Journal of Pharmacognosy and Phytochemistry
Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; SP3: 232-235

Upasana Mohapatra
D Scholar, Department of Agricultural Economics, OUAT, Bhubaneswar, Odisha, India

Shreeshail Rudrapur
Assistant Professor, Department of Agricultural Economics, COH, Mudigere, Karnataka, India

Deepa B Hiremath
Assistant Professor, Department of Agricultural Economics, NAU, Bharuch, Gujarat, India

Shruti Mohapatra
D Scholar, Department of Agricultural Economics, OUAT, Bhubaneswar, Odisha, India

Correspondence
Upasana Mohapatra
D Scholar, Department of Agricultural Economics, OUAT, Bhubaneswar, Odisha, India

National conference on "Conservation, Cultivation and Utilization of medicinal and Aromatic plants"
(College of Horticulture, Mudigere Karnataka, 2018)

Medicinal and aromatic plants sector in Karnataka: An economic perspective and SWOT analysis

Upasana Mohapatra, Shreeshail Rudrapur, Deepa B Hiremath and Shruti Mohapatra

Abstract
Medicinal and aromatic crops occupy an important position in the socio cultural, spiritual and health aspects of Indian rural population. These have become an integral part of the culture and rituals. Karnataka has one of the richest traditional medicine cultures in India. The demand exceeds the supply of medicinal plants in Karnataka. At present, around 90 per cent of the supply of the raw material is directly from the forest and mostly from outside the State. Cultivation of a few species began only recently and that meets only about 10 percent of the demand. Cultivator to pharmacy and cultivator to pharmacy via trader are the frequently resorted market routes. Karnataka is one of the leading States that has a significant presence of Ayurvedic and Unani manufacturing companies. Presently there are 71 Ayurveda; Unani, homoeopathy and nature cure & yoga colleges in Karnataka. Some of the strengths of medicinal and aromatic crop sector in Karnataka are the existence of deep cultural and historical roots of traditional Indian medicine and the knowledge of the properties and therapeutic use of plants; A positive policy of state and union Governments for the development of medicinal and aromatic plants cultivation. The weaknesses associated with this sector are over-exploitation of natural resources from their wild habitats, lack of information in cultivation and marketing, and inadequate information on international demand and supply. The international market for herbal products is growing at an annual growth rate of seven per cent per annum; A growing market demand for high quality products certified for sustainable, environment-friendly collection and production, and consumer preference and concerns for organically grown products is increasing are some of the opportunities whereas depletion of natural resources at an alarming rate, high fluctuations in the market prices and vagaries of nature like droughts, floods and forest fires are the threats to the MAP sector in the state.

Keywords: MAPs, strengths, weakness, opportunities, threats

Introduction
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) [3]. The medicinal and aromatic crops are firmly emerging on the scene in Indian agriculture from three different perspectives. First, the traditional health system under Ayurveda, Siddha and Unani has become popular mainly due to the holistic treatment, cost of treatment and least side effects. This has spurred the demand for medicinal herbs and aromatic plants. Second, the herbs and plants were collected from the natural habitat and under minimal supervised environment. As a result, the density of medicinal and aromatic plants in the natural habitat started declining at a faster rate. This over-exploitation of these plant species has led to the cultivation of these under field conditions. Lastly, medicinal and aromatic crops have better economic opportunities as against the traditional field crops. The price of these crops as raw-material to the pharmaceutical industries has increased substantially. That fetches higher price to the cultivators and collectors. This is also encouraged by the increasing demand of these crops in the world trade. All these have led to the emergence of medicinal and aromatic crops as alternatives to some of the traditional uneconomic crops, in a few regions of India. As compared to the traditional crops, the cultivation of medicinal crops has many advantages. These include: Medicinal crops provide better returns than traditional crops; Have

very high domestic and export demand; Fetch better prices in the market; Could be stored for a long time, and sold at a time when better prices prevail in the market; Are the largely drought tolerant, and not easily grazed by animals; Have low incidence of pest attacks and diseases; Require minimum resources, therefore the cost of cultivation is lower compared to the traditional crops; Could be raised as inter-crops, along with traditional crops, and also on degraded lands.

The status of various medical systems in India

The central as well as state governments provide a variety of financial assistance in the form of loans and subsidies to the farmers engaged in MAPs cultivation through their agencies like National Medicinal Plant Board (NMPB), Agri-Export Zone, National Bank for Agricultural and Rural Development (NABARD), Agricultural and Processed Food Products Export Development Authority (APEDA), National Horticulture Board (NHB), etc. The NMPB has introduced several promotional as well as commercial programmes for the development of MAPs with financial assistance up to 100 per cent (Mittal and Singh, 2007) [4].

The Ministry of Agriculture, Government of India, has also undertaken a scheme, named 'Integrated Development of Medicinal and Aromatic Plants', which involves (a) production and distribution of quality planting material with assistance to the implementing agencies @ Rs. 40,000 per hectare, and (b) setting up distillation units with financial assistance limited to 75 per cent of the actual cost or Rs 0.75 lakh per unit, whichever is less. The financial support of Rs 1,000 per person for training of progressive farmers has also been made available (Purohit, 2004) [5].

