introduction

The Rab'-e Rashidi complex was the oldest university in Tabriz (13th century) and was the most active university in that era. This complex was equipped with a big paper factory, a massive library, an educational treatment center (Dar-ol-Shafa), Quranic center (Dar-ol Quran), residential facilities for academic staff, student's quarter, a big caravansary and other facilities. For centuries a declined activities were observed and after severe earthquakes the facilities were completely destroyed. University of Tabriz was established as the second modern university of Iran. The university was first established in 1947, as the University of Azarbaijan with faculties of Medicine, Agriculture and Pedagogy. The university was called University of Azarabadegan prior to the Islamic Revolution of 1979 and renamed the University of Tabriz afterwards. In 1985, the Iranian Ministry of Health, Treatment and Medical Education took over the departments and faculties in the medical sciences and the Tabriz University of Medical Sciences became an independent institution. Now, it is composed of faculties of Medicine, Pharmacy, Dentistry, Paramedical, Nursing and Midwifery, Health, Nutrition, Rehabilitation, Advanced Biomedical Sciences and Traditional Medicine. In addition, there is one research center (i.e. Drug Applied Research Center) under financial support of the Ministry of Health, Treatment and Medical Education along with 24 research centers under financial support of the Tabriz University of Medical Sciences. The main research centers include Tuberculosis and Lung Disease Research Center, National Public Health Management Center, Research Center for Pharmaceutical Nanotechnology, Tabriz Pharmaceutical Technology Incubator, Liver and Gastrointestinal Diseases Research Center, Nutritional Research Center, Research Center of Infectious Diseases and Tropical Medicine, Biotechnology Research Center, Hematology-Oncology Research Center, Education Development Center, Neurosciences Research Center, Women's Reproductive Health Research Center and Cardiovascular Research Center.

Scientometric indicators are valuable measures for evaluating scientific activities of a country, a university or an institution.[1] These indicators are also correlated with the development status of the countries and also were used in ranking of the universities in which 20 % of the total weight is considered for the indexed papers in reputable databases.[2] A number of reports discussed the research status of Iranian institutions in recent years. Moin et al. reported an increased rate of relative share of Iranian researchers in the world scientific production from 0.0003 % to 0.29 % during 1970-2003.[3] Malekzadeh et al. reported a 25 % increased rate in ISI indexed publications from 1993 to 1998.[4] During the years 1997 to 2003, Iran's position was improved considerably concerning the number of published papers.[5]

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Affiliations used by the authors of an institution, is one of the important factors in the representation of the research activities as noticed by Van Raan.[6] Aminpour et al.[7] investigated this topic on the scientific production of a number of Iranian medical universities and summarized different names used by the authors of the investigated institutions. They also concluded that offering research facility and financial support are not enough to promote the scientific productivity of an institution and educating the principles of scientific documentation and indexing skills is necessary. This point is also recommended by others researchers.[8,9]

The aim of this communication is to briefly review the research activities of the universities located in Tabriz, along with Tabriz University of Medical Sciences and its research centers using data extracted from Scopus. The overall status of Iran is also considered to present the contribution rate in national level.

Data

The numbers of articles published by researchers of Iran, Tabriz and Tabriz University of Medical Sciences in affiliation search of Scopus were collected.[10] A set of data was collected in Sept. 2011 and an updated data set was collected in Feb. 2015 and the variations were compared.

Results and Discussion

Table 1 lists the number of publications with the affiliation of Tabriz in different subject areas of Scopus. According to the data collected in Sept. 2011, "Medicine" is the leading subject with the relative frequency of 14.1 % followed by "Engineering" and "Chemistry" with 12.4 and 9.9 %, respectively. There are similar patterns when compared with the national pattern. Differences are observed in the relative frequencies of the publications in the field of "Pharmacology, Toxicology and Pharmaceutics", "Dentistry" and "Nursing" where the relative frequencies are nearly twice of national figures. The same patterns were observed in "Pharmacology, Toxicology and Pharmaceutics" and "Nursing" subjects and a decreased relative contribution was obtained for "Dentistry" in the recent evaluation. Concerning total number of publications, it was increased by a factor of 2.22 from Sept 2011 to Feb 2015.

