

GLOBAL ACCEPTANCE OF AYURVEDA – A SINCERE GOAL & OBSTACLES IN ITS WAY**Dr. Sushil Kumar Jangid*¹ and Dr. Megha Dixit²**¹Assistant Prof. Agadtantra, SAC, Pilani.²Assistant Prof. Kayachikitsa, SDAMC, Mathura.***Corresponding Author: Dr. Sushil Kumar Jangid**

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ABSTRACT

Introduction: World Health Organization (WHO) has given considerable importance to Ayurveda in its activities related to traditional medicine. The Alma Ata in 1978 with the slogan-“Health for all” emphasized the role of traditional & alternative medicine in developed as well as developing nations. Ayurveda- “The Traditional Medicine of India”, not only believes in curing the disease merely but aims at curing the diseased. Along with the cure it emphasizes the importance of maintaining the health of the healthy as a primary goal. The unique principles of the science have already attracted people globally by the virtue of its qualitative strength, rejection of universal formulas of cure and implementation of tailored treatments varying along with the individual. Demand for herbal products worldwide has increased at an annual rate of 8% during the period of 1994–2001, and according to WHO forecast, the global herbal market would be worth \$5 trillion by the year 2050. The data clearly states the international potential of Ayurveda, which is undergoing a phase of resurgence and revival “in the world”.
Objective: To evaluate the problems in the Global acceptance of Ayurveda. **Method:** The available provisions for the development and acceptance of Ayurveda globally were studied and looked for, for the flaws in the policies or their implementations and other hindrances in the recognition of Ayurveda as evidence based medicine for its global acceptance. **Results & Conclusion:** Lacunae in the regulation of herbal medicines, standardization of the drugs at raw and processed stages, pharmacovigilance of drugs, safety & efficacy studies of Ayurvedic drugs etc. stand in the way of implementation of the policies in their true spirits. The parameters mentioned in Ayurvedic system of medicine are majorly qualitative and they lose their beauty in the process of objectivization for the acceptance in present age.

KEYWORDS: Ayurveda, Traditional Medicine, Globalization of Ayurveda, Alternative system of Medicine, TRM.

INTRODUCTION

Ayurveda a system of medicine with its historical roots in Indian subcontinent, is said to be transmitted from Gods to Sages & thence to human physicians. Several inspirational efforts are being made to promote *Ayurveda* at national & international fronts to achieve the goal of proper recognition of *Ayurveda* in modern day sciences. The current issue is not globalization of *Ayurveda* as it is already achieved in a big way. The question is to save the face of *Ayurveda* from the branded images and get it recognized over the globe as a scientific system of medicine in its own capacity. In the Western World *Ayurveda* therapies and practices have been integrated in general wellness. It has been misinterpreted by various custodians of the system in the west under various labels like “herbal medicine”, “natural medicine”, “holistic medicine”, “CAM” etc. to suit their convenience to get themselves established in accordance with the situations in the country of practice. The challenge is to participate

in evolving the integration of *Ayurveda* without compromising its core values and basic principles.

A major part of the population in India use some form of traditional medicine, about 75%-80% of the population of Nepal use *Ayurveda*, and it is the most practiced form of medicine in the country.^[1] The eighth decade of 20th century witnessed upsurge in the popularity of *Ayurveda* among Westerners due to the lack of cure for chronic diseases and side effects of conventional medicines, developed countries started looking toward *Ayurveda* for treatments to restore wellness of their citizens.^[2] Americans spend more out of pocket on Complementary Medicine than on all prescription drugs. Major American medical insurers now routinely cover complementary medical services, a development which is emerging in Britain as well.^[3] United Nations, working with the health of mankind as one of its primary mandates through World Health Organization forecasts, \$5 trillion

worth global herbal market by the year 2050. As of today, Europe and the United States are two major herbal product markets in the world, with a market share of 41% and 20%, respectively. *Ayurveda* is undergoing a phase of resurgence and revival “in the world” similar to the one “at home”.^[4]

A newly emerging trend of “Herbal Medicine” among Indian *Ayurveda* Industry is surrendering the interest of *Ayurveda* at large to some vested market interests. There is an urgent need to transmit an appropriate message at a global level for the acceptance of *Ayurveda* as a valid system of medicine with an independent status. It's high time to implement a rapid action strategy as done by the Chinese under Mao for the promotion of our own traditional knowledge bank.

