



Pharmacological applications of herbal medicines

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DESCRIPTION

Herbal medicines continue to grow in popularity as consumers adopt more natural approaches for staying healthy and these have been used since ancient times. In fact, every major culture had used herbalism as the method of healing at some time or the other. Since the last two decades, World Health Organization is encouraging the use of principal indigenous medicinal plants for treatment of different ailments in developing countries. World Health Organization estimates that about 80% of population living in developing countries relies almost exclusively on traditional medicines for their primary health care needs. Since medicinal plants are the backbone of traditional medicine 3300 million people in the under developed countries utilize medicinal plants on a regular basis. This assumption does not include the developed countries where there has been a great fascination for herbal medicines and dietary food supplements in the last decade. In recent years, although worldwide growth in usage of traditional systems of health care has been seen, in countries like India, China, Tibet and Brazil, the scenario has always been associated with these Traditional Systems of Medicines (TSM). These countries still possess very rich biological as well as cultural diversity and traditional health care systems have been a deep influence in the current health care means in 1 Andhra University, Visakhapatnam these nations. Today these traditional systems are not only flourishing in their respective countries but also becoming immensely popular among other nations including the western world. In India, a number of traditional health care systems have been practiced for many centuries, namely Ayurveda, dating back to more than 4000 years, Siddha, Unnani and more recently Homeopathy. Apart from these systems, there has been a rich heritage of ethno botanical usage of herbs by various tribal communities in the country. All these systems have been documented in oriental languages. Besides our rich heritage of health care systems, it was only for the last 100-150 years that these systems were slowly but steadily taken up at the industrial level. Prior to this, these

systems were confined to be practiced by individuals like Vaidyas, Hakeems, Traditional Dais, Bone setters, and Massagers etc. During initial decades of present century, various small and big manufacturing houses of traditional formulations have come up in this country. Only in the last few decades, a resurgence of interest in plants as sources of medicines and novel molecules for use in the elucidation of physiological /biological phenomena has been seen. There are number of reasons for this; firstly, there is a genuine expectation in developing countries that their health care problems can be solved through a sensible scientific exploitation of medicinal plants, some of which have been used for generations by local population. Furthermore, it is the fact that many important drugs used today in modern medicine were derived from plants or lead molecules are of plant origin. Eg. Digoxin/ digi toxin, vinca alkaloids, reserpine, tubocurarine etc. Plants have also yielded molecules which are extremely valuable tools in the characterization of enzymes and the classification of receptor systems eg. Morphine, physostigmine, muscarine, atropine, nicotine, tubocurarine etc. Some scientists thus expect that the plant kingdom holds the key to understand the complexity of human biochemistry/ pathology and the cure of perplexing diseases of humans. The initial optimism, engendered by the idea that a sophisticated understanding of receptor systems and of the biochemistry of disease would pave the way to predictable drug development, has not been realized; therefore, laboratories around the world are engaged in the screening of plants with therapeutic potential for biological activity. One major criterion for the selection of a plant for such study is to ascertain traditional healer's claims for its therapeutic usefulness. It is thus worth reflecting on the cultural environment in which traditional healers use plant remedies, as well as the materials of plant use, in order to strengthen the research design. All higher plants elaborate chemicals, i.e. Secondary metabolites that are of potential medicinal interest. Therefore, the determination of the criteria for selecting plants for phytotherapeutic investigation is perhaps an

important exercise as the investigation of itself. The following selection criteria are suggested.

- Selection based on traditional Usage
- Poisonous plants
- Selection based on chemical composition
- Screening for specific biological activity
- Combination of criteria

There is ample evidence that reactive oxygen/nitrogen species generated in the human body can cause oxidative damages associated with many degenerative diseases such as atherosclerosis, coronary heart diseases, aging and cancer. The health promoting effect of antioxidants from plants is thought to arise from their potential effects on the reactive oxygen/nitrogen species. In addition, antioxidants have been widely used in food industry to prolong the shelf life. However, there is a widespread agreement that some synthetic antioxidants such as butylhydroxyanisole and butylhydroxytoluene need to be replaced with natural antioxidants due to their potential health risks and toxicity. Therefore, it is very important to find out new sources of safe and inexpensive antioxidants of natural origin. The liver regulates many important metabolic functions and

hepatic injury is associated with distortion of these metabolic functions. In spite of phenomenal growth of modern medicine, there are no synthetic drugs available for the treatment of hepatic disorders. However there are several herbs/herbal formulations claimed have possess beneficial effects in treating hepatic disorders. Nowadays Inflammatory diseases including different types of rheumatic diseases have become a major and worldwide problem and world populations move towards herbal remedies for treatment of such ailments, so as to overcome the side effects associated with the presently available anti-inflammatory agents. In Eastern countries, medicinal plants have been used to treat human diseases for centuries and people are more interested in medicinal plants because of their high therapeutic potential and low toxicity when compared to synthetic drugs. On the basis of literature available and wide usage in folklore medicine, the following three plants are selected for the present study. They are *Calycopteris floribunda* (Combretaceae), *Madhuca longifolia* (Sapotaceae) and *Mussaenda erythrophylla* (Rubiaceae). All the three plants have been used traditionally in the treatment of jaundice and inflammation.