Table 1. Number of publications and the relative frequency (%) for Tabriz in affiliation in different subjects along with % of national level.

Subject	Tabriz No.	Tabriz %	Iran %	Tabriz No.	Tabriz %	Iran %
		Sept. 2011			Feb. 2015	
Medicine	1795	14.1	13.6	3775	13.3	12.9
Engineering	1583	12.4	14.9	3688	13.0	14.8
Chemistry	1264	9.9	10.0	2409	8.5	8.9
Physics and Astronomy	1092	8.6	7.3	2398	8.5	7.4
Materials Science	1014	8.0	7.2	2204	7.8	7.2
Agricultural and Biological Sciences	932	7.3	6.0	1895	6.7	5.8
Biochemistry, Genetics and Molecular Biology	759	6.0	5.7	1893	6.7	5.7
Computer Science	692	5.4	7.1	1413	5.0	6.8
Chemical Engineering	601	4.7	4.1	1332	4.7	4.4
Pharmacology, Toxicology and Pharmaceutics	599	4.7	2.8	1295	4.6	2.6
Mathematics	564	4.4	5.0	1204	4.3	5.0
Environmental Science	447	3.5	3.0	1032	3.6	3.5
Energy	223	1.8	2.3	640	2.3	2.5
Immunology and Microbiology	185	1.5	1.7	510	1.8	1.8
Earth and Planetary Sciences	157	1.2	2.0	476	1.7	2.3
Social Sciences	136	1.1	1.5	385	1.4	1.7
Veterinary	113	0.9	1.0	349	1.2	1.5
Multidisciplinary	112	0.9	1.0	328	1.2	0.9
Dentistry	109	0.9	0.4	183	0.6	0.4
Neuroscience	97	0.8	0.8	180	0.6	0.8
Nursing	84	0.7	0.3	173	0.6	0.4
Health Professions	71	0.6	0.4	128	0.5	0.4
Decision Sciences	41	0.3	0.6	112	0.4	0.5
Psychology	24	0.2	0.4	99	0.3	0.5
Business, Management and Accounting	13	0.1	0.4	95	0.3	0.7
Arts and Humanities	10	0.1	0.2	57	0.2	0.5
Economics, Econometrics and Finance	5	<0.05	0.2	31	0.1	0.2
Undefined	20	0.2	0.1	12	<0.05	0.1
Sum:	12742	100	100	28296	100	100

Figure 1 shows the number of publications with Tabriz affiliation indexed in Scopus from 1995-2014. A sharp increase was observed for the number of publications after 2005 and reached a plateau after 2011. To compare this increased rate, the percentage of contributions in national scale was also considered in which the overall contribution was 5.4 %. Although there are some fluctuations, it overally looks an increased pattern. Concerning the population of Eastern Azarbayjan province (3,603,456 in year 2006[12]), the number of publications per million for Eastern Azarbayjan is 2214 which is higher than national level (1972 papers/million of population). The sharp increase in the number of publications from Iran after 2005 was also confirmed by other investigators.[3-5, 9]

