

## Impact factors of Indian open access journals rising

Journal impact factors (IFs) are released every year by Thomson Reuters in its *Journals Citation Reports (JCR)*, a companion volume to *Science Citation Index (SCI)* since 1975 and now *Web of Science (WoS)*. Impact factors keep changing. Researchers around the world are curious to know the latest IFs of the journals in which they publish. Even though there are rival bibliographic databases, ostensibly to address the inadequate coverage of regional journals in *SCI*, its comprehensive coverage of the world's most important and influential journals and its stringent processes for inclusion of journals in the database have made *SCI* an authentic and reliable source of scientific information and the database of choice for scientometric studies and developing science indicators. Every year, *JCR* includes new journals published from different geographical locations and discards a few, the decision largely based on their citation profiles<sup>1</sup>. Thomson Reuters released *JCR-2011* in late June 2012, and it includes 10,677 journals in both sciences and social sciences – the largest ever<sup>2</sup>.

From journals in the *JCR-2011* (ref. 3), we ascertained that there are 8,281 journals published from 82 countries indexed in the *JCR Science Edition-2011*. The list of 836 open access (OA) journals indexed in *Science Citation Index Expanded (SCIE)* was obtained from Thomson Reuters (Science) through e-mail in September 2011. But, a website of the company lists only 703 OA journals (<http://science.thomsonreuters.com/cgi-bin/linksj/opensearch.cgi?letter=j>).

The *Directory of Open Access Journals (DOAJ)* lists 865 of these titles as OA<sup>4</sup>. *Scopus* and *PubMed Central* have indexed 747 and 238 OA journals respectively, indexed in *JCR-2011* (refs 5 and 6). Together these four databases have indexed 970 unique titles as OA journals (Figure 1) and, of these, 47 are from India. Figure 2 shows the steady increase in the number of Indian OA journals included in *JCR* from 2008 to 2011. Of the 47 Indian OA journals included in *JCR-2011*, 19 are published by commercial firms such as MedKnow, Mumbai; 11 by CSIR–NISCAIR, New Delhi and 10 by the Indian Academy of Sciences, Bangalore. Of the 99 Indian journals included in *JCR*, only 14 have an IF greater than

1.000 as against eight journals in *JCR-2010* (Table 1). Of these, 13 journals are open access and the one exception is *Energy Sustain. Dev.* (0973-0826), IF 1.625, published by Elsevier on behalf of the International Energy Initiative Regional Office located in Bangalore. Although published by Elsevier, this journal is shown as an Indian journal in *JCR*.

Nine new titles have been included in *JCR-2011* and two of them, viz. *J. Vector Borne Dis.* and *Energy Sustain. Dev.*,

have an IF greater than 1.000. Of these nine new journals, three are OA. Four journals, viz. *Indian J. Virol.* (ISSN 0970-2822), *Vet. Pract.* (ISSN 0972-4036), *J. Cancer Res. Ther.* (ISSN 0973-1482) and *Biomed. Res-India* (ISSN 0970-938X) listed in *JCR-2010* have been dropped in *JCR-2011* (Table 2).

Out of 47 Indian OA journals in *JCR-2011*, 13 had an IF greater than 1.000 in 2011. There is a considerable increase in the number of Indian journals having IF  $\geq 1.0$  ever since the IF of two Indian

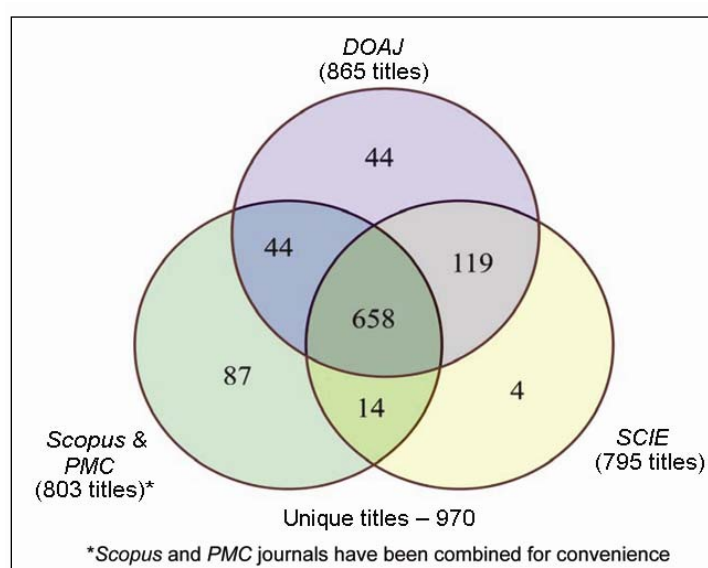


Figure 1. Coverage of open access journals in *JCR-2011* from different databases.

