

Blossoming Opportunities: Empowering Rural Communities through Medicinal and Aromatic Plants

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Abstract

Medicinal and aromatic plants (MAPs), along with therapeutically active chemicals, are crucial in providing dietary supplements for personal care, offering significant economic growth potential in the medicinal plant business. Environmental factors influence antioxidant content, essential oil output, and composition of medicinal and aromatic plants, potentially aiding in their cultivation for high-value products. The rural economy and national health security are considerably boosted by medicinal and aromatic plants. The top two import and export nations account for around 30% of worldwide commerce in MAPs. Important supply sources come from China and India in Asia, Egypt and Morocco in Africa, Poland, Bulgaria, and Albania in Europe, and Chile and Peru in South America. The three largest consumer markets worldwide are the U.S., Japan, and Europe. Aromatic plants, with aromatic substances in various parts, have seen a surge in demand for medicines, fragrance compounds, and essential oils globally in the last two decades ago. India's medicinal plant cultivation system requires significant improvements, particularly in post-collection handling, processing, and product presentation. Techniques for value addition should be adopted to increase plant value and reduce contamination, considering the wide range of herbal products. MAPs cultivation offers rural farmers opportunities for crop diversification, income generation, employment, and livelihood security. Aromatic crops, with a life span of over one year, can be easily adopted due to their non-annual planting requirements. Hence the planting of crop is not required every year, so farmers may adopt this technology easily by going through following opportunities such as Agri-entrepreneurship opportunities, Global marketing opportunities and Outsourcing Possibilities.

Introduction

Along with therapeutically active chemicals, medicinal and aromatic plants (MAPs) play a significant role in the provision of dietary supplements for human personal care. As a

result, the business based on medicinal plants has great potential for economic growth (Gunjan et al., 2015).

Environmental factors had an impact on the antioxidant content, essential oil output, and composition of medicinal and aromatic plants, and these findings may be utilized to cultivate these plants in certain habitats for the development of high added value products (Chrysargyris *et al.*, 2020). The rural economy and national health security are considerably boosted by medicinal and aromatic plants (MAPs). More than 90% of the formulas used in Indian medical systems incorporate ingredients derived from plants. India exports over 600 corers worth of herbal products and medications each year, while the country's business for herbal drugs is worth more than 4000 corers (Das *et al.*, 2022).

The top two import and export nations account for around 30% of worldwide commerce in MAPs. Important supply sources come from China and India in Asia, Egypt and Morocco in Africa, Poland, Bulgaria, and Albania in Europe, and Chile and Peru in South America. The three largest consumer markets worldwide are the U.S., Japan, and Europe (Vasisht *et al.*, 2016). The overall global market for botanical and plant-derived drugs was valued at \$23.2 billion in 2013, \$24.4 billion in 2014 and \$25.6 billion in 2015. This value is expected to reach \$35.4 billion in 2020 with a compound annual growth rate of 6.6% from 2015 to 2020 (BCC research, 2015).

MAPs are extremely importance:

Aromatic plants belong to a statistically important group of commercially significant plants. Since, two decades ago, there has been an increase in demand for medicines, fragrance compounds, and essential oils on the global market. Plants have aromatic substances in their roots, wood, bark, leaves, flowers, fruits, seeds, and other parts of the plant.

- Aromatic plants produce essential oils, perfumes and flavours are in use with our civilization since several thousand years.
- Due to Vast area and varied agro-climatic condition, it can be commercial cultivated in different part of India successfully.
- Essential oils and aroma chemicals are indispensable in various human activities.
- They are adjuncts of cosmetics, soaps, pharmaceutical preparation, perfumer confectionery, ice-cream, aerated waters, disinfectants, agarbatti etc.



- Some of the important aromatic plants like Lemon grass, Citronella, Palm arose, Vetiver, Geranium, Lavender, Dawana etc. have great demand in our country.
- Establishment of small-scale sustainable orchid breeding enterprises could be a valuable alternative for the production of medicinal orchids for local communities (Subedi *et al.*,2013).

Strategies for value addition in MAPs:

To fully realize the potential of this significant business, India's current system of medicinal plant gathering or cultivation requires significant upgrades. Particularly in the areas of post collection handling, processing, and product presentation, improvements are required. To raise the value of medicinal plant materials and lower contamination and waste, the following direct or indirect value addition strategies should be used. Individual situations are not covered here due to the intricacy of the range of herbal products and the variety of medicinal and aromatic crops.

Direct Value Addition

Collection at right season and at right maturity: To get the right composition of Phytochemicals or Essential oils, collection/harvesting should be carried out at appropriate stages and seasons.