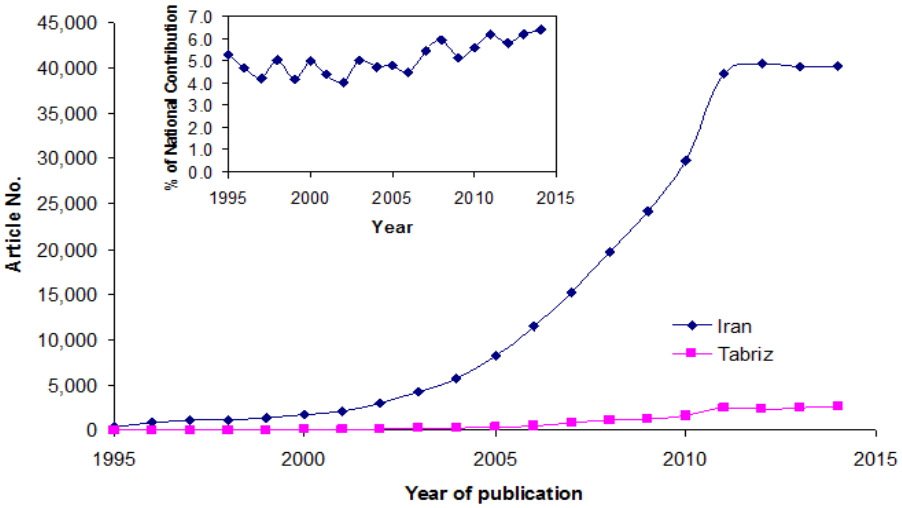

Figure 1. Number of publications with Tabriz affiliation indexed in Scopus from 1995 to 2014 and percent of contribution of Tabriz in national publications (inset).

Four main universities located in Tabriz and their number of publications are reported in Table 2 along with Tabriz University of Medical Sciences. The Deneshgah Tabriz (or University of Tabriz) is the leading one followed by Tabriz University of Medical Sciences. It should be added that these leading universities were separated in 1985 as noticed in introduction, so the publications of Tabriz University of Medical Sciences in earlier years were indexed as Daneshgah Tabriz publications in many databases including Scopus. In addition, some authors from Tabriz University of Medical Sciences were used other affiliations as reported in Table 2.

Table 2. Total number of publications of the universities located in Tabriz and articles of top citation.

Affiliation	No. Sept. 2011	No. Feb. 2015	Top citation
Daneshgahe Tabriz, University of Tabriz	4152	8267	470
Tabriz University of Medical Sciences, Imam Khomeini Hospital Tabriz, National Public Health Management Center, Children's Hospital	2160	5128	159
Islamic Azad University, Daneshgahe Azad Eslami,	1028	3035	305
Sahand University of Technology	637	1549	109
Azarbaijan Shahid Madani University	513	1186	237

Authors of Islamic Azad University of Tabriz (N=1705) were also used another affiliation, i.e. Daneshgah Azad Eslami (N=1330). We considered sum of these values in Table 2 as the number of publications. Table 3 lists the top ten journals publishing the articles of Iranian authors, along with the data of top ten journals publishing the articles of Tabriz authors. Quality of journals is not satisfying and the authors should pay more attention in their journal selection. In addition the credits of these papers should be more carefully evaluated by the Senate of the universities.

Figure 2 depicts the number of publications during last two decades by medical researches of Tabriz and their contributions in the national level. A similar sharp slope was observed for the number of publications after 2005 and the overall contribution of ~6 % was observed in national level which is apparently increased to ~ 7 after 2007. Concerning the patterns of researchers of Tabriz in the field of medicine and its comparison with the national level, slightly decreased pattern was observed for Tabriz in 2009, whereas the pattern was increasing for Iran.

Table 3. Top ten journals publishing articles of Iran and Tabriz authors along with their impact factors, H-indices and country of publications of the journals.

