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RESEARCH PAPER

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The Role of Chemistry in Ayurveda

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ABSTRACT

Ayurveda the system of medicine is highly sophisticated and time tested system of medicine which emphasizes a holistic approach to human health and well –being. Plant derived substances are herbal medicines from one of the major plants of the Ayurvedic system of medicine. Search for drugs to improve the quality of life and correct diseases has been a part of human life right from its beginnings. In many of the well-developed, ancient civilization, this knowledge was evaluated, codified and recorded and forms an essential part of the texts of their traditional system of medicine, such as Ayurveda in India and Unani in the Greece brought to India by Arabic and siddha system developed in southern part of the country.
Keywords: Tinospora cardifolia, Withania somnifera, Curcuma longa, Azadiracha indica and Ayurveda.

INTRODUCTION

Ayurveda originated some time back between 6 to 8 BC in India. In Sanskrit word ayush mean logetivity and veda means related to knowledge. There are many text available which describe in detailed various methods to diagnosis and their mode of treatment. Most of the material used in such preparation is of compound of herbal origin. Characsamhita has mentioned about 341 plants and shushrut has listed 760 Medicinal plants.

World health organization (WHO) estimated that 80% of the populations of the developing country rely on traditional system of medicines, mostly of plant drugs for their primary health care needs. Also, modern pharmacopoeia still contained at least 25% drugs derived from plants and others which are synthetic analogues built on prototype compounds isolated from plants. Chemistry can play the major role in identifying appropriate chemo type plants. To establish nuances of Ayurveda more significantly, chemistry has great role to play. Chemistry has provided help in standardization and development of Ayurvedic drugs for the benefit of suffering people. Ayurveda is one of the oldest systems in medical field. Herbs seeds and metals are used in this medicinal system which gives natural treatment to

the patients without any adverse effect. As the drugs are mainly chemicals and are the back bone of treatment of patients, it is therefore important to standardize them in terms of their therapeutic potency. This envisages making available standard yardstick for Ayurvedic drugs not only for their uses but also to the manufacture of these drugs. The role of chemistry is very important in developing new drugs based on Ayurvedic fundamentals as well as in the search of new molecules.

MATERIAL AND METHODS

Many Ayurvedic herbs used for therapy have shown very promising results like turmeric and its derivatives curcumin are very good antioxidants. *Curcuma longa* (haldi) and its active chemical constituent curcuminis commonly used in India as a mild antiseptic for wound healing and as inflammatory agent. *Salvia officinalis* may improve Alzheimer's patients. *Withania somnifera* commonly knew as Ashwagandha is an important plant known for its rejuvenating properties. *Tinospora cardifolia* or giloya is widely used medicine in Ayurvedic system of medicine for its general tonic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritic, anti-allergic, anti-diabetic properties. It has also been tested for its hepato protective nature. *Withania* somnifera which is being used as an adoptogen, *Boswellia serrata*is being used in rheumatic and anti immune disease, *Commiphora mukul (*guggutu), the resin of which is being used for centuries in obesity. *Azardiracha indica* (neem) is the mother of skin allergy, eczema, bio insectiside immunity,fertility control, *Picrorrhiza kurroa (kutki)* as an hepato protective, *Centilla asiatica* (bhrami) as a memory enhancer and learning disorder, *Mucuna pouriens (atmagupta)* in parkinsonism and aging, Kerala, Jamun, begun and *Petrocarpum marsupm* all are used in controlling diabetics. *Terminalia arjuna (*Arjun bark) as a cardiotonic, *Alovera (*ghrakumari) in ulcer, aging and cosmetic. The story of *Rauwolfia serpentine* (sarpgandha) used for blood pressure and mental disorders is very well known to all of us. *Calotropic gigantic* commonly called milk weed or madar is used for asthma, bronchitis, dyspepsia and swelling. Chemistry plays a very important role in the isolation and characterization of Ayurvedic drugs, keeping into consideration the following steps-

I) Furtherance of knowledge about the activity constituents of drugs responsible for their efficacy.

II) Standardization of raw materials and finished products in terms of their chemical composition.

III) Development of methods to dispense Ayurvedic drugs in palatable and convenient forms without any loss of their therapeutic efficacy.

IV) Biochemical investigation on Ayurvedic drugs.

RESULT AND DISCUSSION

The subject chemistry is not strange for Ayurveda. Actually Ayurveda is the origin of modern chemistry. The Rasa Shastra, an important branch of Ayurveda is nothing but is an applied Science of chemistry. Use of various Metals including Mercury and Minerals with their proper purification, detoxication and preparation to make them assimilative to the body substance is very well described in ancient texts of Rasa Shastra.

Our ancestors were certainly well versed with the trace elements of the body, which are essential for maintenance of life. They developed the science of Rasa Shastra to supply these elements to the body form outside to maintain their balance in the body, koopaipaak, sattvapatan, preparation of Bhasmas of various metals, Ranjan, preparation of Swarhavanga are example of some of chemical processes of our ancient chemistry.

Quality and pharmacological standards of Ayurvedic medicine are very necessary to establish the faith of the uses in the domestic and international market. The modern pharmaceutical and chemistry tools can help to evolve these standards as well as to weed out the adulterants etc. The chemistry and analytical tool can explain the concepts of Ayurveda like Rasa, Veerya also. Therefore the role of chemistry organic and in organic is very important for the development of pharmacopeial standards and quality control measures of Ayurvedic medicines.

A large number of population in the country use herbal drugs for most of their therapeutic needs, there is a sharp resurgence of interest in herbal drugs in the west with Germany as leader followed by France, Britain, Italy etc. in the view of side effects shown by many of the modern drugs and especially to meet therapeutic need which still exists with modern drugs and for which herbal drugs based in on Tradition system of medicine have some special relevance, this leads for discovery and development of many of the modern drugs , plant provide such as morphine, aspirin, cardic glycoside, reserpine, vinblastine and taxol as an important source for the generation of molecular diversity which form the main stay of high through put screening, most of the important plants can be easily cultivated and are both renewable resources based on cultivation and processing of plants cause negligible pollution and degradation of the environment. In the view of the facts listed above the world over, there is now an appreciation of the special benefits offered by herbal drugs. The first and foremost is to develop suitable standards for quality assay for herbal medicine, and modernize their method of manufacture dosage forms. This will ensure their reproducibility and constancy of composition, which is a prerequisite for any medicine. Modern spectroscopic and analytical methods offer enough techniques to standardize products cotainingna number of chemical constituents.

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