CHAPTER I
INTRODUCTION

‘Information Technology’ and ‘Medicinal & Aromatic plant’ are considered to be two important fields, which can be explored to a very high extent to make India prosperous.

-- Dr. Abdul Kalam’s Vision 2020.

As the globe is awakened to the calls of environmental problems and health hazards, more and more people are showing interest in natural, safer and economical herbal medicines rather than the expensive chemical drugs that have many side effects. World Health Organisation (WHO) has estimated that 80.00 per cent of the population in developing countries rely on traditional medicines; mostly plant drugs, for their primary health care needs. India has about seven lakh-registered practitioners belonging to Ayurveda, Unani, Sidha, Tibetan, etc. These systems of medicine solely depend upon herbal products for medical treatment.

Global scenario of trade in medicinal plants

Total global market for medicinal plants is worth about 150 billion dollars and India's share is only 1.3 billion dollars (0.90 per cent). India's
dismal performance in the global trade can be attributed to many factors. Among these, the major problem is that India exports only 30.00 per cent of the commodity in the processed form and bulk of 70.00 per cent in raw form thereby causing loss in employment as well as foreign exchange reserves. Besides, over 90.00, per cent of medicinal plants are collected from the wild source, very often in a destructive and unsustainable manner (Natesh and Ram, 1999).

The major problem in collection is unsustainable harvesting from its natural eco-system, which results in extinction of many species (Karki et al., 2002). Consequently, India has declared 23 species as endangered and trade in these commodities has been banned. Besides, irregularities in marketing of medicinal plants, ignorance among farmers about market potential, poor quality. Lack of uniformity, adulteration, unstable price, exploitation by middlemen, false promise of ‘buyback’ by foreign players, illegal trade, etc. are paralyzing the marketing of medicinal plants. So the market potential of medicinal plants remains untapped since a long time.

The global market for medicinal plants and their product is likely to grow up to US $5 trillion by the year 2050 reflecting an annual growth rate of 14.00 per cent in the area of alternative medicine (WHO). Considering the bio-diversity and favourable environment of India, the export performance is not upto the mark. There exists the tremendous
potential in the export market. In addition to this, judicious use of the medicinal plants and their products can support the health care system in India. The concerted management of medicinal plant wealth can conserve bio-diversity sustainable environment and human health, generate employment, provide optimal economic returns to farmers and enhance export earnings.

**Opportunities for India**

India is said to be the home to 8,000 species out of 21,000 species used for medicinal purpose in the world. Around 800 species are used by industries and out of which 25.00 per cent are cultivated (NBPGR, 1996), This rich bio-diversity together with diverse agro-climatic conditions provides unlimited opportunities for India to cultivate a variety of medicinal plants demanded by the market.

The demand for medicinal plants in India - to meet both domestic and export market - comprising 162 species, is expected to increase at about 15.00-16.00 per cent between 2002 and 2005 (CRPA, 2001). The current gap between demand and supply is estimated to be 40,000 to 2,00,000 tonnes, which is expected to rise to 1.52.000 to 4,00,000 tons by 2005 (Planning Commission, 2000 and CRPA, 2001). This indicates that we have not capitalized the market, neglecting the export of medicinal plants, especially finished and the processed crude drugs
exports. This gap, together with the opening of international market for trade and commerce under WTO regime, provides opportunities for India to become a global leader in marketing of medicinal plants.

Bulk of the exported material is in the raw form which is mainly collected from nature and the natural wild growing medicinal plants supplies are rather dwindling due to over-exploitation. Moreover, the collections from the wild have high heterogeneity in quality that affects processing of drugs. In the context of harmonizing conservation with commercialisation, Swaminathan (1999) states that commercialisation can become an important instrument of conservation, if commercial companies such as pharmaceutical firms help rural and tribal families to cultivate rare medicinal plants on contract basis. This will help them to make available the raw material they need without directly exploiting plants growing in the forest canopies. Many important plants are now in Red Data Books of several developing countries due to the unsustainable exploitation of such plants from the wild. Domestication of economically valuable Red Data Book species will help the cause of conservation and the needs of commercial user.