	Journal	**No. of articles**	**Impact factor**	**H-index[a]**	**Published in[a]**
	Iran	**Sept. 2011**			
1	Pakistan Journal of Biological Sciences	1211	-	19	Pakistan
2	Journal of Applied Sciences	902	-	20	Pakistan
3	Asian Journal of Chemistry	882	0.335	23	India
4	Archives of Iranian Medicine	872	1.108	25	Iran
5	Scientia Iranica	762	0.842	13	Iran
6	Proceedings of World Academy of Science Engineering and Technology	737	-	-	-
7	Acta Crystallographica Section E Structure Reports Online	705	-	29	United Kingdom
8	Applied Mathematics and Computation	676	1.600	83	USA
9	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	645	-	-	-
10	Journal of Applied Polymer Science	631	1.640	111	USA
	Iran	Feb. 2015			
1	Life Science Journal	2006	-	6	China
2	Advances in Environmental Biology	1950	-	9	Jordan
3	Australian Journal of Basic and Applied Sciences	1649	-	12	Pakistan
4	World Applied Sciences Journal	1543	-	8	Pakistan
5	Pakistan Journal of Biological Sciences	1422	-	19	Pakistan
6	Archives of Iranian Medicine	1380	1.108	25	Iran
7	Asian Journal of Chemistry	1350	0.335	23	India
8	Scientia Iranica	1276	0.842	13	Iran
9	Journal of Research in Medical Sciences	1226	0.608	11	Iran
10	Acta Medica Iranica	1190	-	9	Iran
	Tabriz	Sept. 2011			
1	Pakistan Journal of Biological Sciences	104	-	19	Pakistan
2	Advances in Environmental Biology	87	-	9	Jordan
3	Iranian Polymer Journal English Edition	67	1.469	23	Iran
4	Journal of Chemical and Engineering Data	66	2.045	80	USA
5	Journal of Food Agriculture and Environment	65	-	15	Finland
6	Transplantation Proceedings	64	0.984	63	USA
7	Journal of Applied Sciences	59	-	20	Pakistan
8	Pharmaceutical Sciences	57	-	2	Iran
9	Proceedings of SPIE the International Society for Optical Engineering	57	-	-	-
10	Saudi Medical Journal	55	0.554	30	Saudi Arabia
	Tabriz	Feb. 2015			
1	Life Science Journal	262	-	6	China
2	Pakistan Journal of Biological Sciences	174	-	19	Pakistan
3	Advances in Environmental Biology	152	-	9	Jordan
4	Advanced Pharmaceutical Bulletin	131	-	3	Iran
5	Pharmaceutical Sciences	108	-	2	Iran
6	Journal of Food Agriculture and Environment	107	-	15	Finland
7	Journal of Animal and Veterinary Advances	94	-	12	Pakistan
8	Australian Journal of Basic and Applied Sciences	89	-	12	Pakistan
9	Journal of Chemical and Engineering Data	88	2.045	80	USA
10	Asian Pacific Journal of Cancer Prevention	86	1.500	38	Thailand

[a]Extracted from SCIMAGOJR.COM.

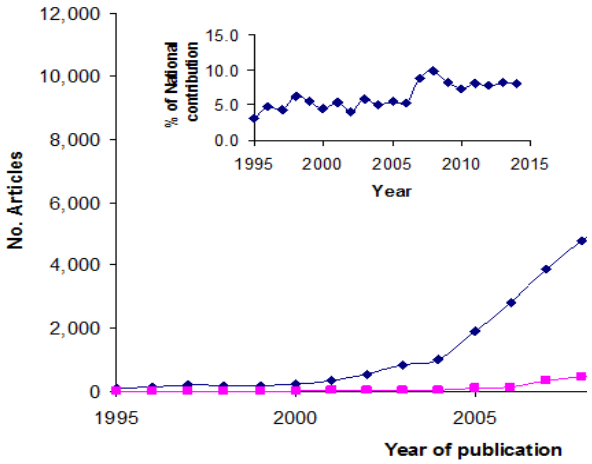

Figure 2. Number of publications with Tabriz and Medical affiliation indexed in Scopus from 1995 to 2014 and percent of contribution of Tabriz and Medical in national publications (Iran and Medical) (inset).

Table 4 lists the search terms in affiliation, H-index, number of publications, and years of the first indexed articles of the research centers of Tabriz University of Medical Sciences. Significant increases were observed in the number of indexed articles from various research centers in which more significant increase was observed for "Neuroscience Research Center". Concerning the H-index as a qualitative measure of research activities, again significant improvements were observed with the highest rate of 3 for "Tuberculosis and Lung Disease Research Center". The Iranian ministry of health and medical education conducts a ranking among supported research centers using quantitative and qualitative measures. According to these ranks, Immunology research center was jumped from 345 (in 2011) to 92 (in 2015) and Cardiovascular research center from 153 to 61.