***Ayurveda* Empowered At National Front**

AYUSH an abbreviation for *Ayurveda*, *Yoga* and Naturopathy, *Unani*, *Siddha*, and Homeopathy, the six Indian systems of medicine (ISM) prevalent and practiced in India and in few neighboring Asian countries was created as ISM in March 1995,^[5] and renamed to AYUSH in November 2003,^[6] with an objective to provide augmented attention for the expansion of these systems. The latest developments in the sector of AYUSH are many, such as mainstreaming of AYUSH and revitalization of local health traditions, inception of many national level institutions such as All India Institute of *Ayurveda* and above all creation of a separate ministry under the union Government of India.^[7] Planning regarding these systems of medicine was a part of 5-year planning process since 1951. Currently, AYUSH system is a part of mainstream health system implemented under National Rural Health Mission (NRHM). NRHM came into play in 2005 but implemented at ground level in 2006 and introduced the scheme of “Mainstreaming of AYUSH and revitalization of local health traditions” to strengthen public health services. This scheme is currently in operation in its second phase, since 1st April 2012, with the 12th 5-year plan.

Most importantly 9th 5-year plan promoted research and development a therapeutic trial of especially on new drug formulation, therapeutic trial of potential drugs through strengthening of the central research councils and coordination with other research agencies. It focused on preservation, promotion and cultivation of medicinal plants and herbs and completion of the pharmacopoeia for all systems of AYUSH. It focused on drawing up a list of essential drugs belonging to these systems and encouraged good manufacturing practices (GMP) to ensure quality control of drugs.^[8]

In 1989, the University of Pune took a major decision to promote evidence-based research in *Ayurveda*. This was a forward-looking initiative that led to the establishment of the Interdisciplinary School of *Ayurvedic* Medicine (ISAM) under the Faculty of Science. A major thrust for

scientific research on *Ayurveda* was given by R. A. Mashelkar through his Golden Triangle and New Millennium Indian Technology Leadership Initiative (NMITLI) which brought CSIR, ICMR and AYUSH institutions together to generate evidence-based *Ayurveda*. AyuSoft is a collaborative project between the Government of India's Centre for Development of Advanced Computing (C-DAC) and the University of Pune. While the Traditional Knowledge Digital Library (TKDL) helps in protecting intellectual property, AyuSoft converts the logic of classical *Ayurvedic* texts into comprehensive, authentic, intelligent and interactive knowledge repositories with the help of complex analytical tools. The AyuSoft database includes more than 5 lakh records, capturing information from nine texts, including the *Brihadtrayee* and *Madhava Nidana*. The term Ayugenomics was coined and proposed in 2002. In 2003, a first paper on the concept was published. Ayugenomics was planned as a platform to undertake the challenge of developing new strategies of drug discovery by integrating the ancient science and knowledge of *Ayurveda* with modern science, and the technologies of genomics, proteomics and pharmacogenetics.^[9]

The setting up of Indians Pharmacopoeia Committee and the establishment of the pharmacopoeia laboratory of Indian medicines in Ghaziabad by the Dept. of ISM are landmarks in the attempts for standardization. Lot of efforts are done by CCRAS and NBRI (Central Council for Research in *Ayurveda* & *Siddha* and National Botanical Research Institute) and already 800 formulations are standardized and monographs prepared. Simultaneously the work of standardization was undertaken at specially established centers in different parts of India under the Central Council for Research in *Ayurveda* and *Siddha*. The standardization and research activity consisted of Pharmacognostic evaluation of authenticated drugs, pharmacological studies, phytochemical studies, pharmaceutical studies, microbiological studies, identification, preservation, isolation and characterisation of active chemical constituents, etc. The elaborate studies have been carried out and are being carried out at centers of National repute such as CDRI, Lucknow, NBRI Lucknow, Gujarat *Ayurved* University, Jamnagar, Banaras Hindu University, Varanasi, CSMRIA - Chennai, National Institute of *Ayurveda*, Jaipur, AIIMS New Delhi and other regional research institutes and centers established by CCRAS. Some of these institutes are equipped with most sophisticated instruments like NMR, Mass spectrometers, AAS, HPTLC, HPLC etc. They are also having very good Pharmacognostic, pharmacological and pharmaceutical laboratories with animal house facilities. The activities on establishment of standards over the last 30 years have resulted in the publication of *Ayurvedic* Pharmacopoeia of India Part-I, II & III and *Ayurvedic* Formulary of India Part I & II which are comparable to any international standard. Lot of research is being carried at different Laboratories on compound *Ayurvedic*

formulations so as to lay down internationally acceptable standards.

