

## Growing visibility of Indian biomedicine and life sciences journals in global alerting services

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### Abstract

Of late the impact of Indian science and technology (S&T) journals, especially in the fields of biomedicine and life sciences is escalating though slowly but surely. The present communication aims to find out the coverage of Indian biomedicine and life sciences journals in major global alerting services as also suggest ways and means to augment their growing global visibility further. The coverage of Indian biomedicine and life sciences journals has been carried out in (i) *Medline* 2007 (ii) *Science Citation Index Expanded* in the *Web of Science* (as on January 29, 2008) as also the latest Impact Factor (IF) from the *Journal Citation Reports* (JCR) 2006; and (iii) *Scopus* (as of November 2007) as also SCImago Journal Rank (SJR). The range of Indian biomedicine and life sciences journals (total 118 unique titles) analyzed in three databases ranged from 23 (SCI E) to 111 in the *Scopus*. Venn analysis showed that only 11 journals are common in all the three databases irrespective of total Indian or total biomedicine and life sciences journals. It is suggested that all these journals (118) follow guidelines of the International Committee of Medical Journal Editors [<http://www.icmje.org/>] as also develop active collaboration with international professional associations as suggested in this paper.

### Introduction

It is estimated that there are about 250,000 periodicals in all, including 25,000 in science, technology and medicine (STM). Of these, 15,000 are refereed scholarly periodicals and about 12,000 of these are available online (Chand 2005). Because of stringent inclusion criteria in major global STM indexing/abstracting services<sup>2-4</sup>, the majority of journals are from just 8-10 developed countries and representation of developing countries is meager (Jain 2007). However, of late the impact of Indian science and technology (S&T) journals, especially in the fields of biomedicine and life sciences is escalating though slowly but surely (Jain 2007; Satyanarayana 2007). The present communication aims to find out the coverage of Indian biomedicine and life sciences journals in major global alerting services as also suggest ways and means to augment their growing global visibility further.

### Method

The coverage of Indian biomedicine and life sciences journals has been carried out in (i) *Medline* 2007<sup>5</sup>, the principal online bibliographic citation database of the National Library of Medicine, National Institutes of Health, Maryland, USA; (ii) Thomson Scientific *Science Citation Index Expanded* in

<sup>2</sup>cf. <http://www.nlm.nih.gov/pubs/factsheets/jsel.html>

<sup>3</sup>cf. <http://scientific.thomson.com/free/essays/selectionofmaterial/journalselection/>

<sup>4</sup>cf. <http://www.info.scopus.com/detail/what/>

<sup>5</sup>cf. [http://www.nlm.nih.gov/tsd/serials/terms\\_cond.html](http://www.nlm.nih.gov/tsd/serials/terms_cond.html)

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the *Web of Science* (as on January 29, 2008)<sup>6</sup> as also the latest Impact Factor (IF) from the *Journal Citation Reports* (JCR 2006); and (iii) the Elsevier's abstract and citation database, the *Scopus* (as of November 2007)<sup>4</sup> as also

SCImago Journal Rank (SJR)<sup>7</sup> based on *Scopus* data.

