

# Comparative Performance of Four Indian Pharmacognosy Journals

K. K. Mueen Ahmed<sup>1</sup>, Madhu Bansal<sup>2\*</sup>, B. M. Gupta<sup>3</sup>

<sup>1</sup>Phcog.Net, 17, Buddha Vihar Road, Cox Town, Bengaluru 560005, INDIA.

<sup>2</sup>Department of Mathematics, Panjab University, A.C. Joshi Library, Chandigarh-160014, INDIA.

<sup>3</sup>1173 Sector 15, Panchkula 134113, Haryana, INDIA.

## ABSTRACT

The study presents an analysis of articles covered in four pharmacognosy journals during 2010-13 and the citations obtained by these articles during 2010-15. The study developed immediacy index and impact factor, besides identifying high cited articles published in these four journals. The findings revealed that Pharmacognosy Review has performed the best, followed by Pharmacognosy Magazine, Pharmacognosy Research and Pharmacognosy Journal.

**Key words:** Pharmacognosy Journals, India, Citation analysis, Performance evaluation, Scientometrics

## Correspondence:

**Madhu Bansal**, Department of Mathematics, Panjab University, Chandigarh-160014, INDIA.

Email: madhu@pu.ac.in

DOI: 10.5530/PTB.2016.2.3

## INTRODUCTION

Pharmacy (or pharmacology) is one of the disciplines under biomedical and health sciences and it is the profession responsible for the preparation, dispensing and appropriate use of medication and which provides services to achieve optimal therapeutic outcomes. It deals with the production of pharmaceutical products, development of the methods or processes of production and quality control. In terms of R & D, it is concerned with synthesis of new drugs (what is commonly referred to as molecules), new processes, clinical testing of the effects of such drugs on animals and humans, and obtaining the required license from the drug control authorities. Pharmacology has a long legacy of research of more than 100 years. There are over 225 programs in pharmacy conducted by different universities in India.<sup>1</sup> A large number of journals (over 35) are published in India in pharmacology related research, some of them originated as early as 1940.

Pharmacognosy is a one of the branch of Pharmacy and contributes drugs from the natural sources, as natural products are the most consistent and successful source of drugs. In India, Ayurveda remains one of the most ancient and living traditions, practiced for the treatment of various diseases and disorders. India has many plant species, and medicinal properties have been assigned to several thousand of them. Many major institutes and research centers are currently involved in exploring this opportunity to investigate newer drugs from the ancient principles of Ayurveda.

Researchers believe in combining the strengths of Ayurveda with modern scientific techniques such as NMR, MS, and chromatographic techniques to provide new functional leads with high therapeutic value in a short span of time. But natural products research often faces many hurdles, which hinders drug development. We believe that natural products research information can potentially benefit many researchers involved in this area. We also believe that research on natural products is often delayed by a lack of necessary information about medicinal plants. Phcog.Net-A Platform for Natural Product Researchers was created to combat these problems. It makes innovative use of the best tools for information dissemination to overcome the hurdles to Natural Product Research. Phcog.Net is a private organization founded by Dr. Ahmed in the year 2004 and it is dedicated

to Natural Products Research to develop promising drugs. Their main mission is to make information on herbal drug research readily available in different formats to suit the individual needs. A long term objective is to provide high quality, accurate, and necessary information to enhance herbal drug research. Phcog.Net is a private organization dedicated to Natural Products Research in order to develop promising drugs.

In the past few studies dealing with performance of journals in terms of various indices have been conducted and reported in the literature. These studies have explored the authorship pattern, institutional affiliation, average length of articles, number of contributions, number of references appended, etc. A similar study on two Indian library science journals have been published by Garg and Bebi,<sup>2</sup> which analysed the number of articles published by these two journals during 2010-13. To make comparative assessment of the performance of four Indian pharmacognosy journals, based on their publication and citation indices. In particular it focuses on; (i) to find the number of articles published during 2010-13 and the number of citations received by these articles during 2010-15 (June); (ii) to determine of extent of citations obtained by these journals, (iii) to identify the high cited papers and authors and (iv) to calculate the immediacy index for years from 2010-to 2013 and impact factor for the years from 2012 to 2014.