Marketing Channels of Medicinal Plants

The main driver for the cultivation of medicinal plants could be located in two components, namely pull and push effects. First, in the pull effect, are the factors that attract farmers to cultivate medicinal and aromatic crops, rather than traditional crops. These factors include attractive prices, fixed market channels, price assurance by agents and monopoly of the group of producers in cultivating these crops. Whereas, push effects are dominated by the uncertainty of net income generated from the traditional seasonal crops due to factor and product market imperfections. Well-established market channels prompt farmers to cultivate medicinal and aromatic crops (Chandresh *et al*., 2014) [1].

There are three marketing routes that operate in the field. This marketing route is followed largely in Sida, Desmodium, Pseudarthia, Kaempferia and a few other crops where there are ample chances of substitution and adulteration (Suneetha and Chandrakanth, 2006) [6]. Here, the gatherer gets 100 per cent of the price paid by the pharmaceutical user but the channel sticks to the enlisted growers. Gatherer to pharmacy via trader is one of the frequently resorted market routes. The price spread in this channel is slightly higher than the earlier channel. The trader makes most of the profits. A third party gets added in this route, that of a commission agent. The commission agent collects the material from the farmer or the gatherer and sells it to the trader. Here the market margin increases. The commission agent makes a large share (about 70 per cent) of the value due to the farmer in the pharmacy's price, by merely assembling the produce from several gatherers/cultivators (sellers) and later selling the lot, in bulk, to pharmacies and/ or to traders.

Gatherers/ Cultivators→Pharmacy
Gatherers/ Cultivators→trader→pharmacy

Importance of Medicinal Crops in Karnataka

Medicinal and aromatic crops occupy an important position in the socio cultural, spiritual and health aspects of Indian rural population. These have become an integral part of the culture and rituals. Karnataka has one of the richest traditional medicine cultures in India. Many important and useful species are found here. These are long known for their medicinal properties and these references are available in scriptures. Millions of households, particularly in rural areas, use medicinal plants for self-medication, for preventive purpose, rejuvenating and curative applications. Recognising this importance, the Government of Karnataka established Medicinal Plant Conservation Areas to promote and regulate the sector for optimising the benefits to people as well as to ensure sustainable growth. Medicinal plants have also been identified as one of the thrust areas by the forest department and different programmes have been initiated for their conservation in the forests and protected areas. In the recent past, cultivation of these plants is being undertaken on private lands also.

It is estimated that 90 per cent of the industrial requirement of plant material comes from forests (EXIM Bank, 1997) [2]. Karnataka state has a forest area of about 20 per cent and this includes evergreen, semi-evergreen, moist deciduous, dry deciduous, scrub and thorny jungles. According to the report of the Botanical Survey of India 1984, there are 3,924 species belonging to 1,323 genera and 199 families in the forests of Karnataka, of which, 1,493 species are of medicinal value. These belong to 808 genera and 108 families. They occur in different vegetation types across the Western Ghats. The rate of exploitation has also been increasing at a very fast rate and that has caused supply bottlenecks for a few. In the recent past, these are taken for cultivation as regular seasonal crops and becoming popular among cultivators. Soon some of these species acquired the status of crops from plants, and this transition has made a significant difference in the economy of medicinal crops.

Medicinal and Aromatic Crops in the Context of Karnataka

Karnataka is one of the leading States that has a significant presence of Ayurvedic and Unani manufacturing companies. Use of Ayurveda as means of medicine has been growing in the State quite fast. Some large manufacturers and top class nature cure centres are located in Karnataka. Presently there are 71 Ayurveda; Unani, homoeopathy and nature cure & yoga colleges in Karnataka (www.cetinformation.com) [8] and these add to the number of practitioners every year. Today, many people are engaged in these systems of medicines in the State and the State has its popularity offering nature cure to many diseases.

The demand exceeds the supply of medicinal plants in Karnataka. At present, around 90 per cent of the supply of the raw material is directly from the forest and mostly from outside the State. Cultivation of a few species began only recently and that meets only about 10 percent of the demand (Govt of Karnataka, Horticulture, Dept. of Horticulture, personal interviews) [7]. Traditionally, the tribes and local communities 'in and around forest', used to supply medicinal plants from herbal products. There are a few regions that specialise in the supply of specified raw material to industries and practitioners.

The Western Ghats: Bastion of Medicinal Plants

The Western Ghat region of Karnataka is designated as one of the 18 biodiversity hot spots in the world. It is estimated that two-third of India's endemic plants are located in this rich tropical evergreen forested region. These unique ecosystems are storehouses with untapped potential for biological and chemical development in the fields of medicine, biochemistry and industry. About 60 per cent of Karnataka's forest comes under the Western Ghats and this region is termed as the varietal emporium of medicinal plants. The entire plant kingdom consists of more than 200,000 species originated in 12 centres around the world. One such centre is located in the Western Ghats. About 700 species of medicinal herbs are found here and are used in indigenous systems of medicine.