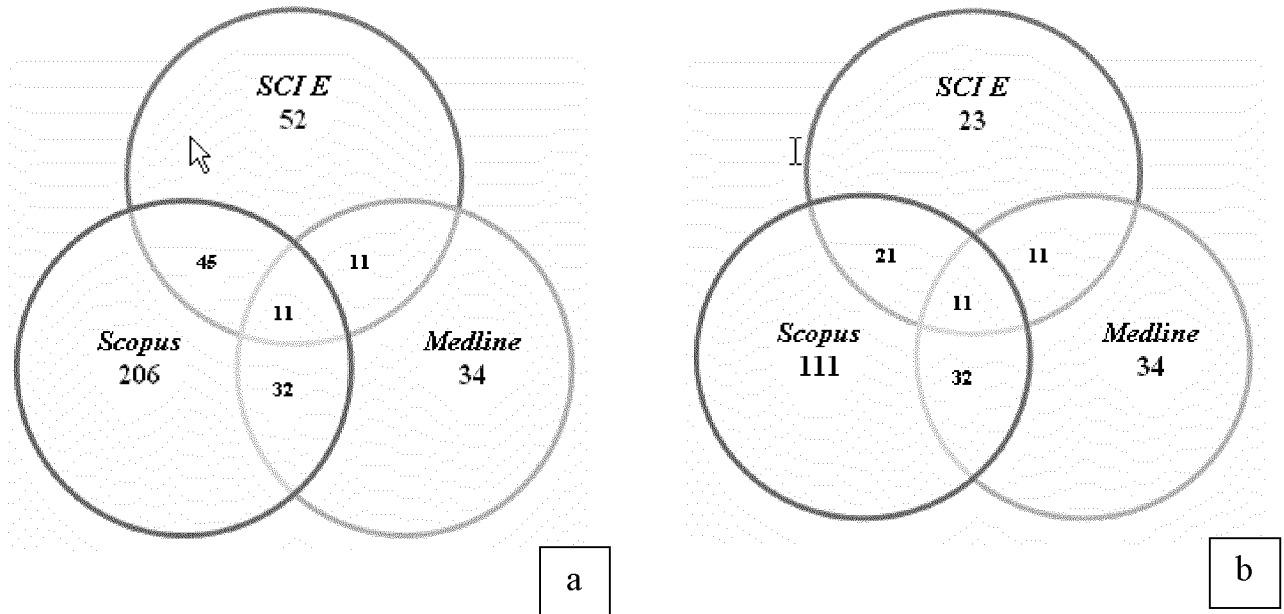


Figure 1 a.: Venn diagram showing the intersection of common Indian journals in *Scopus*, *Medline* & *SCIE*. b. Common Indian biomedicine and life sciences journals in *Scopus*, *Medline* & *SCIE*.

<sup>6</sup>cf. [james.testa@thomson.com](mailto:james.testa@thomson.com)

<sup>7</sup>cf. <http://www.scimagojr.com>

Table 1: IF 2006 and SCImago Journal Rank (SJR) of 11 journals common in three databases (*Medline 2007, SCI E and Scopus*) and their rank among top 20 of the Indian journals covered in these databases

S. No.	Journal title	IF 2006	Rank among top 20 of the 45 Indian journals included in JCR 2006	SCImago Journal Rank(SJR)	Rank among top 20 of the 157 Indian journals included in SJR 2006	Open access
1	<i>Indian Journal of Biochemistry and Biophysics</i>	0.277				No(only abstract)
2	<i>Indian Journal of Experimental Biology</i>	Not included in JCR 2006		0.069	16	No(only abstract)
3	<i>Indian Journal of Medical Research</i>	1.224	1	0.157	2	Yes
4	<i>Indian Journal of Pediatrics</i>	Not included in JCR 2006		0.067	17	Yes
5	<i>Indian Pediatrics</i>	Not included in JCR 2006		0.065	18	Yes
6	<i>Journal of Biosciences</i>	0.966	4	0.204	1	Yes
7	<i>Journal of Environmental Biology</i>	0.197				Yes
8	<i>Journal of Genetics</i>	0.528	10	0.102	5	Yes
9	<i>Journal of Postgraduate Medicine</i>	Not included in JCR 2006		0.126	3	Yes
10	<i>National Medical Journal of India</i>	1.000	3	0.099	6	Yes
11	<i>Neurology India</i>	0.623	9	0.072	14	Yes

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Table 2: List of 118 unique biomedicine and life sciences journals as covered in three databases