Table 5 lists top ten papers of Iran from citation point of view. The top cited papers were published in top journals and 50% of the papers belong to medical subjects. In addition, most of these top cited papers were co-authored by multiple-authors from different countries.

Table 6 presents top cited ten papers published by authors from Tabriz affiliation, six of them belong to chemistry subject in which four papers were published by Prof. Daneshvar's research group.

Table 7 reports top ten papers with the higest citations from authors of Tabriz University of Medical Sciences. Six papers were authored by researchers of "Faculty of Pharmacy", and four papers by authors from "Faculty of Medicine". Prof. Barzegar-Jalali and Dr. Azarmi with two top cited papers have the best position from citation viewpoint. The audience of the journal, its impact factor, novelty of the work, type of report (review or original), reputation of the authors and also contributions from international institutions are some of the main characteristics of top cited papers in Tables 5-7.

Table 8 lists top ten authors from Iran, Tabriz and Tabriz University of Medical Sciences in the affiliation field of Scopus collected along with some details gathered using author search of Scopus in Feb. 2015.

As it is evident, there are some changes in the ranks of the top ten authors in three groups investigated in this work from data set of 2011 to the recent data set collected in 2015.

As a conclusion, the increased pattern of the number of publications in national level was confirmed for the researchers of Tabriz. In addition to the shortage of research budget and its mismanagement, there are a number of affective parameters influencing the number of publications; including, availability of research materials, low technical skills of the research assistants in the basic and clinical fields, the problems associated with the academic writing skills and also involvement of most of the medical researchers in the educational and treatment activities which makes the time management for research as a hard task. Despite of these facts, increased number of publications reveals that research activities were acknowledged by policy makers of higher education in Iran.

To improve the quality of research activities and outputs, according to the findings from this study, authors should try to publish their results in mor qualified journals to get more citation and the research policy makers should pay more attention to this point in directing research activities.

Table 4. Total number of publications, the year of the first publication and the H-index of the main research centers of Tabriz University of Medical Sciences and their ranks in national level.

Research Center	Search term in affiliation of Scopus	Year of 1st publication	Sept 2011			Feb 2015		
			H-Index[b]	Total No.	Rank in national level[c]	H-Index[b]	Total No.	Rank in national level[c]
Drug Applied Research Center	Tabriz and Medical and Drug Applied	2001	18	583	4	30	1110	3
Research Center for Pharmaceutical Nanotechnology	Tabriz and Medical and Pharmaceutical Nanotechnology	2006	12	156	15	25	425	6
Biotechnology Research Center	Tabriz and Medical and Biotechnology	2004	9	175	28	19	370	27
Liver and Gastrointestinal Diseases Research Center	Tabriz and Medical and Liver	2005	7	94	66	13	278	50
Hematology-Oncology Research Center	Tabriz and Medical and Hematology	2007	10	37	125	10	108	122
Nutritional Research Center	Tabriz and Medical and Nutritional	2007	2	17	94	7	35	82
Neuroscience Research Center	Tabriz and Medical and Neuroscience	2008	2	22	119	5	104	53
National Public Health Management Center	Tabriz and National Public Health	2006	5	38	112	10	55	163
Tuberculosis and Lung Disease research Center	Tabriz and Medical and Tuberculosis	2007	4	95	51	12	197	29
Immunology Research Center	Tabriz and Medical and Immunology	2007	-[a]	-[a]	345	5	110	92
Cardiovascular Research Center	Tabriz and Medical and Cardiovascular	2006	-[a]	-[a]	153	8	175	61
Medical Education Research Center	Tabriz and Medical and Education	2005	-[a]	-[a]	293	3	33	239
Stem Cell Research Center	Tabriz and Medical and Stem Cell	2013	-[a]	-[a]	-	1	7	-
Women's Reproductive Health Research Center	Tabriz and Medical and Women's Reproductive	2011	-[a]	-[a]	166	5	78	165
Pediatric Reproductive Health Research Center	Tabriz and Medical and Pediatric	2009	-[a]	-[a]	193	3	48	172
Social Determinants Health Research Center	Tabriz and Medical and Social Determinants	2012	-[a]	-[a]	-	0	2	-
Physical Medicine and Rehabilitation Research Center	Tabriz and Medical and Physical Medicine	2010	-[a]	-[a]	310	6	61	249