Recently, in August 2010, Department of AYUSH of the Government of India has modified Rule 158 of The Drugs and Cosmetics Rules, 1945 to facilitate licensing and export of *Ayurvedic* herbal medicines under categories of *Ayurvedic* cosmeceuticals, *Ayurvedic* nutraceuticals and *Ayurvedic* extracts.^[10] This classification is in addition to the classification of *Ayurvedic* medicines as “Classical and Patent proprietary *Ayurvedic* medicines” as defined under section 3(a) and (h), respectively.^[11] On the issue of safety and efficacy of *Ayurvedic* medicines, Rule 170 of The Drugs and Cosmetics Rules, 1945 has been notified by the Department of AYUSH in December 2008 which has been outlined as per properties of these medicines.

World Health Organisation & Ayurveda

WHO is directing and coordinating with health authorities in respective countries around the globe and is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends, and these responsibilities of WHO hold good for TRM too.^[12]

The Government of India, at the insistence of WHO, initiated the scheme of appointment of one medical officer of every traditional system of medicine, namely, *Ayurveda*, *Unani* and *Siddha*, at every primary health center of conventional medicine in 1985 although this scheme could not be implemented in its true spirit. The Government of India established a separate Department of AYUSH in 1995 to look after the all-round development of the heritage of the nation with complete attention. WHO moved ahead with several programs for global acceptance of *Ayurveda*, which include preparation of guidelines for safe use of *Ayurvedic* medicines, parameters and measures for standardization of *Ayurvedic* medicines and many more substantial measures to promote the system of *Ayurveda*.

For standard production of *Ayurvedic* medicines, WHO sponsored many Direct Financial Cooperative (DFC) projects in 2001 at Pharmacopeial Laboratory of Indian Medicine, projects on safety profile of *Ayurvedic* medicines in 2007 at Banaras Hindu University and WHO sponsored program for the planning of pharmacovigilance program in 2008 at Gujarat *Ayurveda* University. More recently, in 2010 and 2011, under DFC program, WHO had sponsored four capacity building training programs for coordinators of regional and peripheral centers of pharmacovigilance of *Ayurvedic* system of medicine. Further, *Ayurvedic* Clinical Trial project might be a sustainable program for evidence-based data generation of *Ayurvedic* classical medicines for certain diseases,^[13] whereas data available on Ayush Research Portal and in other research papers ensures

safety of *Ayurvedic* medicines.^[14] In all these programs of Department of AYUSH, WHO is cooperating as an academic associate and also providing some logistic support.

In 2003, WHO Commission on Intellectual Property Rights, Innovation and Public Health (CIPIH) was formed. This Commission is examining contribution of TM in improving healthcare and suggesting developmental measures for the same. In the 9th meeting of health secretaries in July 2004 (convened by WHO), the focus was on globalization, trade, intellectual property rights (IPR) and health. Member states endorsed and appreciated the work of the CIPIH. It was recommended that SEARO facilitate the preparation of a common regional perspective focusing on the burden of disease and related health research and development, IPR and public health, other incentives for innovation, traditional systems of medicine and capacity building, to be presented to the CIPIH.^[15] WHO is mainstreaming TRM in health system with definite strategies that cover each and every potential of TRM.

Rules for regulation of herbal medicine

WHO has emphasized upon institution of proper rules and regulations for the practice of TM in the country of origin as well as for its global accreditation among the member countries. The Government of India has already recognized *Ayurveda* as one of the official systems of medicine to be practiced in this country. Rules for education and practice of *Ayurveda* in India have been laid out in the Indian Medicine Central Council Act, 1970,^[16] whereas herbal medicines of *Ayurveda* are regulated by the provisions of chapter IV A of Drugs and Cosmetics Act, 1940 and rules instituted in part XVI-XIX of Drugs and Cosmetics Rules, 1945, along with relevant schedules for *Ayurveda*.^[17]

Scheme for standardization of herbal medicine

WHO has observed that quality assurance of herbal medicinal products is the shared responsibility of manufacturers and regulatory bodies. National drug regulatory authorities have to establish guidelines on all essentials of quality assurance, evaluate dossiers and data submitted by the producers, and check post-marketing compliance of products with the specifications issued by the producers as well as compliance with Good Manufacturing Practices (GMP).

