MEDICINAL PLANTS: Conservation, Cultivation and Utilization

National Seminar on Medicinal Plants: Conservation, Cultivation and Utilization 9-11 March 2006

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The knowledge of medicinal plants came from our ancient literature i.e. Vedas. The literature describes plants for the cure of human ailments and diseases. The word medicinal plant often leads to the thought of some miraculous and supernatural cures. In India, medicinal plants have played a significant role in the development of our ancient Materia Medica.

With the changing times and fast developmental changes, the importance of medicinal plants i.e. conservation, cultivation and utilization of medicinal plants has declined at an alarming rate despite of their golden past for which the rapid extension of the allopathic system of medicinal treatment is the main impediment.

Medicinal plants are our local heritage with global importance. An estimate measures that about 72,000 plant species including lichens to larger trees, have medicinal values. In Ayurveda about 2000 plant species are considered as medicinal.

Medicinal and aromatic plants are found throughout South Asia in forest areas from plains to Himalayas, with greatest concentration in the tropical and subtropical belts and arid region of Thar Desert. India recognizes more than 2,500 plant species with medicinal values.

India is endowed with a rich wealth of medicinal plants, placing our country as one of the top producers of herbal medicines. But today due to urbanization, industrialization and other anthropogenic activities the total forest area is reducing at an alarming rate and hence the total cultivation/collection of medicinal plants is reducing in India. If this trend of deforestation, urbanization etc. continues, we may lose the wealth of medicinal plants, which may ultimately affect the economy of our country.

The present book is aimed to fulfill the lacuna regarding awareness, importance, benefits, current status, conservation, cultivation and utilization of medicinal plants, for those who are working in this field and also the general public.
Through this book we attempt to determine and analyze the conservation, cultivation and utilization measures of medicinal plants. All eminent scientists of India have enthusiastically contributed in this book.

We are grateful to the contributors, who have impaired benefits of their research work and without their support the outcome of this book simply would not have been possible. We are confident that this book will serve its purpose. We also thank our publishers M/s Daya Publishing House, New Delhi for bringing up the book in a fantastic way.

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The history of medicine and surgery dates back perhaps to the origin of the human race. In India, the Vedas are the epic poems, which contains rich material on the herbal medicines of that time. The Charaka Samhita, written by the physician Charaka, followed the Vedas. Charaka known as the father of medicine in India provide medicinal treatise, which includes details of around 350 herbal medicines most of these continue to be gathered from wild plants to meet the demand of the medical profession. Thus, despite the rich heritage of knowledge on the use of plant drugs, little attention had been paid to grow them as field crops in the country till the latter part of the nineteenth century.

The book, *Yellow Emperor’s Classic of Internal Medicine* is the earliest Chinese medical text written in 1st century BC and listed dozens of medicinal plants, their uses and related spells and incantations.

India is endowed with a rich wealth of medicinal plants. These plants have made a good contribution to the development of ancient Indian Materia medica. India one of the 12 mega biodiversity centers of the world is one of the richest country in plant wealth and medicinal plant heritage. Human beings have been utilizing plants for basic preventive and curative health care since time immemorial. Recent estimates suggest that over 9,000 plants have known medicinal applications in various cultures and countries, and this is without having conducted comprehensive research amongst several indigenous and other communities (Farnsworth and Soejarto 1991).

The Foundation for Revitalization of Local Health Traditions, a nongovernmental organization (NGO) dedicated to conservation of medicinal plants and a renewed appreciation of India’s traditional health systems, describes India’s rich plant-based medical heritage in these words:

“India’s traditional medical systems are part of a time-honoured and time-tested culture that still intrigues people today. A culture that has successfully used nature to treat primary and complex ailments for over 3,000 years obviously has a contemporary relevance. In an age when toxic drugs are
increasingly unwelcome and when thinking people are using viable alternatives, India’s medical heritage must be documented, saved and used”

Medicinal and aromatic plants are important products found in forest areas throughout India, from the plains to the Himalayas, with the greatest concentration in the tropical and subtropical belts. About 2,500 plant species found in India, 1400 in Sri Lanka, 700 in Nepal are known for having medicinal value. Some of these, found at high altitudes in particularly stressful environments, grow very slowly and cannot live elsewhere. Others are more broadly distributed and adapt more easily to different ecological conditions.