In the above context, the transformation processes of commercialisation and diversification in agriculture necessitates the inclusion of medicinal plants to strengthen the production system of
farmers. This process will help farmers to sustain and diversify their income from multiple sources to meet the risks and uncertainties. Medicinal plants cultivation can become highly remunerative both in financial and economic terms for the small-scale growers as well. Moreover, not only do medicinal plants based industries expand jobs, enhance the use of traditional medicines but also value addition can increase cash earning to the local people.

**Efforts for promotion of medicinal plants**

Indian Council of Agricultural Research (ICAR) started, All India Co-ordinated Research Project (AICRP) on Medicinal and Aromatic plants during 1972 under National Bureau of Plant Genetic Resources (NBPGR). ICAR has also set-up National Research Centre for Medicinal and Aromatic Plants (NRCMAP) at Anand, Gujarat. In addition to this, Council for Scientific and Industrial Research (CSIR) has established Central Institute for Medicinal and Aromatic Plants (CIMAP) at Lucknow and Regional Research Lab (RRL) at Jammu with the aim of developing products from medicinal and aromatic plants and developing agro-technologies for such crops. Realising the growing importance and depleting resource. Department of Forest has been entrusted with the task of conservation and promotion of medicinal plants.
To co-ordinate all the activities related to medicinal plants, the Government of India has set-up National Medicinal Plants Board (NMPB) at the centre with a corpus of Rs. 100 crore. In line with this various states have constituted Medicinal Plants Boards at state level. Recently some of the private companies has also started to invest in cultivation of medicinal plants, since they faced difficulties with regard to increasing supply gaps and, in some cases, adulterated materials from the wild. In addition to this, numerous NGOs are involved, especially, in conservation of medicinal plants. In spite of all these, the efforts are inadequate to meet the challenges and opportunities.

**Commercial cultivation of medicinal plants**

It is estimated that about 1,11,000 ha is currently under commercial cultivation in India, as compared to about 4,50,000 ha of cultivation in China" (Prasad, 2003). It is calculated that commercialization of medicinal plants cultivation is to the extent of Rs. 800 crore (in 2001-02) in India. Commercial cultivation of medicinal plants in India is restricted to few crops like *Psyllium, Withania sommferu, Papaver somniferum, Cassia angiifitifolia, Coli'uf, forskohlii, Gloriosu superha*, etc.

The cultivation figures available with us are merely rough estimates based on the quantum of raw materials traded. As on date no
precise data is available to indicate the type of farming, nature of processing, extraction units, and operation of indigenous medicine preparation units. Under these circumstances, the Indian herbal sector has to take new initiatives taking into consideration our valuable plant bio-diversity, interest of our farmers, traditional healers, protection of the local health traditions, and interests of local tribes, processors and end users.

**Conservation of medicinal plants**

Medicinal plants are renewable natural resources. Both conservation strategies *ie.*, in situ and ex-situ can be adopted for conservation of medicinal plants. In situ conservation means conservation of plants in their natural habitats. This includes setting up of bio-sphere reserves,

Ex-situ conservation means outside natural habitat by cultivating and maintaining plants in botanical gardens, parks, other suitable sites, and through long term preservation of plant propagules in gene banks (seed bank, pollen bank, DNA libraries, etc) and in plant tissue culture repositories and by cryopreservation.

