

Herbal remedies and the bias against Ayurveda

Recently, in the December 19, 2002 issue, *The New England Journal of Medicine* (*NEJM*) has addressed the important debate related to herbal medicines by publishing three articles. The first one, under Perspective, is entitled 'Herbal Medicines – What's in the Bottle?' is by Stephen E. Straus¹ of National Center for Complementary and Alternative Medicine, NIH, Bethesda. Straus has emphasized the need for better standardization and characterization of commercial sources of herbs. He writes that 'Herbal medicines are but one component of complementary and alternative medicine, which includes acupuncture, chiropractic manipulation, meditation, homoeopathy, and other approaches' where there is not even a mention of the Indian traditional system – Ayurveda, that largely uses herbal remedies. While he has mentioned recent discovery in Chinese herbs of artemisinins as a new class of antimalarials and other products such as Ginkgo biloba and St. John's Wort that are in the process of multicenter investigations, Straus has not taken any cognizance of several such contributions, which have come from Ayurveda, despite its neglect by the scientific establishment.

The second article, under Sounding Board, entitled 'Botanical Medicines – The Need for New Regulations' by Donald M. Marcus² of Baylor College of Medicine, Houston and Arthur P. Grollman of State University New York, highlights the economics and need-driven regulations known as Dietary Supplements and Health Education Act (DSHEA) currently applicable in the US. According to *Nutrition Base Journal's* annual industry overview, in the year 2001, \$ 17.8 billion was spent in the US on dietary supplements, \$ 4.2 billion of it for herbs and other botanical remedies. In this article he has quoted 33 references and not a single represents or mentions Ayurveda. The US FDA has abandoned its responsibility as to the safety and efficacy of dietary supplements, which cannot claim any benefits in a disease.

The third and more exhaustive Review Article entitled 'Herbal Remedies' is by De Smet³ of Scientific Institute Dutch Pharmacists, Alexanderstr, The Netherlands. This review also has completely missed the original contributions of

Indian system of medicine – Ayurveda, which represents one of the most ancient and still living traditions used by a majority of the global population. De Smet has listed 127 references and it is pity that none of these refer to Ayurveda or Indian medicine.

Ayurveda remains one of the most ancient and yet living traditions practised widely in India, Sri Lanka and other countries and has a sound philosophical and experiential basis^{4,5}. *Atharvaveda* (around 1200 BC), *Charak Samhita* and *Sushrut Samhita*⁶ (1000–500 BC) are the main classics that give a detailed description of over 700 herbs. Currently, with over 400,000 registered Ayurveda practitioners, the Government of India has formal strictures to regulate issues related to quality, safety, efficacy and practice of herbal medicine⁷. With unique holistic approach, Ayurvedic medicines are usually customized to an individual constitution⁸.

Considerable research on pharmacognosy, chemistry, pharmacology and clinical therapeutics has been carried out on Ayurvedic medicinal plants⁹. A large number of molecules that have come out of Ayurvedic experiential base include Rauwolfia alkaloids for hypertension, Psoralens in vitiligo, Holarrhena alkaloids in amoebiasis, Guggulsterons as hypolipidemic agents, Mucuna pruriens for Parkinson's disease, Piperidines as bioavailability enhancers, Baccosides in mental retention, Picrosides in hepatic protection, Phyllanthins as antivirals, Curcumin in inflammation, Withanolides, and many other steroidal lactones and glycosides as immunomodulators¹⁰.

We made an attempt to bring these facts to the notice of the Editor *NEJM* by writing a letter to the Editor. At the first instance, it was rejected without giving any reasons. We did write another letter with a request to reconsider this decision. However, the editorial committee again declined this request saying: 'We appreciate your concern and taking the time to write to us about your letter again. We discussed the matter at a meeting of the editors, and we still feel that we must decline your letter. We understand that herbal remedies are central to Ayurveda and are very widely used. However, we had many many letters in response to

the herbal medicine articles, and we are sorry to tell you that we cannot accept any more.' The bias of western medical journals often compelled the Indian scientists to publish mainly in Indian journals, which may not be widely cited.

We strongly feel that it is unfair to selectively undermine India and Ayurveda despite it being used by a majority of the global population and has sizable scientific contributions. Historically, there has been a considerable bias against Ayurveda in the western literature¹¹. A cover story on herbal remedies that appeared in *TIME* magazine (June 2002) has also missed *Ayurveda*. Most of the leading biomedical journals including *BMJ*, *Lancet*, *JAMA*, have touched issues related to complementary and alternative medicine where a negligible mention of Ayurveda has been made^{12,13}. The worst situation arises when scientists of repute but illiterate in Ayurveda, confuse herbalism and folklore with the organized systems of medicine such as *Ayurveda*¹⁴. We are aware that there are some common problems related to quality control and standardization in the use of herbal medicines. However, it cannot be ignored that this system has managed to survive for centuries despite several attempts of suppression and criticism. There are Ayurvedic pharmacopoeial standards and quality control methods used by leading manufacturers. Actually, *NEJM* has taken a timely initiative to bring many important issues related to herbal medicine at the right time when globally there is an increased awareness and acceptance to alternative and complementary medicine. *NEJM* happens to be a prestigious leading medical journal with very high impact factor and it is unfortunate that the significant contributions of Indian researchers and due recognition to the widely used medical system of *Ayurveda* have been denied without any peer review-based academic reasons.

