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Scientific Revolution in Ayurveda!

Harnessing Science and Tradition

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“We are like one winged angles.

It is only when we help each other that we can fly”

- Luciano de Cresenzo
An Italian Writer, Actor

This saying is worth quoting here because today it is practically true for both Ayurveda and modern Science. Exorbitantly expensive diagnostic tests and treatments, high risk of side effects, resistance to antibiotics and increasing numbers of formidable health hazards have made common man wary towards modern science. Other than medical emergency, health seeking behavior of a common man has largely shifted to Alternate medicine/Traditional medicine/ Ayurveda.

On the other hand, although preferred by public at large, Ayurveda is yet to find acceptance, appreciation and recognition in the scientific world. Language is the main barrier. The fundamental principles and concepts of Ayurveda which are derived from philosophy - Prakriti – Purusha Samyavad, Tridoshas, Pancha Bhautikatva etc are hard to understand with modern scientific base of physics and chemistry.

Thus, today both modern science and Ayurveda are like one winged angles unless otherwise they help each other, they cannot fly.

Considering the increasing popularity of Traditional Medicine recently, the World Health Organization has published Traditional Medicine(TM) strategy 2014-2023. This strategy underlines the contemporary relevance of TM and aims to support member states in developing proactive policies and implementing action plans that will strengthen the role traditional medicine plays in keeping populations healthy (**WHO Traditional Medicine strategy: 14:76**).

The dramatic fall in the number of new entities getting registered, search for novel chemical diversity in drug discovery and increased preference/demand for herbal based medicine has forced the pharma industry to explore the leads from Ayurveda.

Understanding of metals and minerals through the knowledge of Chemistry has given rise to doubts regarding the safety of metallic and mineral formulation and their acceptance. Although the Ayurveda fraternity is trying very hard to convince the community, it is yet a long journey. Human passion and love for herbal medicine has seen wide acceptance of herbal Ayurvedic formulations globally. As plant drugs are used abundantly and widely throughout the developed and developing countries, the World Health Assembly has emphasized the need to assure the quality of medicinal plant products by using modern quality control techniques and applying suitable standards. Herbs which are poisonous in nature also find place in Ayurvedic formulations but strictly and only after PURIFICATION through Shodhana Samskara. It is said, samskaras bring about change into the drug (**Samskaro hi Gunantaradanamuchyate**).

In Ayurveda, the very first stage of purification is called 'Shodhana'. Shodhana eliminates harmful matter, modifies or converts undesirable properties to desirable ones and enhances the therapeutic action. Through shodhana, only toxic constituents are either removed or made less toxic before their use in the formulations (**Tadeva Shodhanam Karma Dravya Dosha Nivaranam**).

The Purification procedures described in Ayurveda for purifying the poisonous materials are designed to break or to neutralize or to inactivate or to eliminate the poisonous chemical constituent of the whole drug. Such procedures may also help in spontaneous accumulation or synthesis of some new constituents in the drug which add to the beneficial effects of the purified product (Singh, 1997).

(Ye durgunam visha ashuddhe te Syuheeno vishodhite Tasmad visham prayogeshu shodhitam yojayed bhishak)

Poisonous herbs that are used in Ayurveda have created interest and provided a wide scope for research in this field for scholars both from Ayurveda and modern science. Many scholars have worked and still many are working towards evaluating the safety and efficiency of shodhana procedures on visha dravyas using modern science and technology. The qualitative and quantitative analysis of the drug and media have shown positive, promising and encouraging results. Evaluation of shodhana of Kupilu (*Strychnus nux-vomica*) confirms the changes in the drug. Drastic decrease in the percentage of strychnine and Brucine renders the drug kupilu non toxic after shodhana. [1] Similarly drastic reduction in the percentage of Hyoscyamine and Scopolamine in Datura after shodhana is observed. [2] Shodhana of vatsanabha (Aconite) [3] and Ativisha (*A. Nepellus*) [4] have demonstrated the decrease in the percentage of aconitine. Presence of aconitine in the media such as cow's urine, cow's milk, goat's milk and triphala quath is also suggestive of the same i.e. removal of toxic or undesirable constituent from the drug.[4] The toxicity study of Aconite (*Vatsanabha*) on animal models show that shodhit vatsanabha is non-toxic where as raw vatsanabha is lethal.

Knowledge of Ayurveda, knowledge of modern science (Pharmacognosy, pharmacology, phyto chemistry) and use of technology (TLC, HPTLC, HPLC etc) together has helped the scholars to evaluate and revalidate the fundamental principles of Ayurveda. Only thus we can convince the modern science. And only then can Ayurveda get acceptance, appreciation and recognition. The modern science and Ayurveda can co-exist and complement each other. Resultant synergy can be harnessed for the benefit of mankind.

Hence, it can be concluded with:

The time has never been better, and the reasons never greater, for giving traditional medicine its proper place in addressing the many ills that face all our modern – and our traditional– societies. - Dr. Margaret Chan, Director-General WHO

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