During the past decade, a dramatic increase in exports of medicinal plants attests to worldwide interest in these products as well as in traditional health systems. In the last 10 years, for example, India’s export of medicinal plants has trebled. But with most of these plants being taken from the wild, hundreds of species are now threatened with extinction because of over harvesting, destructive collection techniques, and conversion of habitats to crop-based agriculture. Hence it becomes necessary to conserve, cultivate and properly utilize the medicinal plants for sustainable development of the country.

The rich knowledge base of countries like India in medicinal plants and health care has led to a keen interest by pharmaceutical companies to use this knowledge as a resource for research and development programs in the hope of discovering and producing new drugs.

The scientific studies of such plants are carried out all over in India since vedic times (i.e. more than 6000 years B.C.). This science is known as Ayurveda i.e. Ayu means life and veda means knowledge. In Sanskrit knowledge of life is called “Ayurveda”. The system of Ayurveda in its diagnostic part differs very much from the Allopathic system and hence the property ascribed to medicinal plants also differs. The plants are the basic source of knowledge of Modern Medicine and still continue the same position.

Traditional medicines are used by about 60 per cent of the world’s population. These are not only used for primary health care not just in rural areas in developing countries, but also in developed countries as well where modern medicines are predominantly used. While the traditional medicines are derived from medicinal plants, minerals, and organic matter, the herbal drugs are prepared from medicinal plants only.

Use of plants as a source of medicine has been inherited and is an important component of the health care system in India. In the Indian systems of medicine, most practitioners formulate and dispense their own recipes, hence this requires proper documentation and research. Public, academic and government interest in traditional medicines is growing exponentially due to the increased incidence of the adverse drug reactions and economic burden of the modern system of medicine. There are about 45,000 plant species in India, with concentrated hotspots in the region of Eastern Himalayas, Western Ghats and Andaman & Nicobar Island. The officially documented plants with medicinal potential are 3000 but traditional practitioners use more than 6000.

India is the largest producer of medicinal herbs and is appropriately called the botanical garden of the world. There are currently about 250,000 registered medical practitioners of the Ayurvedic system (total for all traditional systems: approximately 291,000), as compared to about 700,000 of the modern medicine system. In rural India, 70 per cent of the population is dependent on the traditional system of medicine, the Ayurveda.
The major hindrance in the amalgamation of herbal medicines into modern medical practices is the lack of scientific and clinical data, and better understanding of efficacy and safety of the herbal products. To ensure the quality and safety of its products and practices standardization is of vital importance.

Keeping in view the above mentioned problems related to medicinal plants an attempt has been made to pool together the expertise ideas in this book for proper conservation, cultivation and utilization of medicinal plants through advanced technologies, along with the help of science and knowledge given by Vedas and finally for sustainable and economic development of the Nation.

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Chapter 1

Traditional Health Care in a Remote Area of District Chamoli (Garhwal), Uttarakhand: What Could Do With?

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ABSTRACT

Ethnomedicobotanical surveys were conducted in a remote area namely Ghat block of district Chamoli, Uttarakhand. A total 191 plants were recorded to be used in the traditional health care system. Of the total plants used in curing various ailments, 50.26 per cent were herbs; 20.42 per cent were trees and remaining were either herbs or under shrubs, shrubs, climbers, shrubs or small trees and grasses. All the plants used traditionally in various remedies were belonging to 83 families of angiosperms and a single family of pteridophyte namely Equisitaceae. More than 53.00 per cent plants used in traditional remedies were belonging to 16 families namely; Ranunculaceae, Lamiaceae, Asteraceae, Apiaceae, Rosaceae, Fabaceae, Solanaceae, Zingiberaceae, Rutaceae, Liliaceae, Orchidaceae, Caesalpiniaceae, Polygonaceae, Euphorbiaceae, Araceae and Ericaceae. It was interesting to note that 69 diseases and other health problems are traditionally cured in this area. Root part (21.65 per cent) was predominantly used plant part in the indigenous medicinal preparations, followed by leaves (16.23 per cent), whole plant (12.04 per cent), seeds (9.42 per cent) and fruits (8.90 per cent). Other plant parts or by products used were rhizomes, stem/shoot, tuberous roots or tubers, flowers, bulbs, bark, fruit kernels, root

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