Sl. No.	Source Title	Scopus	Medline	SCI E
1	<i>Allelopathy Journal</i>	✓		✓
2	<i>Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology</i>	✓		
3	<i>Annals of Agri Bio Research</i>	✓		
4	<i>Annals of Arid Zone</i>	✓		
5	<i>Annals of Biology</i>	✓		
6	<i>Annals of Indian Academy of Neurology</i>	✓		
7	<i>Asia Pacific Disability Rehabilitation Journal</i>	✓		
8	<i>Asian Biotechnology and Development Review</i>	✓		
9	<i>Asian Journal of Microbiology, Biotechnology and Environmental Sciences</i>	✓		
10	<i>Asian Oceanian Journal of Radiology</i>	✓		
11	<i>Biomedical Research</i>	✓		
12	<i>Biomedicine</i>	✓		
13	<i>Biosciences Biotechnology Research Asia</i>	✓		
14	<i>Bulletin of the Indian Institute of History of Medicine (Hyderabad)</i>	✓	✓	
15	<i>Bulletin, Postgraduate Institute of Medical Education and Research, Chandigarh</i>	✓		
16	<i>Current Paediatric Research</i>	✓		
17	<i>Health and Population: Perspectives and Issues</i>	✓		
18	<i>Hindustan Antibiotics Bulletin</i>		✓	
19	<i>Indian Heart Journal</i>	✓	✓	
20	<i>Indian Journal of Agricultural Biochemistry</i>	✓		
21	<i>Indian Journal of Agricultural Sciences</i>	✓		✓
22	<i>Indian Journal of Agronomy</i>	✓		
23	<i>Indian Journal of Animal Sciences</i>	✓		✓
24	<i>Indian Journal of Biochemistry and Biophysics</i>	✓	✓	✓
25	<i>Indian Journal of Biotechnology</i>	✓		
26	<i>Indian Journal of Cancer</i>	✓	✓	
27	<i>Indian Journal of Chemistry - Section B Organic and Medicinal Chemistry</i>	✓		✓
28	<i>Indian Journal of Clinical Biochemistry</i>	✓		
29	<i>Indian Journal of Critical Care Medicine</i>	✓		
30	<i>Indian Journal of Dental Research</i>	✓	✓	
31	<i>Indian Journal of Dermatology</i>	✓		
32	<i>Indian Journal of Dermatology, Venereology and Leprology</i>	✓	✓	
33	<i>Indian Journal of Environmental Health</i>	✓		
34	<i>Indian Journal of Experimental Biology</i>	✓	✓	✓
35	<i>Indian Journal of Gastroenterology</i>	✓	✓	
36	<i>Indian Journal of Human Genetics</i>	✓		
37	<i>Indian Journal of Leprosy</i>	✓	✓	
38	<i>Indian Journal of Marine Sciences</i>			✓

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39	<i>Indian journal of medical ethics</i>	✓		
40	<i>Indian Journal of Medical Microbiology</i>	✓	✓	
41	<i>Indian Journal of Medical Research</i>	✓	✓	✓
43	<i>Indian Journal of Medical Sciences</i>	✓	✓	
44	<i>Indian Journal of Microbiology</i>	✓		
45	<i>Indian Journal of Occupational and Environmental Medicine</i>	✓		
46	<i>Indian Journal of Ophthalmology</i>	✓	✓	
47	<i>Indian Journal of Orthopaedics</i>	✓		
48	<i>Indian Journal of Otolaryngology and Head and Neck Surgery</i>	✓		
49	<i>Indian Journal of Otolaryngology</i>	✓		
50	<i>Indian Journal of Pathology and Microbiology</i>	✓	✓	
51	<i>Indian Journal of Pediatrics</i>	✓	✓	✓
52	<i>Indian Journal of Pharmaceutical Sciences</i>	✓		
53	<i>Indian Journal of Pharmacology</i>	✓		✓
54	<i>Indian Journal of Physiology and Pharmacology</i>	✓	✓	
55	<i>Indian Journal of Plastic Surgery</i>	✓		
56	<i>Indian Journal of Practical Pediatrics</i>	✓		
57	<i>Indian journal of public health</i>	✓	✓	
58	<i>Indian Journal of Sericulture</i>	✓		
59	<i>Indian Journal of Surgery</i>	✓		
60	<i>Indian Journal of Urology</i>	✓		
61	<i>Indian Pacing and Electrophysiology Journal</i>	✓		
62	<i>Indian Pediatrics</i>	✓	✓	✓
63	<i>Indian Silk</i>	✓		
64	<i>Indian Veterinary Journal</i>	✓		✓
65	<i>International Journal of Ecology and Environmental Sciences</i>	✓		
66	<i>International Journal of Medical Toxicology and Legal Medicine</i>	✓		
67	<i>JK Practitioner</i>	✓		
68	<i>JK Science</i>	✓		
69	<i>JMS - Journal of Medical Society</i>	✓		
70	<i>Journal International Medical Sciences Academy</i>	✓		
71	<i>Journal of Advanced Zoology</i>	✓		
72	<i>Journal of Anaesthesiology Clinical Pharmacology</i>	✓		
73	<i>Journal of Applied Animal Research</i>	✓		✓
74	<i>Journal of Biosciences</i>	✓	✓	✓
75	<i>Journal of Camel Practice and Research</i>	✓		✓
76	<i>Journal of Cancer Research and Therapeutics</i>	✓		
77	<i>Journal of Communicable Diseases</i>	✓	✓	
78	<i>Journal of Environmental Biology</i>	✓	✓	✓
79	<i>Journal of Environmental Science and Engineering</i>	✓	✓	
80	<i>Journal of Essential Oil-Bearing Plants</i>	✓		
81	<i>Journal of Food Science and Technology</i>	✓		✓
82	<i>Journal of Forensic Medicine and Toxicology</i>	✓		
83	<i>Journal of Genetics</i>	✓	✓	✓