## METHOD

The data for the present study consist of articles published in four Indian pharmacognosy journals, namely Pharmacognosy Journal, Pharmacognosy Magazine, Pharmacognosy Research and Pharmacognosy Reviews as indexed in Scopus international database from 2010 to 2013. Citations of the publications indexed in these four journals were obtained from 2010 till June 2015. The results were tabulated and analyzed as per the objectives of the study.

## RESULTS AND DISCUSSION

Articles published during 2010-13 and their pattern of citations: Table 1 presents the data on the number of articles published in the four selected

**Table 1: Year-wise distribution of articles and their citations**

Year	Pharmacognosy Journal (P JOUR)			Pharmacognosy Magazine (P MAGA)			Pharmacognosy Research (P RES)			Pharmacognosy Review (P REV)		
	NOA	NOC	CPP	NOA	NOC	CPP	NOA	NOC	CPP	NOA	NOC	CPP
2010	139	273	1.96	67	664	9.91	79	480	6.08	29	498	17.17
2011	137	203	1.48	58	366	6.31	49	284	5.8	23	338	14.7
2012	89	118	1.33	56	188	3.36	39	154	3.95	21	124	5.905
2013	55	57	1.04	43	65	1.51	59	88	1.49	25	56	2.24
Total	420	651	1.55	224	1283	5.73	218	1006	4.61	98	1016	10.37

NOA=Number of Articles; NOC=Number of Citations; CPP=Citations Per Publication.

**Table 2: Distribution of citations of articles**

Citations (A)	Pharmacognosy Journal (P JOUR)		Pharmacognosy Magazine (P MAGA)		Pharmacognosy Research (P RES)		Pharmacognosy Review (P REV)	
	NOA	TC	NOA	TC	NOA	TC	NOA	TC
0	154	0	39	0	34	0	8	0
1	98	98	25	25	34	34	9	9
2	75	150	23	46	29	58	5	10
3	38	114	23	69	17	51	14	42
4	30	120	18	72	20	80	4	16
5	11	55	14	70	11	55	6	30
6-10	12	83	43	332	49	364	24	199
11-15	1	12	23	284	18	229	12	155
16-20	1	19	7	202	2	36	7	127
21-25			2	46	3	67	4	95
26-30			5	137	2	0	0	0
31-35					1	32	2	63
>35							3	271
Total	420	651	224	1283	218	1006	98	1016

NOA=Number of Articles; TC=Total Citations.

**Table 3: Impact Factor of Journals**

Time Period	Pharmacognosy Journal (P JOUR)		Pharmacognosy Magazine (P MAGA)		Pharmacognosy Research (P RES)		Pharmacognosy Review (P REV)	
	NTC	NOA	NTC	NOA	NTC	NOA	NTC	NOA
2010-11 articles cited in 2012	119	276	263	128	174	128	126	52
IF for 2012		0.431		2.055		1.359		2.423
2011-12 articles cited in 2013	73	226	150	114	141	88	143	44
IF for 2013		0.323		1.316		1.602		3.250
2012-13 articles cited in 2014	82	144	137	99	103	98	72	46
IF for 2014		0.494		1.384		1.051		1.565

NTC = Number of Times Cited; NOA=Number of Articles.

**Table 4: Immediacy Index of the journals**

Period	Pharmacognosy Journal (P JOUR)			Pharmacognosy Magazine (P MAGA)			Pharmacognosy Research (P RES)			Pharmacognosy Review (P REV)		
	NOP	NOC	II	NOP	NOC	II	NOP	NOC	II	NOP	NOC	II
2010	139	65	0.47	67	131	1.96	79	74	0.94	29	40	1.38
2011	137	52	0.38	58	82	1.41	49	58	1.18	23	61	2.65
2012	89	33	0.37	56	44	0.79	39	48	1.23	21	38	1.81
2013	55	28	0.51	43	14	0.33	59	43	0.73	13	26	2.00
Total	420	178	0.42	224	271	1.21	218	223	1.02	98	165	1.68

NOP=Number of Papers; NOC=Number of Citations; II=Immediacy Index.

