

## Abstract

Medicinal and Aromatic Plants (MAP) based livelihood systems are often mediated by the market forces, and/or related directly to employment/income of the poor. Proper and optimum utilization of those resources will help in employment generation and economic development of the rural poor of the region. With continued increasing demand of natural products such as Pharmaceutical, Dye, Naturopathy, Flavour and Perfumery & Cosmetic industries; cultivation of MAP species have now become a popular and economically viable commodity. But this requires semi-processing unit and hence, micro-level/cottage industries may be a suitable option for the local level entrepreneurs and social entrepreneurs. These small scale industries are mostly proposed by the local artisans, who are operating through their own convenient yardstick in homes. However, power supply and machineries are required to a limited extent. The products are made to satisfy the local demands. Such types of cottage industries are more suitable for

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## Introduction

In North East India, particularly in the state of Assam, thousands of small and rural household industries are operated by the village communities who are belonging to different tribes and castes. These micro industries are sustained due to the supply of local resources with traditional skilled human resources. These capacities are available very much with the rural people in this region. The importance of cottage industry has also been felt in under developed countries, as has been mentioned by Khan et al. [1] in his study. It can play a pivotal role in the economic development of a country. However, to determine the estimate of products of MAP plants straight way is difficult. Nevertheless, the market demands of the herbal products are gradually increasing; the industries are also growing day by day to meet such demands. This industrialization helps in establishing one's own economic stability for those who are solely dependent on such products.

The 'productive employment potential' in rural and backward areas on such activities is quite high. Small scale industries, traditional village industries, including modern small enterprises have been given an important place in the region's economic planning to a large extent.

Therefore, small scale, cottage and tiny industries play a vital role in the region's economy, despite phenomenal growth in the large-scale sector, as well. It is no denying the fact that this contribute significantly in the national economy, which are considered to be the engine of growth in the current era.

Despite providing economic stability to the rural poor, the livelihoods are being best supported by these cottage industries, mainly in the rural sectors of the state. Moreover, rural household industries have been acting as a sustainable livelihood for the rural poor of this

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Retz., T. bellirica, T. arjuna, Murraya koengii, Nyctanthus arbor tristis, Zanthoxylum alatum Roxb. These plants based medicines are consumed by all section of the rural communities of this region.

### Medicinal herbs and plants of Assam

With its vast tract of hills and forests, Assam is the homeland of wonderful and precious medicinal herbs and plants such as Sarpagandha (Rauvolfia serpentina Benth.ex.Kur), Pippali (Piper longum Linn), Amlakhi (Embllica officinalis Gaertn), Hilikha (Terminalia chebula Retz.), Bhomora (Terminalia bellerica), Arjuna (Terminalia arjuna Wight & Arn.).

About 900 types of such plants are known to exist in abundance in the forest area of the state, with the Brahmaputra valley itself, having 50 species of such plants is being of commercial value.

It is estimated that only about 5-10% of the plants and herbs are currently utilized, and the rest hold a vast potential which are yet to be explored.

### Methodology

#### Collection of secondary data

For understanding the existing (particularly medicinal plant based) cottage industries/SSI units registered under the Govt. of the State, various forest produce known for higher market value have been studied. For the collection of secondary data on existing cottage industry/SSI units, official information was collected from the Department of Industries, Council of Science and Technology, Department of Rural Development, Department of Textiles and Handicrafts, Department of Trade and Commerce, Information and

Statistical Office, State Medicinal Plant Board, Circle Office and DFO Office of the districts, etc.

#### Collection of primary data

Field survey (including village and market survey) has been done in few forested districts of the state, including the different geographical zones and tribal communities. These districts have a good marketing channel with commercial markets of Assam, and are easily accessible by roads. Questionnaires were prepared based on the objective of the study, and respondents were requested to fill the forms accordingly. Local market of the visited areas was surveyed and plant samples were collected with necessary market information, including market demand, local preferences, etc. Based on this information, highly valuable plant species are identified and documented.

#### Medicinal and aromatic plant (map) as a cottage industry

MAP-based livelihoods can be easily streamlined with other components to enhance human welfare, especially among the poor and marginalized communities. The mountain region of NE, for example, has in abundance a diverse range of herbs, shrubs, trees and vines that have significant and potential medicinal value, whose healing properties are known to the local healers and traditional doctors for centuries, but are currently threatened due to lack of concerted conservation efforts. In this regard, recent study of Tiwari [2] in the state of Meghalaya is of great importance, where in it has been shown that the annual trade of Cinnamon leaf alone from one district is about 2800 tons, valued at close to a million dollar.

In all the states of North East Region, MAPs play a significant role in the subsistence economy of the people, especially those living in the rugged and impoverished hills, mountains and rural interiors. The collection, processing and trading of medicinal plants, thus contribute significantly to the cash income of the rural poor in this region.

Pharmaceutical export as a percent of India's total export was nearly 0.55 during 1970-71, which has significantly increased, where in the year 2000, it was 4.07. Sarpagandha (Rauvolfia serpentina) is one of the promising species of Assam, but over-exploitation of the species from wild habitat has obstructed the popularization of the species as commercially cultivable crop. Difficulties are faced due to some industrial demand oriented medicinal and aromatic plants like Gandhokhu (Homalomena aromatica), Kalmegh (Andrographis paniculata), etc.

Despite such difficulties, it has been found that farming of some selected MAP with long, medium and short duration life span in the same plot of land may be a good approach for harvesting profitable yield. Tree like Bixa orellana, with creeper like Pipoli and Vanilla, and herbs like Patchouli, Sarpagandha in the interspaces, may be such a useful model of farming. Similar model with some other crops may also be practices for farming of MAP. Patchouli cultivation yielded Rs.50,000/- per annum per hectare of land. Out of that, the essentiality of post harvest processing unit for value addition is very much required in this region. A list of fractionated compounds of some common MAPs having industrial demand is given in the table 1. Technology of extraction of these value added product is also available in some CSIR

### Contribution to livelihood of the rural poor

Medicinal and Aromatic Plants based Cottage Industries would form an integral part of the rural communities' economic life and the standard of living. These industries play a vital role, which is a holistic approach to health and well being of the community. It is an important source of income, especially for the poor people living in the hilly terrain, which depend largely on the sale of medicinal plants for their livelihood. Further, some of the species are consumed as vegetables on regular basis for their sustenance, which form an important part of local health care for many of the ailments.

### Conclusions

Despite the wealth of Forest resources available, the sector has not developed in the absence of suitable standardisation, Government schemes, and efficacy of drugs. It has yet to maintain and integrate the development of such sectors from production to marketing, to boost rural economy of this region. Forest resources of Assam comprise a great share of natural resources. Medicinal plants obtained from the forest region have the efficiency to yield natural products for healing many diseases like bleeding from nose, fever, malarial fever, asthma, tuberculosis, calculi, stones in kidney, gallbladder, urinary troubles, hypertension, diabetes, stomach-ache, stomach ulcer, dysentery, diarrhoea, jaundice, hepatomegaly, fracture of bone, gynecic disorder and snake bite, which are prevalent in this region.

far-reaching implications, especially the rural poor who are often dependent upon these for their health and economic benefits, based on their traditional and commercial collection and use. The need of the hour is to harness the State Government Agencies and Central Government Schemes to find solutions for setting up such sectors, so that these MAP resources can be harvested and used sustainably in the region. However, these attempts have often been isolated, and sometimes not based on systematic analyses of the conditions needed for the success.

With rapid urbanization and industrial expansion, the World is losing its biodiversity in an accelerated way. But, situating in such