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84	<i>Journal of Indian Association of Pediatric Surgeons</i>	✓		
85	<i>Journal of Indian Prosthodontist Society</i>	✓		
86	<i>Journal of Internal Medicine of India</i>	✓		
87	<i>Journal of Medical Physics</i>	✓		
88	<i>Journal of Minimal Access Surgery</i>	✓		
89	<i>Journal of Natural Remedies</i>	✓		
90	<i>Journal of Pediatric Neurosciences</i>	✓		
91	<i>Journal of Plant Biochemistry and Biotechnology</i>	✓		✓
93	<i>Journal of Postgraduate Medicine</i>	✓	✓	✓
94	<i>Journal of the Indian Medical Association</i>		✓	
95	<i>Journal of the Indian Society of Pedodontics and Preventive Dentistry</i>	✓	✓	
96	<i>Journal of the Institution of Engineers (India): Agricultural Engineering Division</i>	✓		
97	<i>Journal of Vector Borne Diseases</i>	✓	✓	
98	<i>Journal, Indian Academy of Clinical Medicine</i>	✓		
99	<i>Medical Journal Armed Forces India</i>	✓		
100	<i>Medico-Legal Update</i>	✓		
101	<i>National Medical Journal of India</i>	✓	✓	✓
102	<i>Neurology India</i>	✓	✓	✓
103	<i>Online Journal of Health and Allied Sciences</i>	✓		
104	<i>Oriental Insects</i>			✓
105	<i>Perinatology</i>	✓		
107	<i>Physiology and Molecular Biology of Plants</i>	✓		
108	<i>Phytomedica</i>	✓		
109	<i>Phytomorphology: An International Journal of Plant Morphology</i>	✓		
110	<i>Plant Cell Biotechnology and Molecular Biology</i>	✓		
111	<i>Sugar Tech</i>	✓		
112	<i>The Indian journal of chest diseases &amp; allied sciences</i>	✓	✓	
113	<i>The Journal of the Association of Physicians of India</i>	✓	✓	
114	<i>The Nursing journal of India</i>	✓	✓	
115	<i>Toxicology International</i>	✓		
116	<i>Tropical gastroenterology : official journal of the Digestive Diseases Foundation</i>	✓	✓	
117	<i>Ultrasound International</i>	✓		
118	<i>Zoos' Print Journal</i>	✓		
Total		111	34	23

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## Results

*Medline's* 2007 version listed 5164 journals indexed from 84 countries. Just eight countries, viz., United States (5181 journals), England (949), Germany (273), the Netherlands (241), Japan (162), Switzerland (139), France (106) and Italy (98), in that order, accounted for over 80% of journals (4149). Brazil and India (34 each) are 17th in the list. As many as 22 countries had just one journal each.

Thomson Scientific *Science Citation Index Expanded* in the *Web of Science*[SCI E] (as on January 29, 2008) covers a total of 6822 S&T titles including 52 from India. Of these 52 titles, 23(44.23%) are from biomedicine and life sciences. Its other product, the JCR, Science edition, 2006 covered 45 journals from India and it provides, among others, IF of journals. Of the total 6164 journals, just 109 (1.77%) had IF of 10.000 or more and more than half of the total journals, i.e., 3399 (55.14%) had IF of 1.000 or more. And in 2006, three Indian journals [*Indian Journal of Medical Research* (1.224), *Journal of Chemical Sciences* (1.120) and *National Medical Journal of India* (1.000)], had crossed IF of 1.000 or more. All the three journals are open access and do not demand page/publication charges.