Indian pharmacognosy journals during 2010-13 and the citations obtained by them during 2010-15 (June). It was noticed that Pharmacognosy Journal published the largest number of publications (420), followed by Pharmacognosy Magazine (224), Pharmacognosy Research (218) and Pharmacognosy Reviews (98) during 2010-13. The average number of articles per year was highest (105) in Pharmacognosy Journal, followed by 56 in Pharmacognosy Magazine, 53.6 in Pharmacognosy Research and 24.5 in Pharmacognosy Review during 2010-13. A citation per paper was highest (10.37) in Pharmacognosy Review, followed by 5.73 in Pharmacognosy Magazine, 4.61 in Pharmacognosy Research and 1.55 in Pharmacognosy Journal.

### Extent of Citations

Table 2 presents the data on the extent of citations received by the four journals. It was observed that the total articles published in these four journals that did not get any citations were highest in 36.67% in Pharmacognosy Journal, followed by 17.41% in Pharmacognosy Magazine, 15.60% in Pharmacognosy Research and 8.16% in Pharmacognosy Review. Further the analysis of citation data of the four journals indicates the following number of articles in each journal received more than 10 or more than 20 citations: Pharmacognosy Magazine (37 and 7), Pharmacognosy Review (28 and 9), Pharmacognosy Research (26 and 6) and Pharmacognosy Journal (2 and 0). The list of papers receiving more than 20 citations is listed in Appendix 1.

### Impact Factor

Data on the number of citations for the calculation of impact factor is shown in Table 3. The data indicates that Pharmacognosy Review has received the highest impact (increasing from 2.423 to 3.250), followed by Pharmacognosy Magazine (decreasing from 2.055 to 1.384), Pharmacognosy Research (decreasing from 1.359 to 1.051) and Pharmacognosy Journal (increasing from 0.431 to 0.494) from 2012 to 2014 (Table 3).

### Immediacy Index

Immediacy index is a measure of how quickly articles published in a journal are cited in next 1 year after its publication year. Table 4 presents data on publications and citations registered by the four journals. It was observed that Pharmacognosy Review has received the highest immediacy index of 1.68 during 2010-13, followed by Pharmacognosy Magazine (1.21), Pharmacognosy Research (1.02) and Pharmacognosy Journal (0.42). The immediacy index has increased in case of Pharmacognosy Review and Journal and decreased in Pharmacognosy Magazine and Pharmacognosy Research from 2010 to 2013.

## SUMMARY

The analysis of the data presented above indicates that average number of articles published per year was highest (105) in Pharmacognosy Journal, followed by Pharmacognosy Magazine (56), Pharmacognosy Research (53.6) and Pharmacognosy Review (24.5) during 2010-2013. Pharmacognosy Review has received the highest immediacy index of 1.68 during 2010-13, followed by Pharmacognosy Magazine (1.21), Pharmacognosy Research (1.02) and Pharmacognosy Journal (0.42). The immediacy index has increased in case of Pharmacognosy Review and Journal and decreased in Pharmacognosy Magazine and Pharmacognosy Research from 2010 to 2013. Similarly Pharmacognosy Review has received the highest impact (increasing from 2.423 to 3.250), followed by Pharmacognosy Magazine (decreasing from 2.055 to 1.384), Pharmacognosy Research (decreasing from 1.359 to 1.051) and Pharmacognosy Journal (increasing from 0.431 to 0.494) from 2012 to 2014. The extent of articles not receiving any citations were highest in 36.67% in Pharmacognosy Journal, followed by 17.41% in Pharmacognosy Magazine, 15.60% in Pharmacognosy Research and 8.16% in Pharmacognosy Review. In terms of higher number of citations (more than 10 and 20), the largest number were registered by Pharmacognosy Magazine (37 and 7), Pharmacognosy Reviews (28 and 9), Pharmacognosy Research (26 and 6) and Pharmacognosy Journal (2 and 0).