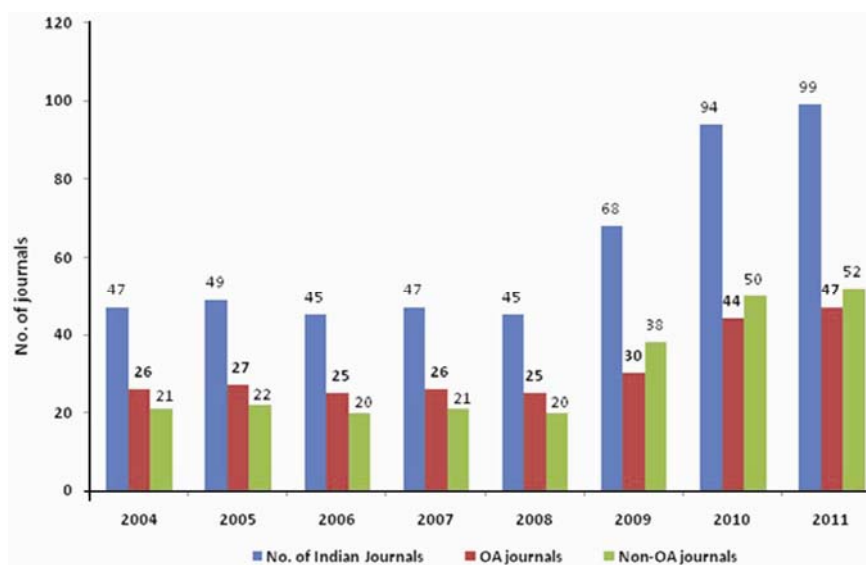


Figure 2. Open access status of Indian journals included in *JCR* during 2004–2011.

## CORRESPONDENCE

**Table 1.** Variation of impact factors of Indian open access (OA) journals indexed in *JCR*-2011 [OA status is checked only for journals included in *JCR*-2011]