WHO has declared that the purpose of quality control is to ensure quality of the products by adhering to appropriate specifications and standards. Information on appropriate standards can be found in official pharmacopoeias, monographs, handbooks, etc. In choosing analytical methods, the availability, robustness and validity of the methods must be considered and if such advanced methods are used, a full validation for each test would be necessary.^[18]

To comply with the spirit of WHO regulations, Department of AYUSH, Government of India, took several measures to standardize *Ayurvedic* medicines. Some of these schemes are implemented with WHO assistance, such as the first workshop on “Production of ISM Drugs with Current Good Manufacturing Practices” organized in April 2001 covering different aspects of GMP, which was highly appreciated by those concerned with this subject.^[19] The second workshop in October 2001 was organized exclusively to throw light on the need for isolation and characterization of the active chemical constituents that should have the desired therapeutic action to cure different ailments as evidenced by various marker compounds, that can be used as an important tool for testing /analysis of single and compound formulations (whether “Classical” or “Patent Proprietary” medicines) available in the market.^[20] In addition to these activities, WHO also impressed upon Central Council of Research in Ayurveda and Siddha (CCRAS) to prepare HPTLC-Fingerprint atlas of *Ayurvedic* single plant drugs which are mentioned in *Ayurvedic Pharmacopoeia* Vol. III and IV as a published document for standardization purposes.^[21]

Projection of pharmacovigilance program for herbal medicine

The WHO persuaded the Department of AYUSH, Ministry of Health and Family Welfare, Government of India, to implement a comprehensive pharmacovigilance programme for *Ayurveda*, as a means to ensuring the safety and efficacy of *Ayurvedic* medicines which was launched nationally on 29 September 2008. This program is running successfully at present.^[22]

Commencement of consumer guidelines of herbal medicines

Most recently, WHO country office agreed to sponsor a short-term project meant to prepare consumer guidelines for appropriate use of *Ayurvedic* medicines on recommendations of the Department of AYUSH, Government of India.^[23]

Hurdles in the Quest

Well-defined policy: India doesn't have a well-defined policy on Globalization of *Ayurveda*; neither is there any accepted road map to achieve the goal. It is necessary to resort to a rapid action strategy as done by the Chinese under Mao for the promotion of our own traditional knowledge bank.

Safety status: Safety is a primary concern regarding traditional and complementary therapies. There are two aspects of safety evaluation: First, to ensure that the right quality of material and appropriate processes are used from source till marketing and secondly ensuring that there is no contamination, adulteration or spiking.^[24] WHO global survey on the national policy and regulation of TM, has identified three common difficulties and challenges, viz., lack of information sharing, lack of

safety monitoring for herbal medicines and lack of methods to evaluate their safety and efficacy.

Self-interest over *Ayurveda*: It is evident from the present picture that people linked with the science in some or the other way are actually not bothered about the growth of *Ayurveda* as a science rather focusing on establishment of *Ayurveda* in a way they can fulfil their interests is prevalent. Government started paying more attention to *Ayurveda*, not because of its immense healing powers, but for its tourist potential. Today the promotion and gradation of *Ayurveda* practice is done not by the health sector but by the tourism sector. *Ayurveda* Clinics gave way to the *Ayurveda* Centers attached to star hotels and the government has a policy and guidelines to certify these Centre.

Misnomers of *Ayurveda*: *Ayurvedic* HMPs (Herbal Medicinal Products) are marketed as dietary supplements, they are regulated under the Dietary Supplement Health and Education Act (DSHEA), which does not require proof of safety or efficacy and hence bypasses the stringent quality tests of Drugs and Cosmetics Act 1940.^[25]

Research in *Ayurveda*: Conventional medicine and its research methodologies are largely based on classical Newtonian physics and related biological considerations. In contrast, *Ayurvedic* life sciences are based on a holistic logic now emerging in quantum science. This is why *Ayurveda* does not follow the organ-oriented anatomy and physiology, and adopts its own function-oriented approach through its alternative theories of *Panchamahabhut*, *Tridosha*, *Dhatu*, *Agni*, *Ama*, *Ojas*, and *Srotas*, which cannot be fully explained in terms of conventional anatomy and physiology.^[26]

Access to information : *Ayurveda* is one of the oldest system of traditional medicines still the number of scientific research publications is almost negligible as compared to other systems of medicine. At present a list of 3 PUBMED indexed journals of *Ayurveda*, 38 non PUBMED indexed journals, 4 Hindi *Ayurveda* Journals, 26 Journals of Complementary and Alternative Medicine and 11 magazines of *Ayurveda* have been documented.^[27]

The data in the following table highlights variation in the number the scientific drafts of *Ayurveda* and Chinese traditional medicine:^[28]