Currently, we are engaged in establishing pharmacoepidemiological¹⁵ evidence-base for Ayurvedic medicines, practice and development of standardized herbal formulations under the initiative of Council for Scientific and Industrial Research's ambitious program known as New Millennium Indian Technology Leadership

Initiative (NMITLI). Randomized controlled clinical trials for rheumatoid and osteoarthritis¹⁶, hepatoprotectives, diabetes, hypolipidemic agents, asthma, Parkinson's disease, and many other disorders have reasonably established clinical efficacy and a review of some exemplary evidence-based researches and approaches has now resulted in wider acceptance of Ayurvedic medicines¹⁷.

This experience gives us another message that we must increase and improve the publications related to quality, safety and efficacy of Ayurvedic medicines in international peer-reviewed journals. This is a matter of serious introspection and debate for Ayurvedic, pharmaceutical and medical scientists.

1. Straus, S. E., *New Engl. J. Med.*, 2002, **347**, 1997–1998.
2. Marcus, D. M., *New Engl. J. Med.*, 2002, **347**, 2073–2076.
3. De Smet Peter, A. G. M., *New Engl. J. Med.*, 2002, **347**, 2046–2056.

4. Dahanukar, S. and Thatte, U., *Ayurveda Revisited*, Popular Prakashan, Mumbai, 2000, 3rd edn.
5. Chopra, A. and Doiphode, V., *Med. Clin. North Am.*, 2002, **86**, 75–89.
6. Bhagavan Dash and Sharama, B. K., *Charak Samhita*, Chaukhamba Sanskrit Series Office, Varanasi, India, 2001, 7th edn.
7. *National Policy on Indian Systems of Medicine and Homoeopathy-2002*, Ministry of Health and Family Welfare, Government of India, www.indianmedicine.nic.in.
8. Patwardhan, B., *Indian J. Nat. Prod.*, 2003 (in press).
9. Dahanukar, S. A., Kulkarni, R. A. and Rege, N. N., *Indian J. Pharmacol.*, 2000, **32**, S81–S118.
10. Patwardhan Bhushan, *Indian Drugs*, 2000, **37**, 213–227.
11. Singh, A., *Bull. Indian Inst. Hist. Med. Hyderabad*, 2000, **30**, 41–58.
12. Zollman, C. and Vickers Andrew, *Br. Med. J.*, 1999, **319**, 693–696.
13. Hegde, B. M., *BMJ Rapid Response*, 16 September 2000.
14. Talalay, P. and Talalay, P., *Acad. Med.*, 2001, **76**, 238–247.

15. Vaidya Rama *et al.*, *J. Assoc. Phys. India*, 2003 (in press).
16. Chopra, A. *et al.*, *J. Rheumatol.*, 2000, **27**, 1365–1372.
17. Vaidya, A. D. B., Vaidya, R. A. and Nagaraj, S. I., *J. Assoc. Phys. India*, 2001, **49**, 534–537.

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Measuring science and missing generation

This is in response to two recent editorials^{1,2}, viz. 'Requiem for a missing generation' and 'Measuring and assessing science'. After reading these editorials, one gets a feeling that not only are these two closely related but also the second might have emerged out of a continued thinking on the first. Both deal with issues that are of far-reaching significance, especially for publication of science journals in the country and strengthening of peer reviewing. Hence these may deserve greater in-depth analysis of the causative factors to think of an action plan if deemed necessary.

If one is dealing only with the science-study that has been published (i.e. which is not under submission), then following Garfield, the leadership of Indian science has adopted quite an objective and quantifiable method. One can calculate the Science Citation Index (SCI) and Impact Factor (IF) with regard to a candidate and/or his studies. A study published in a high IF journal (and hence may also have the probability of higher SCI) is naturally considered better. Invariably

the journals published in the developed (i.e. scientifically advanced) countries have higher IFs. For example, according to a recent publication the IF of *Current Science* is 0.60, while that of *Nature* is 27.955. In view of the large gap (in IF values) it is presumed that the Current Science Association and the editors of *Current Science* would have given a serious thought to it, and their analysis and findings in this regard may be illuminating and educative.

If IFs of science journals published from India (*Current Science* is certainly among the prestigious ones) are much less compared to those of foreign counterparts, then how and why are the leaders of Indian science occupying high positions expected to give weightage to publications in the 'lowly-placed' Indian science journals? Why publish these science journals at all in the country?

Thus if, in selection process, including those of TIFR and HCRI of Allahabad, such objective and quantifiable methods have been employed to find/get the 'best', i.e. subjectivity has been nearly avoided,

then what is the problem? Under the given circumstances, is it not the most rational procedure? This may be the reason why the most important among the questions asked to a candidate by the Indian scientific leadership (peers) is: How many papers have you published in high IF (i.e. foreign) journals? And this naturally (and happily) propels the Indian scientists to first try to publish in the high IF (foreign) journals.

The only 'small hitch' which might come up is when one is allowed to ask whether the parameters IFs and SCIs – which are supposed to measure/assess science – are totally independent of the state-of-development of a country and/or a research group. Because doing science at the quantitative/analytical level – acceptable to the high IF journals today – requires significant funding, facilities/logistics, state-of-the-art gadgets (both hard/softwares), highly skilled/trained manpower, visionary scientific leadership and a vibrant environment besides ensuring a continued interaction with peers in advanced countries. Evidently,