## CONCLUSION

The four pharmacognosy journals under consideration have made importance contribution in field of natural products and pharmacognosy. A comparison of these journals in terms of productivity and citations indices have indicated that Pharmacognosy Reviews has performed the best, followed by Pharmacognosy Magazine, Pharmacognosy Research and Pharmacognosy Journal. Since reviews are expected to get more citations, therefore Pharmacognosy Reviews has performed the best in terms of citation impact indices. But compared to international data, these journals still to achieve a lot in terms of various citation indices. These journals should make efforts to raise their quality by raising their peer review standards and attract contribution by eminent scholars in the field.

## REFERENCES

1. Pharmacy:Introduction, 2000-2015. [http://career.webindia123.com/career/options/health\\_medicine/pharmacy/intro.htm](http://career.webindia123.com/career/options/health_medicine/pharmacy/intro.htm) (Accessed on 31 August 2015)
2. Garg KC, and Bebi. A citation study of Annals of Library and Information Studies (ALIS) and DESIDOC Journal of Library and Information Technology (DJLIT). Annals of Library and Information Studies. 2014;61:212-16.

## Appendix 1: List of High Cited Papers with 20 or more citations in four Indian Pharmacological Journals

- Lobo V, Patil A, Phatak A, Chandra N. Free radicals, antioxidants and functional foods: Impact on human health (Review). *Pharmacognosy Reviews*. 2010;4(8):pp.118-26. Cited 156 times. Birla College, Department of Botany, Kalyan, Maharashtra, India.
- Chahar MK, Sharma N, Dobhal MP, Joshi YC. Flavonoids: A versatile source of anticancer drugs. (Review). *Pharmacognosy Reviews*. 2010;5(9):1-12. Cited 66 times University of Rajasthan, Department of Chemistry Jaipur, Rajasthan, India.
- Kumar S, Narwal S, Kumar V, Prakash O.  $\alpha$ -glucosidase inhibitors from plants: A natural approach to treat diabetes (Review). *Pharmacognosy Reviews*. 2011;5(9):19-29. Cited 49 times. Institute of Pharmaceutical Sciences, Kurukshetra University, Kurukshetra-136 119, Haryana, India.
- Pattanayak P, Behera P, Das D, Panda S. *Ocimum sanctum* Linn. A reservoir plant for therapeutic applications: An overview (Review). *Pharmacognosy Reviews*. 2010;4(7):95-105. Cited 33 times. Jeypore College of Pharmacy, Jeypore (K), Orissa 764 002, IndiaSOA University, School of Pharmaceutical Sciences, Bhubaneswar, Orissa, India.
- Chan EWC, Soh EY, Tie PP, Law YP. Antioxidant and antibacterial properties of green, black, and herbal teas of *Camellia sinensis* (Article). *Pharmacognosy Research*. 2011;3(4):266-72. Cited 32 times. UCSI University, Faculty of Applied Sciences, Cheras, Kuala Lumpur, Malaysia.
- Singh O, Khanam Z, Misra N, Srivastava MK. Chamomile (*Matricaria chamomilla* L.): An overview (Review). *Pharmacognosy Reviews*. 2011;5(9):82-95. Cited 30 times.
  - Department of Biochemistry, Bundelkhand University, Jhansi, India
  - Department of Chemistry, Aligarh Muslim University, Aligarh, India
  - Chemical Research Unit, Deptt. of Research in Unani Medicine, Aligarh Muslim University, Aligarh, India.
- Samarghandian S, Boskabady MH, Davoodi S. Use of in vitro assays to assess the potential antiproliferative and cytotoxic effects of saffron (*Crocus sativus* L.) in human lung cancer cell line (Article). *Pharmacognosy Magazine*. 2010;6(24):309-14. Cited 29 times. Mashhad University Medical Sciences, Department of Physiology, Mashhad, Iran.