Journal	ISSN	OA started year	Impact factor								
			2004	2005	2006	2007	2008	2009	2010	2011	
<i>B ASTRON SOC INDIA</i>	0304-9523	2004							0.310	2.600	2.722
<i>INDIAN J MED RES</i>	0971-5916	2004	0.600	0.869	1.224	1.670	1.883	1.516	1.826	1.837	
<i>J BIOSCI</i>	0250-5991	2002	1.102	1.031	0.966	1.355	1.703	1.956	1.888	1.648	
<i>ANN THORAC MED</i>	1817-1737	2006								1.060	1.617
<i>INDIAN J EXP BIOL</i>	0019-5189	2009				0.551	0.599	0.550	0.702	1.295	
<i>J POSTGRAD MED</i>	0022-3859	2001					1.538	1.389	1.589	1.263	
<i>J CHEM SCI</i>	0974-3626	2002	0.000	0.818	1.120	1.032	0.745	0.993	1.080	1.177	
<i>J VECTOR BORNE DIS</i>	0972-9062	2003								1.177	
<i>PHARMACOGN MAG</i>	0973-1296	2005								0.432	1.159
<i>INDIAN J BIOCHEM BIO</i>	0301-1208	2008	0.308	0.505	0.277	0.368	0.579	0.574	0.824	1.142	
<i>J GENET</i>	0022-1333	2002	1.100	0.833	0.528	0.567	0.640	0.762	1.338	1.086	
<i>INDIAN PEDIATR</i>	0019-6061	1999				0.750	0.956	0.962	0.900	1.048	
<i>INDIAN J OPHTHALMOL</i>	0301-4738	2005								0.827	1.019
<i>INDIAN J MED MICROBI</i>	0255-0857	2001								1.006	0.988
<i>INDIAN J DERMATOL VE</i>	0378-6323	2001							0.976	0.932	0.979
<i>NEUROL INDIA</i>	0028-3886	1999	0.339	0.385	0.623	0.645	1.095	0.796	0.834	0.956	
<i>CURR SCI INDIA</i>	0011-3891	1999	0.688	0.728	0.737	0.800	0.774	0.782	0.897	0.935	
<i>ANN INDIAN ACAD NEUR</i>	0972-2327	2006								0.415	0.928
<i>INDIAN J CHEM A</i>	0376-4710	2008	0.509	0.632	0.631	0.685	0.575	0.617	0.920	0.891	
<i>B MATER SCI</i>	0250-4707	2002	0.554	0.777	0.522	0.603	0.858	0.783	0.944	0.880	
<i>J EARTH SYST SCI</i>	0253-4126	2002		0.000	0.213	0.476	0.786	0.819	0.941	0.820	
<i>TROP ECOL</i>	0564-3295	2000									0.768
<i>INDIAN J PURE AP PHY</i>	0019-5596	2009	0.399	0.495	0.380	0.340	0.338	0.246	0.511	0.763	
<i>INDIAN J PHARMACOL</i>	0019-5472	2004							0.267	0.303	0.727
<i>IETE TECH REV</i>	0256-4602	2008	0.092	0.010	0.023	0.025		0.075	0.370	0.724	
<i>INDIAN J PATHOL MICR</i>	0377-4929	2008								0.570	0.676
<i>INDIAN J CHEM B</i>	0376-4699	2008	0.476	0.446	0.491	0.368	0.466	0.437	0.562	0.648	
<i>J ENVIRON BIOL</i>	0254-8704	2006	0.266	0.340	0.197	0.480	1.359				0.640
<i>INDIAN J PHARM SCI</i>	0250-474X	2006								0.455	0.626
<i>INDIAN J CHEM TECHN</i>	0971-457X	2009	0.235	0.226	0.301	0.429	0.353	0.267	0.373	0.606	
<i>J SCI IND RES INDIA</i>	0022-4456	2009	0.191	0.232	0.178	0.387	0.229	0.359	0.514	0.587	
<i>PRAMANA-J PHYS</i>	0304-4289	1999	0.301	0.380	0.417	0.383	0.274	0.349	0.561	0.575	
<i>INT J DIABETES DEV C</i>	0973-3930	2001								0.509	0.569
<i>INDIAN J BIOTECHNOL</i>	0972-5849	2009								0.385	0.550
<i>E-J CHEM</i>	0973-4945	2004								0.716	0.516
<i>INDIAN J ORTHOP</i>	0019-5413	2006								0.285	0.503
<i>INDIAN J MAR SCI</i>	0379-5136	2009	0.150	0.202	0.209	0.302	0.310	0.102	0.204	0.422	
<i>J ASTROPHYS ASTRON</i>	0250-6335	2002	0.415	0.700	0.818	0.439	0.667	0.580	0.531	0.400	
<i>INDIAN J TRADIT KNOW</i>	0972-5938	2009							0.087	0.232	0.399
<i>J CYTOL</i>	0970-9371	2008								0.333	0.311
<i>INT J HUM GENET</i>	0972-3757	2001								0.238	0.306
<i>DEFENCE SCI J</i>	0011-748X	2007	0.121	0.172	0.118	0.141	0.118	0.227	0.304	0.270	
<i>SADHANA-ACAD P ENG S</i>	0256-2499	2002	0.183	0.395	0.165	0.188	0.276	0.196	0.297	0.259	
<i>INDIAN J ENG MATER S</i>	0971-4588	2009	0.087	0.160	0.277	0.272	0.197	0.218	0.150	0.223	
<i>IETE J RES</i>	0377-2063	2008	0.075	0.052	0.050	0.059		0.132	0.076	0.200	
<i>ANTHROPOLOGIST</i>	0972-0073	1999									0.184
<i>P INDIAN AS-MATH SCI</i>	0253-4142	2002	0.304	0.154	0.173	0.247	0.463	0.382	0.226	0.165	
No. of journals with IF > 1.0*			2	1	3	3	5	3	9	14	

\*Includes non-OA journals as well.

journals, viz. *J. Biosci.* (IF 1.102) and *J. Genet.* (IF 1.100) crossed 1.0 for the first time in *JCR*-2004 (ref. 7). The numbers in subsequent years are 1 in 2005, 3 in 2006, 3 in 2007, 5 in 2008, 3 in 2009 and 9 in 2010 (Table 3).