Infectious and Tropical Disease Research Center	Tabriz and Medical and Infectious	2007	-[a]	-[a]	157	9	115	105
Chronic Kidney Disease Research Center	Tabriz and Medical and Kidney	2013	-[a]	-[a]	-	3	31	231

[a]Data were not collected.
[b]Extracted from SCOPUS.COM.
[c]Extracted from an official report of the Iranian Ministry of Health and Medical Education.

Table 5. Details of top ten cited papers from Iran.

No.	Title	Authors	Year	Journal	No. of citations
1	Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC	Chatrchyan, S.,Khachatryan, V.,Sirunyan, A.M., (...),Swanson, J.,Wenman, D.	2012	Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics	1926
2	Determination of organic compounds in water using dispersive liquid-liquid microextraction	Rezaee, M.,Assadi, Y.,Milani Hosseini, M.-R., (...),Ahmadi, F.,Berijani, S.	2006	Journal of Chromatography A	1244
3	A general theory of phase noise in electrical oscillators	Hajimiri, A.,Lee, T.H.	1998	IEEE Journal of Solid-State Circuits	1121
4	A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010	Lim, S.S.,Vos, T.,Flaxman, A.D., (...),Murray, C.J.L.,Ezzati, M.	2012	The Lancet	1000
5	Indoor radio propagation channel	Hashemi, H.	1993	Proceedings of the IEEE	864
6	Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010	Murray, C.J.L.,Vos, T.,Lozano, R., (...),Zonies, D.,Lopez, A.D.	2012	The Lancet	846
7	Guidelines for the use and interpretation of assays for monitoring autophagy	Klionsky, D.J.,Abdalla, F.C.,Abeliovich, H., (...),Zschocke, J.,Zuckerbraun, B.	2012	Autophagy	758
8	Early life risk factors for obesity in childhood: Cohort study	Reilly, J.J.,Armstrong, J.,Dorosty, A.R., (...),Steer, C.,Sherriff, A.	2005	British Medical Journal	722
9	Long-term effects of Aβ42 immunisation in Alzheimer's disease: follow-up of a randomised, placebo-controlled phase I trial	Holmes, C.,Boche, D.,Wilkinson, D., (...),Zotova, E.,Nicoll, J.A.	2008	The Lancet	704
10	Functional impact of global rare copy number variation in autism spectrum disorders	Pinto, D.,Pagnamenta, A.T.,Klei, L., (...),Sutcliffe, J.S.,Betancur, C.	2010	Nature	687

Table 6. Top ten cited papers from Tabriz, details of papers along with corresponding authors address.