Elsevier's *Scopus* covers approximately 15,000 journals from S&T including social sciences. A total of 206 titles are covered from India and more than half i.e., 111 (53.88 %) belong to biomedicine and life sciences.

The range of Indian biomedicine and life sciences journals analyzed in three databases ranged from 23 (SCI E) to 111 in the *Scopus*. Venn analysis showed that only 11 journals are common in all the three databases irrespective of total Indian or total biomedicine and life sciences journals (Figure 1 a & b). The 2006 IF and the recently launched SJR of these 11 journals are given in

Table 1.

## Discussion

A total of 118 unique biomedicine and life sciences journals are covered in three databases (Table 2). Incidentally of the 11 journals common in three databases, nine are open access and two are available gratis with abstracts through PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>).

These two journals viz., *Indian Journal of Biochemistry and Biophysics* and *Indian Journal Experimental Biology*, are published by the Council of Scientific & Industrial Research (CSIR), New Delhi. The author has requested Dr S.K.Brahmachari, Chief of CSIR to consider making all their journals open access. It is therefore not surprising that the top ranking among Indian journals in terms of IF 2006 is the *Indian Journal of Medical Research* (IF 2006;1.224), an open access journal published by the Indian Council of Medical Research (ICMR), New Delhi. Its IF of 1.224 is the highest IF for any S&T journal in India (Satyanarayana 2007) and another biomedicine journal the *National Medical Journal of India* is 3<sup>rd</sup> which has reached the IF of 1.000 in 2006 (JCR 2006). The author hopes that some of these journals will cross IF of even 2.000 in the near future as the IF is primarily based on the ratio of citations received to number of articles published. Because of open access, the citation count of journals especially of open access is on the rise. However, it is too early to arrive at any conclusion for the newly launched SJR. But one good thing about Indian journals is that they do not demand publication or page charges.

Among the three databases, the *Scopus* contains maximum number of titles both in terms of total journals (206) as also discipline-wise viz., biomedicine and life sciences (111). Once the SJR, as based on the *Scopus* data, is established globally, more and more scientists, especially in developing countries may prefer *Scopus* because of its

sheer coverage of journals as also the price tag to some extent. However, the *Scopus* claim of 100% coverage of Medline<sup>4</sup> needs to be changed appropriately as two of the 34 Indian journals [*Hindustan Antibiotics Bulletin* and *Journal of the Indian Medical Association*] analyzed in the present study are *not* included in the *Scopus*. And even some of the titles included in the *Scopus* are newsmagazine like *Pharma Times* as also duplicate titles for a single title as *Indian Journal of Medical Research* and *Indian Journal of Medical Research Supplement* besides classifying scholarly journals such as *Phytomorphology : An International Journal of Plant Morphology* , as trade titles. In fact, the SJR lists only 157 *Scopus* titles against 206 given under *Scopus* Info<sup>4</sup>. These avoidable lapses tend to tarnish the image of an otherwise upcoming product.

It is suggested that all these journals (118) follow guidelines of the International Committee of Medical Journal Editors [<http://www.icmje.org/>] as also develop active collaboration with international professional associations like the World Association of Medical Editors [<http://www.wame.org/>], European Association of Science Editors [<http://www.ease.org.uk/> ], Council of Science Editors [<http://www.councilscienceeditors.org/> ] and COLLNET: Global Interdisciplinary Research Network for the Study of all Aspects of Collaboration in Science and in Technology [<http://www.collnet.de/> ]. Encouragingly, the national initiative by the ICMR- NIC (National Informatics Centre) Centre for Biomedical Information, New Delhi provides among others , a bibliographic database of about 76 prominent peer – reviewed Indian biomedical journals through indMED [<http://indmed.nic.in/>] as also full text of 38 Indian biomedical journals through medIND. One hopes that the proposed collaboration will enhance the chances of 84 more Indian biomedicine and life sciences titles (presently *not* covered in the *Medline*) as serious contenders for inclusion in the premier open access database, the *Medline*.

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