- Grading and sorting: Basic procedures like grading, sorting are effective means of getting higher value for the produce with minimal efforts.
- Cleaning: Cleaning technique should be followed to remove unwanted foreign materials and pollutants.
- Proper drying: Depending upon the needs, the drying has to be carried out to retain the desired quality and to avoid losses.
- Packaging: Keeps contents from extraneous matter or from loss of the material under normal conditions of handling, shipment or storage.

Indirect Value Addition

Quality testing for purity and strength Organic certification: Of more than 400 plants species used for production of medicine by the Indian Herbal Industry, fewer than 20 species are currently under cultivation in different parts of the country (Uniyal et al. 2000). Organic cultivation of selected medicinal and aromatic plants and certification can be profitable to cultivators with buy-back arrangement with buyers or user industries.

Semi-processing of the medicinal plants to value added products:

Semi processing like producing powder, tablets and extracts of herbal materials do not require very expensive processing machineries and can be carried for many of the herbs available locally based on the demand. The required technical knowledge in this area is available freely.

Retrospect for promotion of MAPs cultivation:

The cultivation of MAPs presents a number of opportunities for crop diversification in rural areas, including the creation of jobs that may prevent the problem of migration and increased income through value addition at every stage for the future livelihood security of rural communities. Aromatic plants have a longer life span and are simple to grow. Since crop planting is not necessary every year, farmers may openly embrace the approach by taking advantage of the following opportunities:

- Agri-entrepreneurship opportunities
- Global marketing opportunities
- Outsourcing Possibilities

Agri-entrepreneurship opportunities: MAPs offer several opportunities towards developing Agri-entrepreneurship. Some of these are enumerated as under:

- The farmer 's holding small land can grow these crops in rotation or as intercrop with cereals or vegetable crops to enhance per unit area return. Some of the MAPs are also suitable for cultivation in degraded salt-affected soils, stressed conditions and as under crops in orchards thus ensuring optimal use of the available land and other resources to the economic advantage of the growers.
- Putting up of the processing facilities in the aromatic plants growing areas is another income generating opportunity for a farmer who can extend the facility to the fellow growers.
- Production of truthfully labelled seeds and progules in collaboration with the research organizations can open new avenues in the area where possibilities of MAPs cultivation are gaining momentum.
- Companies or industries requiring quality raw material of MAPs in bulk are now coming forward to join hands with the research organizations for acquiring know how for cultivation and promoting the MAPs cultivation through contractual cultivation.



- Providing technical guidance and consultancy to the farmers by the qualified entrepreneurs and establishing testing facilities and Agri-clinics are some of the important areas of emerging opportunities in this sector. Agriculture and horticulture department 's recent initiatives in developing scientifically trained human resource through various regular farmers-scientist interaction programmes are likely to make a visible impact in this regard.
- Establishing GMP compliant processing, manufacturing value addition facilities are some of the high-tech areas requiring attention in the near future to capture the global business opportunities.
- It would not be out of place to mention that with the innovation in production, processing, value addition and marketing, several new opportunities are bound to emerge which can place India on the front line in the global arena.

Global marketing opportunities:

Export opportunities of natural products are tremendous, as the world is looking towards natural sources for the purposes of therapeutic use as well as nutritional dietary supplements. The global herbal remedies market can be classified into five strategic areas:

- **Phyto-Pharmaceuticals:** The plant-based drugs containing isolated pure active compounds used to treat diseases.
- **Medicinal Botanicals / Dietary Supplements:** The whole plant or plant-part extracts used for maintenance of health by affecting a body structure and its function.
- **Nutraceuticals:** The food containing supplements from natural (botanical) sources, that deliver a specific health benefit, including prevention and treatment of disease.
- **Cosmeceuticals:** The cosmetic products which contain biologically active ingredients having an effect on the user.

Possibilities for Outsourcing:

With the increase in demand of quality material for pharma, perfumery and flavour industries the research and development activities in MAPs have found place in the mandate of several research institutes, government organizations and promotional agencies (CSIR, ICAR, NMPB, DBT, DST, ICMR, etc.), state and central agriculture universities and even in private sector. Central institute of Medicinal and Aromatic Plants (CIMAP), a pioneer institute of CSIR, has exclusive mandate for R and D in MAPs contributing



significantly to the overall development of these in the country for the last about five decades. These organization / institutes can be contacted for outsourcing of improved knowhow for cultivation (Agri technology), quality planting material, training, processing technology, quality testing, literature and other available services. It's always essential to have marketing tie-ups in order to avoid financial loss and the institute like CIMAP can help the growers to forge linkage with buyers/ industries in some selected MAPs depending upon their requirement and market demand. For seeking financial assistance, schemes and subsidies, the growers and processors can approach National Bank for Agriculture and Rural Development (NABARD) and other nationalized banks, National Horticulture Mission (NHM) and state horticulture mission for funding and promotion of MAPs cultivation.

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