Notably, *B. Astron. Soc. India* (ISSN 0304-9523), published by the Astro-

nomical Society of India, has the highest IF (2.722) amongst the Indian journals indexed in *JCR*-2011. In the previous year it had an IF of 2.600. This is the only Indian journal to have recorded an IF greater than 2.000 ever. The *JCR* started covering this journal in 2009 with an IF of merely 0.310. The reason for a

sudden jump is worth investigating. In the three years 2008–2010, this journal had published only 26 papers and in 2007 alone 82 papers. In contrast, *Current Science* publishes over 700 citable items every year and *Indian J. Med. Res.* between 210 and 270 papers. Two papers published in *B. Astron. Soc. India* in

**Table 2.** Journals indexed in previous years' *JCR* but dropped in subsequent years

Journal	ISSN	Open access status*	OA started year	Impact factor									
				2004	2005	2006	2007	2008	2009	2010	2011		
<i>ASIAN J SPECTROSC</i>	0971-9237	NO		0.171	0.083								
<i>B ELECTROCHEM</i>	0256-1654	NO		0.276	0.294	0.259	0.236						
<i>BIOMED RES-INDIA</i>	0970-938X	NO										0.119	
<i>INDIAN J AGRON</i>	0537-197X	NO		0.036									
<i>INDIAN J FIBRE TEXT</i>	0971-0426	OA	2009	0.112	0.190								
<i>INDIAN J VIROL</i>	0970-2822	NO								0.276	1.133		
<i>INDIAN VET J</i>	0019-6479	NO		0.051	0.052	0.036	0.052	0.056					
<i>J ADV ZOOL</i>	0253-7214	NO		0.054	0.000								
<i>J CANCER RES THER</i>	0973-1482	OA	2005									0.825	
<i>P INDIAN AS-CHEM SCI</i>	0253-4134	OA	2002	0.493	0.921								
<i>P INDIAN AS-EARTH</i>	0253-4126	OA	2002	0.424	0.240	0.865							
<i>PHOTONIRVACHAK-J IND</i>	0255-660X	NO					0.000	0.049	0.076				
<i>VET PRACT</i>	0972-4036	NO								0.109	0.000		

\*NO = non-OA.

**Table 3.** Indian journals with impact factor > 1.0 in *JCR* 2004–2011

Journal	ISSN	Open access status*	OA started year	Impact factor									
				2004	2005	2006	2007	2008	2009	2010	2011		
<i>B ASTRON SOC INDIA</i>	0304-9523	OA	2004							0.310	2.600	2.722	
<i>INDIAN J MED RES</i>	0971-5916	OA	2004	0.600	0.869	1.224	1.670	1.883	1.516	1.826	1.837		
<i>J BIOSCI</i>	0250-5991	OA	2002	1.102	1.031	0.966	1.355	1.703	1.956	1.888	1.648		
<i>ENERGY SUSTAIN DEV</i>	0973-0826	NO										1.625	
<i>ANN THORAC MED</i>	1817-1737	OA	2006									1.060	1.617
<i>INDIAN J EXP BIOL</i>	0019-5189	OA	2009				0.551	0.599	0.550	0.702	1.295		
<i>J POSTGRAD MED</i>	0022-3859	OA	2001					1.538	1.389	1.589	1.263		
<i>J CHEM SCI</i>	0974-3626	OA	2002		0.818	1.120	1.032	0.745	0.993	1.080	1.177		
<i>J VECTOR BORNE DIS</i>	0972-9062	OA	2003									1.177	
<i>PHARMACOGN MAG</i>	0973-1296	OA	2005									0.432	1.159
<i>INDIAN J BIOCHEM BIO</i>	0301-1208	OA	2008	0.308	0.505	0.277	0.368	0.579	0.574	0.824	1.142		
<i>J GENET</i>	0022-1333	OA	2002	1.100	0.833	0.528	0.567	0.640	0.762	1.338	1.086		
<i>INDIAN PEDIATR</i>	0019-6061	OA	1999				0.750	0.956	0.962	0.900	1.048		
<i>INDIAN J OPHTHALMOL</i>	0301-4738	OA	2005								0.827	1.019	
<i>INDIAN J MED MICROBI</i>	0255-0857	OA	2001								1.006	0.988	
<i>NEUROL INDIA</i>	0028-3886	OA	1999	0.339	0.385	0.623	0.645	1.095	0.796	0.834	0.956		
<i>J ENVIRON BIOL</i>	0254-8704	OA	2006	0.266	0.340	0.197	0.480	1.359				0.640	
<i>INDIAN J VIROL</i>	0970-2822	NO								0.276	1.133		
<i>NATL MED J INDIA</i>	0970-258X	NO		0.626	0.614	1.000	0.889	0.911	0.685	0.541	0.595		
No. of journals with IF > 1.0				2	1	3	3	5	3	9	14		

\*NO = non-OA.

