

Medicinal and Aromatic Plants: Importance, opportunity and challenges

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Abstracts

Medicinal plant is any plant which contains substances that can be used for therapeutic purpose or for synthesis of useful drugs. Aromatic plants is a special kind of plants used for their aroma and flavor. Mostly aromatic plants are used in making perfumes in cooking of food and liquor industries. Herbs such as black pepper, cinnamon, aloe vera, sandalwood, and safflower are used to heal wounds, sores and boils. Basil, Fennel, Cilantro, Apple Mint, Golden Oregano, Variegated Lemon Balm, Rosemary, Variegated Sage are some important medicinal herbs and can be planted in kitchen garden. MAPs are the recipes for the treatment of common ailments such as diarrhoea, constipation, hypertension, low sperm count, dysentery and weak penile erection, piles, coated tongue, menstrual disorders, bronchial asthma, leucorrhoea and fevers are given by the traditional medicine practitioners very effectively. They are known for their expectorant property, which promotes the thinning and ejection of mucus from the lungs, trachea and bronchi. There are many benefits of MAPs *viz.* it can change the lifestyle of human being, make them aware about harmful chemicals *etc.* The World Health Organization (WHO) has emphasized the need for better utilization of the indigenous system of medicine, based on the locally available medicinal plants in the developing countries. Many top medicinal companies like, dabar, patanjali, himalaya make new products as well as provide more employment opportunities

Key words: medicinal and aromatic plants, herbs

Introduction

It is the term “medicinal plant” includes various types of plants used in herbalism ("Herbology" or "Herbal medicine"). It is the use of plants for medicinal purposes. The word

“herb” has been derived from the Latin word, “herba” and an old French word “herbe”. Among ancient civilizations, India has been known to be rich repository of medicinal plants. The forest in India is the principal repository of large number of medicinal and aromatic plants, which are largely collected as raw materials for manufacture of drugs and perfumery products. About 8,000 herbal remedies have been codified in AYUSH systems in INDIA. Ayurveda, Unani, Siddha and Folk (tribal) medicines are the major systems of indigenous medicines. Among these systems, Ayurveda and Unani Medicine are most developed and widely practised in India.

In several parts of the world many herbs are used to honour their kings showing it as a symbol of luck. Now, after finding the role of herbs in medicine, lots of consumers started the plantation of tulsi and other medicinal plants in their home gardens. Apart from the medicinal uses, herbs are also used in natural dye, pest control, food, perfume, tea and so on. In many countries different kinds of medicinal plants/ herbs are used to keep ants, flies, mice and flea away from homes and offices. Now a days medicinal herbs are important sources for pharmaceutical manufacturing.

Plant parts Used for Medicinal Purpose

Scientific Name	Common name	Part used	Uses
<i>Aloe vera</i>	Aloe	Leaf	Moisturizer, Sun screen, Emollient
<i>Crocus sativus</i>	Kesar	Top of Flowering	Skin cleansing lotion
<i>Azadirachta indica</i>	Neem	Leaf	Antiseptic, Reduce dark spots, Antibacterial
<i>Allium sativum</i>	Garlic	Bulb	Promotes skin healing, Antibacterial
<i>Centella asiatica</i>	Gotu kola, Brahmi	Plant	Wound healing, Reduce
<i>Bacopa monneri</i>	Brahmi	Entire herb	Hair growth, good for sleep, shampoos

<i>Acacia conciana</i>	Sikakai	Pods	Promotes hair growth and preventing dandruff
<i>Citrus aurantium</i>	Orange	Peel	Soaps, shampoos
<i>Eclipta alba</i>	Bhringraj	Plant	Promoting hair growth, shampoos, hair oils

Importance of MAPs

- Changing lifestyle
- Growing awareness about harmful chemicals
- Increasing disposable income
- Proven efficacy of natural products
- Low per capita consumption on cosmetics compared with mature economies.
- Companies focus on advance research of plant derived peptides, active plant stem cells.
- Awareness about ingredients that go into products.
- Rising R&D expenditure by companies.
- Increasing concern to look good over the long term.

Role of MAPs in Indian Economy

- Contribution in National Income (7-8% in 2016-2017)
- Contribution in Employment (Generate employment 24-28%)
- Importance Source of Industrial Development (Ayurveda & Medicinal)
- Importance in International Trade

Import of MAPs to India

- Himalayan medicinal plant crude drugs come from Nepal and Bhutan 'Oleoresin' and 'gugul' of best quality from Pakistan, good quality of 'Vanslochan' from Singapore.
- According to the data from CHEMEXCIL, of the total estimated annual demand of 31,780 tons of raw herbal material of pharmaceutical industries 9,180 tons is met with through Import.
- Clove, Nutmeg, mace are the other raw materials partially imported to fulfill the Requirements.
- Considerable supplies are received from Nepal, Bhutan, Bangladesh, Pakistan, Afganistan, Singapore, etc.