No.	Title	Authors	Year	Journal	No. of citations	Corresponding author address
1	Photocatalytic degradation of azo dye acid red 14 in water on ZnO as an alternative catalyst to TiO2	Daneshvar, N.,Salari, D.,Khataee, A.R.	2004	Journal of Photochemistry and Photobiology A: Chemistry	470	University of Tabriz
2	Photocatalytic degradation of azo dye acid red 14 in water: Investigation of the effect of operational parameters	Daneshvar, N.,Salari, D.,Khataee, A.R.	2003	Journal of Photochemistry and Photobiology A: Chemistry	417	University of Tabriz
3	Kinetic study on photocatalytic degradation of C.I. Acid Yellow 23 by ZnO photocatalyst	Behnajady, M.A.,Modirshahla, N.,Hamzavi, R.	2006	Journal of Hazardous Materials	304	Tabriz Azad University
4	Analysis of genetic diversity in crop plants - Salient statistical tools and considerations	Mohammadi, S.A.,Prasanna, B.M.	2003	Crop Science	291	Indian Agric. Research Institute
5	Some notes on the paper "Cone metric spaces and fixed point theorems of contractive mappings"	Rezapour, Sh.,Hamlbarani, R.	2008	Journal of Mathematical Analysis and Applications	236	Azarbaijan Shahid Madani University
6	Corrosion inhibition of mild steel by some schiff base compounds in hydrochloric acid	Ashassi-Sorkhabi, H.,Shaabani, B.,Seifzadeh, D.	2005	Applied Surface Science	214	University of Tabriz
7	Immunomodulating and anticancer agents in the realm of macromycetes fungi (macrofungi)	Moradali, M.-F.,Mostafavi, H.,Ghods, S.,Hedjaroude, G.-A.	2007	International Immunopharmacology	205	University of Tabriz
8	Decolorization of basic dye solutions by electrocoagulation: An investigation of the effect of operational parameters	Daneshvar, N.,Oladegaragoze, A.,Djafarzadeh, N.	2006	Journal of Hazardous Materials	203	University of Tabriz
9	Particle swarm optimizer, ant colony strategy and harmony search scheme hybridized for optimization of truss structures	Kaveh, A.,Talatahari, S.	2009	Computers and Structures	170	Iran University of Science and Technology
10	Biological decolorization of dye solution containing Malachite Green by microalgae Cosmarium sp.	Daneshvar, N.,Ayazloo, M.,Khataee, A.R.,Pourhassan, M.	2007	Bioresource Technology	166	University of Tabriz

Table 7. Details of top ten cited papers from Tabriz University of Medical Sciences.

No.	Title	Authors	Year	Journal	No. of citations
1	Targeted delivery of nanoparticles for the treatment of lung diseases	Azarmi, S.,Roa, W.H.,Lubenberg, R.	2008	Advanced Drug Delivery Reviews	159
2	Prevalence of Hypovitaminosis D in Cardiovascular Diseases (from the National Health and Nutrition Examination Survey 2001 to 2004)	Kim, D.H.,Sabour, S.,Sagar, U.N.,Adams, S.,Whellan, D.J.	2008	American Journal of Cardiology	145
3	The effect of type and concentration of vehicles on the dissolution rate of a poorly soluble drug (indomethacin) from liquisolid compacts	Nokhodchi, A.,Javadzadeh, Y.,Siahi-Shadbad, M.R.,Barzegar-Jalali, M.	2005	Journal of Pharmacy and Pharmaceutical Sciences	127
4	Exhaled nitric oxide as a noninvasive assessment of chronic cough	Chatkin, J.M.,Ansarin, K.,Silkoff, P.E., (...),Zamel, N.,Chapman, K.R.	1999	American Journal of Respiratory and Critical Care Medicine	115
5	Frequency and clinical manifestations of patients with primary immunodeficiency disorders in Iran: Update from the Iranian primary immunodeficiency registry	Rezaei, N.,Aghamohammadi, A.,Moin, M., (...),Nabavi, M.,Farhoudi, A.	2006	Journal of Clinical Immunology	112
6	Evaluation of the immortalised mouse brain capillary endothelial cell line, b.End3, as an in vitro blood-brain barrier model for drug uptake and transport studies	Omidi, Y.,Campbell, L.,Barar, J., (...),Akhtar, S.,Gumbleton, M.	2003	Brain Research	108
7	Effect of insecticide-impregnated dog collars on incidence of zoonotic visceral leishmaniasis in Iranian children: A matched-cluster randomised trial	Mazloumi Gavgani, A.S.,Hodjati, M.H.,Mohite, H.,Davies, C.R.	2002	Lancet	105
8	Current perspectives in dissolution testing of conventional and novel dosage forms	Azarmi, S.,Roa, W.,Lubenberg, R.	2007	International Journal of Pharmaceutics	103
9	Review of the cosolvency models for predicting solubility of drugs in water-cosolvent mixtures	Jouyban, A.	2008	Journal of Pharmacy and Pharmaceutical Sciences	98
10	Predicting human intestinal permeability using single-pass intestinal perfusion to rat	Zakeri-Milani, P.,Valizadeh, H.,Tajerzadeh, H., (...),Barzegar, S.,Barzegar-Jalali, M.	2007	Journal of Pharmacy and Pharmaceutical Sciences	87

Table 8. Top ten authors of Iran, Tabriz and Tabriz University of Medical Sciences along with some details extracted from Scopus.