Although the Western Ghat region occupies only a small portion of the state's geographical area, it accounts for a large amount of endemic species found in Karnataka. Medicinal and aromatic substances present in plants/animals are secondary metabolites produced by these organisms growing under specific environmental stretches. Medical and aromatic plants found in the western ghat region include species of high ecological and economic potential (high value, low volume crops). But still medicinal plants are not favoured for replacing the traditional crops in this region, both due to abundant availability in natural habitats and the distance from the processing centres.

SWOT Analysis of Collection and Cultivation of MAPs

On the basis of discussions with three stakeholder groups, namely farmers, users, contractors and processors, we carried out a brief SWOT (Strength, Weakness, Opportunity, Threats) analysis of cultivating medicinal and aromatic crops in Karnataka. They have an immense potential in the domestic and export market in India, in general, and Karnataka in particularly. The soil and climatic conditions in Karnataka are highly suitable for cultivation of medicinal plants. The forests of Western Ghats and the deciduous forests of Deccan are rich in medicinal plant biodiversity and are suitable for managed collection. A SWOT analysis to examine the suitability of the region for collection and cultivation of medicinal plants revealed the following:

Strengths

- The existence of deep cultural and historical roots of traditional Indian medicine and the knowledge of the properties and therapeutic use of plants;
- A positive policy of state and union Governments for the development of medicinal and aromatic plants cultivation;
- The availability of vast forest resources in the Western Ghats, hilly areas and man-made forests, with rich sources of medicinal plants;
- Progressive farmers, scientific, trading and processing community, willing to share responsibilities; and
- The availability of research and development support from the existing institutions and many private and public sector organisations.

Weaknesses

- Over-exploitation of natural resources from their wild habitats.
- Lack of information in cultivation and marketing.
- Inadequate information on international demand and supply.
- Inadequate research on sustainable harvest, collection, processing and value addition.
- Lack of infrastructure facilities for collection, drying, storage, marketing and processing.
- Lack of planning and management at industry and supply institutions.

Opportunities

- The international market for herbal products is growing at an annual growth rate of seven per cent per annum.
- A growing market demand for high quality products certified for sustainable, environment-friendly collection and production.
- Consumer preference and concerns for organically grown products is increasing.
- Availability of stretches of virgin dry lands suitable for organic cultivation of medicinal plants.
- A large number of farmers are coming towards growing medicinal plants.

Threats

- Depletion of natural resources at an alarming rate and substitution of substandard raw material.
- Development of extra-legal market mechanisms.
- High fluctuations in the market prices and emergence of usurious contractors.
- Impact on food security.
- Vagaries of nature like droughts, floods and forest fires.

Conclusion

The traditional systems of treatment like *Ayurveda*, *Siddha* and *Unani* continue to be practiced even today. The exorbitant cost of treatments, side effects of several allopathic and synthetic drugs, development of resistance to presently used drugs for contagious diseases have led to increase in the demand for herbal medicines. Today people are going back to these systems mainly because of their holistic and low cost treatment with least side effects. The potential benefits of these herbal medicines have been gaining popularity in the west by the term "Alternative Medicine", thereby increasing the demand for these medicines to a large extent. Due to this growing global demand, many important medicinal and aromatic plant species are becoming scarce and some are on the verge of extinction. The availability of vast forest resources in the Western Ghats, presence of progressive farmers, scientific, trading and processing community, willing to share responsibilities; and the availability of research and development support from the existing institutions are the strengths for cultivation of MAPs in Karnataka in a commercial basis. Therefore, it is important to conserve the extensively traded medicinal and aromatic plants in its natural habitat or cultivate them under field conditions.

References

1. Chandresh G, Vaidya MK, Sharma R, Dogra D. Economics of Production and Marketing of important Medicinal and Aromatic Plants in Mid Hills of Himachal Pradesh. Economic Affairs. 2014; 55(3):364-378.
2. Export Import Bank of India. Indian Medicinal Plants: A Sector Study, Export Import Bank of India, Occasional Paper. 1997, 54.
3. Farnsworth NR, Soejarto DD. Global Importance of Medicinal Plants. Conservation of Medicinal Plants. Cambridge University Press, Cambridge, 1991.
4. Mittal R, Singh SP. Shifting from Agriculture to Agribusiness: The Case of Aromatic Plants. *Agricultural*

Economics Research Review. 2007; 20:541-550.
5. Purohit AN. Medicinal and aromatic plant sector: Potentials and possibilities in Uttaranchal. Financing Agriculture. 2004; 36(3):19-26.
6. Suneetha MS, Chandrakanth MG. Establishing as multi stakeholder value index in medicinal plants. An economic study on selected plants in Kerala and Tamil Nadu states of India, 2006.
7. www.who.int/medicines/library/trm/trm_strat_eng.pdf
8. www.cetinformation.com