Medicinal Plant Imported to India

<i>Anacyclus Pyretharum</i>	<i>Cuscuta epielymum</i>
<i>Smilax Spp</i>	<i>Lavendula spp</i>
<i>Panax ginseng</i>	<i>Pimpinella anisum</i>
<i>Volutarella Divaricata</i>	

MAJOR MEDICINAL PLANTS & PLANT PARTS EXPORTED FROM INDIA	MAJOR HERBAL EXTRACTS EXPORTED FROM INDIA
Psyllium husk	Amla extract
Isabgul husk	Aswagandha extract
Neem seed & Powder	Bramhi extract
Turmeric Rhizomes	Tulsi extract
Periwinkle leaves & Roots	Gurmar extract
Ginseng Roots	Centella extract
Nux-vomica Seeds	Ginko extract
	Boswelli extract
	Neem extract

Value Added Food Products

Common Name	Scientific Name	Value added products
Lemon grass	<i>Cymbopogon flexuosus</i>	Herbal tea, flavoured chicken, confectionary products
Mint	<i>Mentha avrvensis</i>	Candy, chewing gum, beverages, menthol crystal, pan masala, pain relevant cream
Rose	<i>Rosa species</i>	Gulkand sweets, salad, food flavoring, sauces, meat
Tulsi	<i>Ocimum Basilicum</i>	Liqueurs, condiments, beverages, candy, vinegar
Palmarosa	<i>Cymbopogon martini</i>	The oil used in high grade

		perfumery and synthesis of aroma chemical
Khus	<i>Vetivera zizanioides</i>	Oil distilled from roots, it is used in high class perfumery, soaps <i>etc.</i>

Value Added Process

<i>Particulars</i>	<i>Opportunities</i>
<i>Cultivation</i>	<i>Rural employment and livelihood improvements</i>
<i>Processing</i>	<i>Establishment of chilling/distillation unit, herbal extraction units, fractionating columnsetc. Leading to employment generation</i>
<i>Bye-products based industries</i>	<i>Manufacturing of vermicompost, perfumed waters, botanical pesticides etc.</i>
<i>Product development</i>	<i>Manufacturing of soaps, candles, ittars, perfumes, agarbatties, traditional drugs etc.</i>
<i>Marketing</i>	<i>Marketing of seeds, plants, oil, drugs, products etc.</i>
<i>Consultancy</i>	<i>Cultivation, processing, financing, marketing etc.</i>
<i>Quality control</i>	<i>Testing laboratories for quality certification</i>
<i>Packaging, storing</i>	<i>G.I. drums, bags, cartons, godowns etc.</i>
<i>Transport</i>	<i>Tractors, trucks, etc.</i>

Prospects

Medicinal plants and their derivatives will continue to play a major role in medical therapy inspite of advances in chemical technology and the appearance of cheap, synthesized,

cones through highly specific reaction mechanisms. The product obtained by synthesis may therefore be toxic or have a different therapeutic effect than what is obtained in nature. Drug development out of medicinal plants is less costlier than synthetic drug development. Reserpine is a good example of this. The vast range of agro climatic conditions in India, make it an ideal place for the luxuriant growth of flora. Medicinal plants are better earners than many of the field crops. Since they are new crops, there is an immense scope for further improvement in their productivity and adaptability, in order to obtain further increase in returns. India is endowed with incredible natural plant resources of pharmaceutical value. Despite comprising only 2% of the land mass, India is blessed with 25% of the biodiversity of the world. There has been a tremendous upsurge in the demand for phytopharmaceutical raw medicinal herbs and vegetable drugs of Indian origin from the Western nations. Our country is the proud possessor of an impressive medical heritage which encompasses various systems of medicine, viz., Ayurveda, Siddha, Unani, folklore and grandma medicine.

It is expected that India's aim to build a golden triangle between traditional medicine, modern medicine, and modern science. Such a high diversity of medicinal plants would be helpful for further scientific research on exploring their medical efficacy, value addition, and use in curing various old and new diseases. For developing the 'herbal industries', the northern India possesses a rich diversity of medicinal plant species across the various forest types along an altitudinal gradient.

Challenges

- Slow rate of production of many medicinal plants
- Long gestation period
- Shortage of suitable cultivation technology
- Production of small quantity
- Unscientific harvesting
- Paucity of research on the high yielding varieties
- Inefficient processing techniques
- Fluctuation in demand and supply
- Poor quality control procedures
- Scarcity of good manufacturers
- Poor marketing infrastructure
- Poor coordination among different stakeholders

Some institutes of India which are working on MAPs.

- AYUSH (Ayurveda Unani Siddha Homoeopathy)
- NMPB (National Medicinal Plant Board)
- CIMAP and NRCMAP, ICAR
- NHB (National Horticulture Board)
- NABARD (National Bank for Agriculture and Rural Development)
- APEDA (Agricultural and Processed Food Products Export Development Authority)
- HRDI (Herbal Research Development Institute)
- CHAMFI (Central Herbal Agro Marketing Federation of India)

Conclusion

Medicinal and Aromatic plants is a key factor for our country economy due to various uses of it's like in many Diseases, preparing oils & Antiseptics *etc.* Growth of this sector rises gradually from past 10 years due to rise in demand of raw material for preparing drug. India is second largest exporter of the world and Government support like AYUSH, NHB, NMPB, HRDI helps and provide opportunity for global business. Many top medicinal companies like, dabar, patanjali, himalaya make new products as well as provide more employment opportunities. Certainly MAPs sector faces several challenges like law production and low awareness of farmers but the country is rising due to R&D and institutional support, so we are optimise to see more better future of MAPs sector. Recently, WHO (World Health Organization) estimated that 80 percent of people worldwide rely on herbal medicines for some aspect of their primary health care needs. According to WHO, around 21,000 plant species have the potential for being used as medicinal plants. Treatment with medicinal plants is considered very safe as there is no or minimal side effects. These remedies are in sync with nature, which is the biggest advantage. The golden fact is that, use of herbal treatments is independent of any age groups and the sexes. Medicinal plants such as Aloe, Tulsi, Neem, Turmeric and Ginger cure several common ailments. These are considered as home remedies in many parts of the country. It is known fact that lots of consumers are using Basil (Tulsi) for making medicines, black tea, in pooja and other activities in their day to day life. Moreover, some plants are considered as important source of nutrition and as a result of that they are recommended for their therapeutic values. Some of these plants include ginger, green tea, walnuts, aloe, pepper and turmeric *etc.*