- Chen X. Protective effects of quercetin on liver injury induced by ethanol (Article). *Pharmacognosy Magazine*. 2010;6(22):135-41. Cited 29 times. Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences; Peking Union Medical College, 151 Malianwa North Road, Haidian District, Beijing 100193, China.
- Metwally AM, Omar AA, Harraz FM, El Sofahy SM. Phytochemical investigation and antimicrobial activity of *Psidium guajava* L. leaves (Article). *Pharmacognosy Magazine*. 2010;6(23):212-8. Cited 27 times. Alexandria University, Faculty of Pharmacy, Department of Pharmacognosy, Alexandria, Egypt.
- Sousa EO, Silva NF, Rodrigues FFG, Campos AR, Lima SG, Costa JGM. Chemical composition and resistance-modifying effect of the essential oil of *Lantana camara* linn (Article). *Pharmacognosy Magazine*. 2010;6(22):79-82. Cited 26 times.
  - Programa de Pós-Graduação em Bioprospeção o Molecular, Departamento de Química Biológica, Universidade Regional Do Cariri, Rua Cel. Antônio Luiz 1161, Pimenta, 63105-000 Crato-CE, Brazil.
  - Vice-Reitoria de Pesquisa e Pós-Graduação, Universidade de Fortaleza, Av. Washington Soares 1321, Edson Queiroz, 60811-905, Fortaleza-CE, Brazil.
  - Departamento de Química, Universidade Federal Do Piauí, Campus Universitário Ministro Petrônio Portella, 64049-550, Bairro Ininga, Teresina-PI, Brazil.
- Adebayo AH, Tan NH, Akindahunsi AA, Zeng GZ, Zhang YM. Anticancer and antiradical scavenging activity of *Ageratum conyzoides* L. (Asteraceae) (Article). *Pharmacognosy Magazine*. 2010;6(21):62-6. Cited 26 times.
  - State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, China.
  - Department of Biological Sciences, College of Science and Technology, Covenant University, PMB 1023, Ota, Ogun State, Nigeria.
  - Department of Biochemistry, Federal University of Technology, Akure, Nigeria.
- Srivastava R, Ahmed H, Dixit R, Dharamveer SS. *Crocus sativus* L.: A comprehensive review (Short Survey). *Pharmacognosy Reviews*. 2010;4(8):200-8. Cited 25 times. Babu Banarasi Das National Institute of Technology and Management, Faculty of Pharmacy, Lucknow, Uttar Pradesh, India.
- Hajimehdipoor H, Shekarchi M, Khanavi M, Adib N, Amri M. A validated high performance liquid chromatography method for the analysis of thymol and carvacrol in *Thymus vulgaris* L. volatile oil (Article). *Pharmacognosy Magazine*. 2010;6(23):154-8. Cited 25 times.
  - Department of Traditional Pharmacy, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Iran.
  - Department of Research and Development, Food and Drug Control Laboratories and Food and Drug Laboratory Research Center, MOH and ME, Tehran, Iran.
- Korac RR, Khambholja KM. Potential of herbs in skin protection from ultraviolet radiation (Review). *Pharmacognosy Reviews*. 2011;5(10):164-73. Cited 24 times.
  - Department of Pharmaceutical Technology and Cosmetology, Faculty of Pharmacy, University in Belgrade, Vojvode Stepe 450, 11000 Belgrade, Serbia.
  - Department of Pharmacognosy, S. K. Patel College of Pharmaceutical Education and Research, Ganpat University, Mehsana-Gozaria Highway, Kherva, Gujarat, India.
- Kumar GP, Khanum F. Neuroprotective potential of phytochemicals (Review). *Pharmacognosy Reviews*. 2012;6(12):81-90. Cited 23 times. Defence Food Research Laboratory (DRDO), Biochemistry and Nutrition Division, Mysore, India.
- Rasineni K, Bellamkonda R, Singareddy SR, Desireddy S. Antihyperglycemic activity of *Catharanthus roseus* leaf powder in streptozotocin-induced diabetic rats (Article). *Pharmacognosy Research*. 2010;12(3):195-201. Cited 23 times.
  - Sri Krishnadevaraya University, Department of Biochemistry Anantapur-515 003, Andhra Pradesh, India<sup>a</sup>