Publication	Ayurveda	Chinese Traditional Medicine
Pubmed	2,807	23,964
Medicine	42	656
Lancet	39	204
B.M.J.	36	1821

Inevitable Requirements for Globalising Ayurveda

Global acceptance of *Ayurveda* is gearing up and there has been a steep rise in the demand for information. *Ayurveda* has sound philosophical, experiential and experimental basis which needs to be re-researched and re-established along with: Appropriate state recognition of *Ayurveda* in as many countries as possible, appropriate regulatory status for *Ayurveda* products. Development of research programs in *Ayurveda*, Appropriate training, education and certification of *Ayurveda* practitioners, Generation and protection of Intellectual property of *Ayurveda*, Co-operation with International and regional organizations to ensure the global recognition of *Ayurveda*.

In order to walk, hand-in-hand with expectations, raised by virtue of Global acceptance of *Ayurveda*, it is needed to elevate additional funds and laboratories, well equipped with sophisticated instruments. In order to satisfy the taste of modern day's technological advancements, there is a need to enrich the Researches by adding vital departments like Bio-chemistry, Molecular Biology, Genomics and proteomics, central dogma of life, and related investigations cum analysis.

CONCLUSION

Ayurveda entered the global health arena initially as a massage system few decades back. Later it was interpreted merely as a system of general wellness. With the advancements in the field of research and efforts at national and international levels the picture has changed still a lot more sincere effort is required for the maintenance of its position & for further improvement. Regulatory reforms at the level of Department of AYUSH, Central Council of Indian Medicine (CCIM), CCRAS, and amendments in the Drug and Cosmetic Act would help accelerate the development of both *Ayurveda*'s evidence-base and its globalization. On many occasions, faulty regulatory provisions become a real barrier even for scientific growth in multidisciplinary fields, and this should not be undermined. The extensive, currently unutilized infrastructure and human resource in the AYUSH sector needs to be mainstreamed and fruitfully utilized.^[29]

The lack of data and scientific evidences in modern parameters are holding us back for the past so many years and no collective effort has been made to push the science forward as an effective CAM system. The fortification of infrastructure and scientific staff can change the mandate and specific research line will take

momentum and eventually, pharmacognostic, phytochemical & literary research work will accelerate.

REFERENCES

1. Guneratne, Arjun Culture and the Environment in the Himalaya. Routledge contemporary South Asia series, #24. New York: Routledge, 2009; 84–85. ISBN 978-0-415-77883-1.
2. Satkopan S. Jamnagar: Gujarat Ayurveda University; Quality Control and Standardisations of Ayurvedic Medicines, Proceedings of National Workshop for Internationally Acceptable Protocol of Ayurvedic Formulations, IPGTRA, 2000.
3. Patwardhan B. Regional Consultation WHO-SEARO at DPR KOREA 2005; 14–5.
4. Banerjee M. Hyderabad: Orient Black Swan, 2009. Power Knowledge Medicine - Ayurvedic Pharmaceuticals at Home and in the World, 154.
5. Department of AYUSH. Ministry of Health and Family Welfare, Government of India. Available from: <http://www.indianmedicine.nic.in>. Department of ISM & H. National Policy on ISM & H-2002. New Delhi: Ministry of Health and Family Welfare, Government of India, 2002.
6. National Health System Resource Center-National Rural Health Mission, Mainstreaming of AYUSH and revitalization of local health traditions under NRHM, An appraisal of the annual state programme implementation plans 2007-2010 and mapping of technical assistance needs. New Delhi: Ministry of Health and Family Welfare, Government of India.
7. Ministry of Health and Family Welfare, Mainstreaming of AYUSH under NRHM, Modified Operational Guidelines. New Delhi: Department of AYUSH, Government of India. <http://indianmedicine.nic.in/writereaddata/mainlink/File/File614.pdf>. [Last updated on, 2011. May 13]. Balpreet S, Rajvir K, Manoj K, Amarjeet S. Need and relevance of formation of Indian Systems of Medicine and Homoeopathy (ISM & H) policy 2002 in India. Glob J Res Med Plants Indig Med, 2012; 1: 612-9.
8. Planning Commission Report on 9th Five-Year Plan. New Delhi: Government of India.
9. <http://www.currentscience.ac.in/Volumes/102/10/1406.pdf>.
10. Drugs and Cosmetics (6th Amendment) Rules, 2010 Ministry of Health and Family Welfare. [Last accessed on 2011 Apr 28]. Available from: [http://web.kdpma.in/web/.../DrugsCosmetic/G.S.R.663\(E\),10.08.2010.pdf](http://web.kdpma.in/web/.../DrugsCosmetic/G.S.R.663(E),10.08.2010.pdf).