2009 have been cited 65 and 22 times by the end of 2011 (and 97 and 26 times respectively, by the end of June 2012) contributing to the rather high impact factor. Incidentally, this journal has a two-year IF of 3.89 as estimated from citations listed in the SAO/NASA Astrophysics Data System<sup>8</sup>. Even though its contents are available for free on the internet, there is no information found in either the home page of the journal or in *DOAJ* or *JCR* or *WoS* about its OA status.

As of 26 July 2012, the *DOAJ* has listed 7,945 journals (of which 3,879 were fully searchable at the article level), as against around 500 OA journals in 1999, showing the increasing popularity of OA journals and their impact and scholarly value to researchers worldwide. OA journals are popular among Indian researchers as well. For example, in 2009, one in six articles published from India had appeared in an OA journal<sup>9</sup>. Several recent studies have shown that the IFs of many OA journals are increas-

ing with time<sup>10,11</sup>. In contrast, journals published from the developing countries are struggling to find a place in *JCR* and even when they are included in *JCR* their IFs continue to be low, irrespective of whether they are OA or toll access.

One point to note: we should not use these IFs to compare journals in isolation. They vary from field to field<sup>12–15</sup>. Rarely will mathematics journals have IFs as high as new biology or medical journals (e.g. *Cell*, 32.403; *New Engl. J. Med.*, 53.298). As early as 1997, Garfield

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wrote 'However, we also know that there are many differences in citation dynamics across fields. So, impact factors should only be considered in terms of the category involved'<sup>12</sup>.

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SUBBIAH GUNASEKARAN<sup>1</sup>\*  
SUBBIAH ARUNACHALAM<sup>2</sup>

<sup>1</sup>Knowledge Resource Centre,  
CSIR-Central Electrochemical Research  
Institute,

Karaikudi 630 006, India

<sup>2</sup>Centre for Internet and Society,

#194, 2nd C Cross,

Domlur 2nd Stage,

Bangalore 560 071, India

\*e-mail: [guna1970@gmail.com](mailto:guna1970@gmail.com)

## Man versus monkey

When a species constructs its niche in urban areas, its aggressive behaviour is likely to increase due to competition for food and space and high density<sup>1</sup>. This is evident in the case of monkeys which become commensals and competitors of human beings<sup>2</sup> and give rise to serious conflicts in both urban and rural areas, mostly for food and space<sup>3</sup>. Rhesus macaques (*Macaca mulatta*), Hanuman langurs (*Semnopithecus entellus*)<sup>4</sup> and lion-tailed macaques (*Macaca fascicularis*)<sup>5</sup> have been reported to be involved in conflicts with human beings. Rhesus monkeys are aggressive<sup>6</sup> and an explosion of their population in the present times has intensified their competition with humans for food and space<sup>7</sup>. In India, 86% of the total rhesus monkey population resides near human habitations<sup>8</sup> and monkey menace is prevalent in many parts of the country. For example, an increase in man–monkey conflict and indifference of the authorities towards the issue have resulted in public protests to eradicate the population of rhesus monkeys in Shimla and also in the rural areas of Himachal Pradesh<sup>9</sup>. Over hundred people are bitten by monkeys everyday and this results in a daily expenditure of about Rs 2.5 lakh on vaccines for the victims. Besides, there is also a greater probability of transmission of many other disease germs like the Herpes B virus<sup>10</sup> due to such conflicts. Indians have many religious and tradi-

tional beliefs about monkeys, but frequent conflicts have affected the traditional bond between man and monkey in India<sup>11</sup>. However, all primates do not have the same capacity to become urbanized<sup>12</sup>.

Proper education on wildlife conservation, especially involving children, lawyers and legislatures is the key to find a solution<sup>3,13</sup>. Besides, developmental programmes must be thoroughly tuned to protect animal rights. In addition, prior to allowing forest diversion proposals, a proper Environment Impact Assessment must be done<sup>14</sup>. The current methods of dealing with monkey menace are inefficient and only contribute to further accelerating the problem<sup>13</sup>. Hence, strategies need to be developed to minimize the dependence of rhesus macaque on human resources to avoid conflicts<sup>9</sup>. Behavioural studies under naturalistic conditions are required to be undertaken in order to develop efficient management and conservation strategies to resolve the man–monkey conflict<sup>15</sup>.

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HIMANGSHU DUTTA

Department of Ecology and  
Environmental Science,  
Assam University,  
Silchar 788 011, India  
e-mail: [himangshu.dibru@gmail.com](mailto:himangshu.dibru@gmail.com)