  - Sri Venkateswara University, Department of Biochemistry Tirupati-517502, Andhra Pradesh, India.
- Kujur RS, Singh V, Ram M, Yadava HN, Singh KK, Kumari S, Roy BK. Antidiabetic activity and phytochemical screening of crude extract of *Stevia rebaudiana* in alloxan-induced diabetic rats (Article). *Pharmacognosy Research*. 2010; 2(4):258-63. Cited 22 times.
  - Department of Pharmacology and Toxicology, College of Veterinary Science and A.H., Birsa Agricultural University, Ranchi-834 006, India.
  - Department of Pharmacology, I.S.F. College of Pharmacy, Moga-142 001, Punjab, India.
  - Department of Veterinary Pathology, College of Veterinary Science and A.H., Birsa Agricultural University, Ranchi-834 006, India.
- Ramesh Ch, Pattar MG. Antimicrobial properties, antioxidant activity and bioactive compounds from six wild edible mushrooms of western ghats of Karnataka, India (Article). (2010) *Pharmacognosy Research*. 2010;2(2):107-112. Cited 22 times. Mycology Laboratory, Department of Botany, Karnatak University, Dharwad 580 003, Karnataka, India.
- Kumar S, Malhotra R, Kumar D. *Euphorbia hirta*: Its chemistry, traditional and medicinal uses, and pharmacognosy activities (Review). *Pharmacognosy Reviews*. 2010;4(7):58-61. Cited 22 times. Institute of Pharmaceutical Sciences, Kurukshetra University, Kurukshetra-136 119, Haryana, India.
- Gözlekçi S, Saraçoğlu O, Onursal E, Özgen M. Total phenolic distribution of juice, peel, and seed extracts of four pomegranate cultivars (Article). *Pharmacognosy Magazine*. 2011;7(26):161-4. Cited 21 Times.
  - Department of Horticulture, Akdeniz University Agricultural Faculty, 07058 Antalya, Turkey.
  - Department of Horticulture, Gaziosmanpasa University Agricultural Faculty, 60240 Tokat, Turkey.
- Kilicgun H, Altiner D. Correlation between antioxidant effect mechanisms and polyphenol content of *Rosa canina* (Article). *Pharmacognosy Magazine*. 2010;6(23):238-41. Cited 20 times.
  - Department of Nutrition and Dietetic School of Health, University of Erzincan, Erzincan 24100, Turkey.
  - Department of Biochemistry, Faculty of Pharmacy, Marmara University, Haydarpasa 81010, Istanbul, Turkey.
- Sim KS, Sri Nuresstri AM, Norhanom AW. Phenolic content and antioxidant activity of *Pereskia grandifolia* Haw. (Cactaceae) extracts (Article). *Pharmacognosy Magazine*. 2010;6(23):248-54. Cited 20 times.
  - Institute of Biological Sciences, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia.
  - Centre for Foundation Studies in Science, University of Malaya, 50603 Kuala Lumpur, Malaysia.
- Zheleva-Dimitrova D, Nedialkov P, Kitanov G. Radical scavenging and antioxidant activities of methanolic extracts from *Hypericum* species growing in Bulgaria (Article). *Pharmacognosy Magazine*. 2010;6(22):74-8. Cited 20 times. Department of Pharmacognosy, Faculty of Pharmacy, Medical University of Sofia, Dunav str. 2, 1000 Sofia, Bulgaria.
- Saraf S, Kaur C. Phytoconstituents as photoprotective novel cosmetic formulations (Review). *Pharmacognosy Reviews*. 2010;4(7):1-11. Cited 20 times. University Institute of Pharmacy, Pt. Ravishankar Shukla University, Raipur (C.G.)-492 010, India.
- Arulmozhi V, Krishnaveni M, Karthishwaran K, Dhamodharan G, Mirunalini S. Antioxidant and antihyperlipidemic effect of *Solanum nigrum* fruit extract on the experimental model against chronic ethanol toxicity (Article). *Pharmacognosy Magazine*. 2010;6(21):42-50. Cited 20 times. Department of Biochemistry and Biotechnology, Annamalai University, Annamalinagar-608 002, Tamil Nadu, India.