11. Malik V. Lucknow: Eastern Book Company; Laws Relating to Drugs and Cosmetics, 2007; 4–5.
12. Choi SH. WHO Strategy and Activities in Traditional Medicine, Chinese Medicine, Chinese Language, 2009; 19.
13. [Last assessed on 2011 May 12]. Available from: http://www.ccras.nic.in/ACT/20100803_act1.htm.
14. [Last assessed on 2011 May 12]. Available from: <http://www.ayush.ap.nic.in>. Singh SK, Chaudhary A, Rai DK, Rai SB. Preparation and Characterisation of a mercury based Traditional drug- Rasa Sindoor. *Indian J Tradit Knowl.*, 2009; 3: 346–51. Chaudhary A, Singh N. Herbo Mineral Formulations of Ayurveda (Rasaoushadhies) of Ayurveda - An Amazing Inheritance of Ayurveda. *Ancient Sci Life*, 2010; 30: 18–26.
15. New Delhi: 2004. [Last accessed on 2011 Apr 28]. Report of the Regional Working Group Meeting, Review of Traditional Medicine in the South-East Asia Region, World Health Organization Regional Office for South-East Asia; p. 2. Available from: http://www.searo.who.int/linkfiles/reports_TRMAug04WG.pdf.
16. [Last assessed on 2011 May 12]. Available from: http://www.ccimindia.org/curriculum_ayurveda_minimum_2.html.
17. Lohar DR. Ghaziabad: Pharmacopoeial Laboratory of Indian Medicine; 2005. [Last accessed on 2011 Apr 28]. Legal status of Ayurveda Unani and Siddha Medicines, Deptt of AYUSH. Available from: http://www.plimism.nic.in/Legal_Status.pdf.
18. Good manufacturing practices and inspection. 2nd ed. Vol. 2. World Health Organization; [Last accessed on 2011 Apr 28]. Quality assurance of Pharmaceuticals, A compendium of guidelines and related materials. Available from: <http://www.who.int/medicinedocs/index/assoc/s14136e/s14136e.pdf>.
19. Proceedings of WHO Training cum Workshop on Production of ISM Drugs with Current Good Manufacturing Practices, 3-5 April, 2001, Department of ISM and H, PLIM, Ministry of Health and Family Welfare, 2002.
20. Proceedings of WHO Training cum Workshop on Phytochemistry, Standardisation and Biotechnological Aspects of ISM Drugs, 9-11 April, 2001, Department of ISM and H, PLIM, Ministry of Health and Family Welfare, 2003
21. [Last assessed on 2011 May 12]. Available from: http://www.ccras.nic.in/PharmacopoeialWork/20081103_AyurvedicPharmacopoeial.html.
22. Chaudhary A, Singh N, Kumar N. Pharmacovigilance: Boon for the safety and efficacy of Ayurvedic formulations. *J Ayurveda Integr Med.*, 2010; 1: 251–6.
23. Communication of Deptt of AYUSH, Ministry of Health and Family Welfare GoI wide no M-11014/1/2009-IC (AYUSH) dated 06/04/2011 Letter of deptt of AYUSH to WHO country Office, New Delhi.
24. Patwardhan B. Paper, Regional Consultation WHO-SEARO at DPR KOREA., 2005; 16.
25. Sharma Ashish K, Kumar Rajesh, Mishra Anurag, Gupta Rajiv. Problems associated with clinical trials of Ayurvedic medicines. *Rev. bras. farmacogn.* [Internet], 2010 May; 20(2): 276-281. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102695X2010000200023&lng=en. <http://dx.doi.org/10.1590/S0102-695X2010000200023>.
26. Singh RH. Exploring issues in the development of Ayurvedic research methodology. *J Ayurveda Integr Med*, 2010; 1: 91-5.
27. Samal J. Irrational use of herbal drugs: Problem statement and ways ahead. *Int J Health Sci Res.*, 2014; 4: 161-4.
28. Samal J. Advancements in Indian System of Medicine (ISM) Informatics: An overview. *Glob J Res Med Plants Indig Med*, 2013; 2 :546-53.
29. Kaushik Raman. Mainstreaming Of Ayurveda, Issues Challenges and Solutions. *JVAP*. Jan, 2015: 46-51.
30. Singh RH. Exploring issues in the development of Ayurvedic research methodology. *J Ayurveda Integr Med*, 2010; 1: 91-5.