**Distribution of medicinal plants**

Analysis of habits of medicinal plants indicated that they are distributed across various habitats, trees - 33%, shrubs - 20%, herbs - 32%, climbers - 12% and others - 3%.
About 95% of medicinal plants used by the industries are collected from the wild, over 70% of the plant collections involve destructive harvesting because of the use of parts like roots, bark, wood, stem and the whole plant in case of herbs. This possess a definite threat to the genetic stocks and to the diversity of medicinal plants if bio-diversity is not sustainably used. The utility of plant parts for the medicinal purpose is as follows. Whole plant – 16%, rhizomes – 4%, roots – 29%, leaves – 6%, flowers – 5%, fruits – 10%, seeds – 7%, stem – 6%, wood – 3% and bark – 14%.

**Medicinal plants cultivation in Tamil Nadu**

Tamil Nadu, situated at the southern tip of India is blessed with diverse ecological habitats, which harbour and sustain immense plant diversity with a total area under medicinal and aromatic plants of about 7000 ha. It not only ranks first in the production of senna, but also produces superior quality periwinkle and gloriosa products in the world. Senna, periwinkle and ashwagandha are grown more in Tirunelveli and Ramanathapuram districts, whereas glory lily, ashwagandha and Coleus are found in Salem, Namakkal, Madurai and Dindigul districts.

Dindigul and Tuticorin has suitable agro-climatic conditions for cultivation of medicinal plants. There is a need to take up a systematic approach towards cultivation of medicinal plants to provide a consistent
supply of medicinal plant produce of international quality. Glorylily &
senna is two of the medicinal plants widely cultivated by the farmers in
the district.

Knowledge are the important pre-requisites for adoption. Hence, it
is imperative to study the knowledge and adoption of different
recommended practices by the medicinal plant farmers in their
cultivation. Marketing is important in any business avocation, it is also
essential in medicinal plants cultivation. The farmer in his day to day
business uses a wide range of resourced. With this in view, the present
study has been taken up with the following specific objectives.

1. To study about the profile characteristics of medicinal plant
growers.
2. To find out the knowledge level of medicinal plant growers on the
cultivation of selected medicinal plants.
3. To assess the extent of adoption of recommended cultivation
practices of selected medicinal plants by the medicinal plant
growers.
4. To identify the marketing behaviour of medicinal plant growers.
5. To analyse the relationship between the characteristics of the
medicinal plant growers with their extent of adoption of
recommended medicinal plant technologies.
6. To identify the constraints faced by medicinal plant growers in the
adoption of medicinal plants technologies.
**Scope of the study**

The findings of the study would reveal the socio-economic and psychological characters of the medicinal plant growers which may be of great help to the extension workers in formulating different strategies as suited to different farming situations. Moreover, the findings on the knowledge and adoption of recommended medicinal plant technologies and the relationship of characteristics of medicinal plant growers with adoption would help the extension workers and policy makers to concentrate on the popularization of the less adopted techniques among the medicinal plant growers. The Problems mentioned by the respondents will give very useful feedback to the research system to focus (their research attention for the involvement of respondents. Further, the findings would be helpful to the government as well as state Agricultural universities and government to find out to overcome those constraints.

**Limitations of the study**

Though every attempt has been made to have a through investigation in to several aspects to the problem, the study has the usual limitation of a single student research project such as limitation of time, finance and other resources, which renders it difficult to take-up the study in a larger are and it is a qualitative study based on the view
expressed by the respondents for a set pattern of questions. Since the attitude of the individuals is liable for change, the findings based on the opinions are also liable for change over time. Further ex-post-facto design was also followed in this study thus, the limitations concerned with this design were inevitable. However, care has been taken to make the study as objective, definite and systematic as possible.

**Presentation of the study**

The report of the present study has been presented in five chapter I deals with introduction, objectives, scope and limitations of the study. Chapter II presents the review of available literature in the light of the objectives is given in the chapter. Chapter III describes the research methodology adopter for the study describes the sampling design, the study area, measurement of independent and dependent variables, method of data collection and statistical tools used. The results of the study to draw specific inference are presented in the IV Chapter. The V Chapter briefly summarises the work done with salient findings, explains the implications based on the results of the study followed by bibliography and appendices.