	Sept 2011		Feb. 2015						
	Author	**No. of articles**	**Author**	**No. of articles**	**No. of articles based on author search**	**H-index**	**Total citations**	**Citations-without self citation**	**Affiliation**
				Iran					
1	Shamsipur, M.	543	Shamsipur, M.	693	701	59	15228	12230	Razi University
2	Heravi, M.M.	434	Ganjali, M.R.	632	645	68	16193	9083	Tehran University of Medical Sciences
3	Dehghan, M.	417	Larijani, B.	592	603	38	5898	5197	Tehran University of Medical Sciences
4	Yavari, I.	337	Dehghan, M.	578	588	48	8617	6091	AmirKabir University
5	Ganjali, M.R.	329	Azizi, F.	578	633	44	8138	6416	Shahid Beheshti University of Medical Sciences
6	Azizi, F.	310	Abdollahi, M.	534	544	50	9508	6070	Tehran University of Medical Sciences
7	Larijani, B.	304	Morsali, A.	468	470	39	5508	3124	Tehran University
8	Dehpour, A.R.	288	Salavati-Niasari, M.	462	484	47	8277	5777	Kashan University
9	Abdollahi, M.	288	Heravi, M.M.	440	445	42	7158	5249	Alzahra University
10	Norouzi, P.	283	Norouzi, P.	426	428	50	8905	5331	Tehran University of Medical Sciences
				Tabriz					
1	Shoja, M.M.	221	Rostami, A.	303	325	17	1080	854	Tabriz University
2	Rostami, A.	176	Shoja, M.M.	285	423	17	1765	1595	Tabriz University of Medical Sciences
3	Jouyban, A.	143	Jouyban, A.	267	290	24	2417	1283	Tabriz University of Medical Sciences
4	Nokhodchi, A.	96	Hosseini, S.H.	186	267	20	1468	1216	Tabriz University
5	Hosseini, S.H.	95	Babaei, E.	144	148	15	969	672	Tabriz University
6	Jafarizadeh, M.A.	83	Nokhodchi, A.	131	163	31	2796	2425	Tabriz University of Medical Sciences
7	Zafarani-Moattar, M.T.	80	Entezami, A.A.	130	147	21	1410	1215	Tabriz University
8	Tajalli, H.	79	Khataee, A.R.	123	187	31	4049	2998	Tabriz University
9	Entezami, A.A.	78	Valizadeh, H.	115	118	17	1121	858	Tabriz University of Medical Sciences

10	Pournaghi-Azar, M.H.	78	Ghabili, K.	115	119	10	497	372	Tabriz University of Medical Sciences
				Tabriz University of Medical Sciences					
1	Shoja, M.M.	209	Jouyban, A.	266	290	24	2417	1283	Pharmacy
2	Jouyban, A.	156	Shoja, M.M.	261	423	17	1765	1595	Medicine
3	Nokhodchi, A.	103	Nokhodchi, A.	129	163	31	2796	2425	Pharmacy
4	Ardalan, M.R.	71	Valizadeh, H.	115	118	17	1121	858	Pharmacy
5	Valizadeh, H.	62	Ghabili, K.	114	119	10	497	372	Medicine
6	Rashidi, M.R.	57	Farajnia, S.	97	97	10	332	282	Drug Applied Research Center
7	Delazar, A.	57	Delazar, A.	89	99	17	807	542	Pharmacy
8	Barzegar-Jalali, M.	56	Ardalan, M.R.	89	125	13	567	522	Medicine
9	Ghabili, K.	54	Rashidi, M.R.	84	90	13	622	557	Pharmacy
10	Farajnia, S.	49	Ghojazadeh, M.	82	88	6	154	137	Medicine

Conflict of Interest

The authors report no conflicts of interest.

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