

7	Value addition to medicinal plants	RK Hitech Centre Pvt. Ltd., Kolkata	2000
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EXECUTIVE SUMMARY

The Indian system of medicine covers indigenous systems, which originated in India and the systems, which originated outside but got adopted in India in course of time. These are Ayurveda, Siddha, Unani, Naturopathy and Yoga.

The present production figure of essential oil in India is around 17000 MTPA against the world production of 1,00,000 MTPA. The Indian production is likely to rise up to 22,000 MTPA by the next year (i.e. 2000-2001). India is in 3rd position (15% market share) in terms of market share of essential oil globally after China and Brazil.

The production figure of Essential Oil (variety wise from organized sector) in India during the year 1999 is given below:

	Varieties	Current production
1.	Mentha Arvensis	12,000
2.	Mentha piperita	300
3.	Spear Mint	250
4.	Mentha citrata	25
5.	Basil	250
6.	Citronella	250
7.	Eucalyptus citrodora	125
8.	Eucalyptus Globules	250
9.	Lemon Grass	300
10.	Vetiver	15
11.	Sandal	25
	Total	13,790

In the North East mainly three types of essential oils are produced and these are Citronella, Lemongrass and Palmarosa oils. The bulk of production of these essential oils in the country are from the north east. The species which are being commercially produced in the North East are:

1. Java citronella
2. Lemon grass
3. Palmarosa

The locational break-up of aromatic cultivation areas of aromatic plants in the N.E. region during the year 1998-99 can be summarized as below:

State	Location	Area(Hectares)
Assam	Boko, Rajapara, Boraigaon, Hajo, Dhubri, Mankachar, Golaghat, Khoirabari, Makum, Pengeri, Dibrugarh, Goalpara, Nalbari, BAC areas	2803
Arunachal Pradesh	Changlang, Tawang, Pasighat Lumla etc.	22
Meghalaya	Barapani and adjoining areas, Garo Hills(Adoguri)	25
	Total	2850

It is seen that about 88% of the total area under cultivation falls in Assam, 0.6% in Arunachal Pradesh and 0.7% in Meghalaya. In Manipur and Nagaland also there are some citronella cultivations.

Total cultivation area under aromatic plant cultivation in the NE is estimated to be 4000 hectares (Citronella-90% and lemon grass and others-10%). The production and turn over of essential oil per annum is 450MT and Rs. 20 crores per annum. More than 20,000 families are employed in this activity. There are at present 200 processing units under operation of 500 kgs per batch capacity.

The state wise contribution of cultivation and processing of Aromatic plants state wise in the NE region are given below:

1.	Tripura	0.5%
2.	Assam	70-80%
3.	Nagaland, Arunachal Pradesh, Manipur, Meghalaya	Rest
4.	Mizoram	Nil

Other varieties of minor products are-

1. Patcholi
2. Pamarosa
3. Eucalyptus
4. Mentha

The global medicinal plant scenario:

1. The world sale of herbal preparations is increasing by about 10-15% every year.
2. Nepal's export on medicinal plant is to the tune of 22-71 million US dollar. This activity is the third largest export article of this small country.
3. European herbal medicine market in 1994 was \$1.8 billion.
4. Indian medicinal plant related trade is worth Rs 500 crore and Rs 900 crore worth of herbal medicines are produced annually.

Regional Scenario of Medicinal Plants:

In total, there are about 3200 medicinal plants in India, of which 343 species are used as medicine. The total size of the herbal medicine industry in India will be in the range of Rs. 11 crore with an impressive growth of 26% per annum. The world trade is over US\$ 60 billion with a growth rate of 7%. This reflects the immense potential for the sector. The entire NE has a vast reserve of medicinal plants, and a rich culture of folk medicine.

The variety of medicinal plants available in the NE region are given below:

1.	Assam	169 species
2.	Arunachal Pradesh	464 species
3.	Manipur	98 species
4.	Meghalaya	124 species
5.	Mizoram	64 species
6.	Nagaland	14 species (besides these, there are plants listed under other uses)
7.	Tripura	135 species

There are good prospects for setting up Allopathic, Ayurvedic and Homeopathic drugs manufacturing units based on the medicinal plants of the NE region. More than 75 pure compounds derived from higher plants find a place in the prescription of modern allopathic practitioners. Certain industries may be developed which will not only be economically viable but will also help in the economic upliftment of the region.

Suggestions of M/s R.K. Hitech Pvt. Limited, Kolkata

Sl No.	Title	Numbers
1.	Species Suggested for high altitute garden or cultivation of Medicinal plants A.P., Meghalaya, Mizoram and Nagaland	13
2.	Species Suggested for Herbs and Shrubs	13
3.	Medicinal Plants in High Demand in the Extraction industry	12
4.	Organisations/ Dealers providing planting materials for medicinal plants	45
5.	Dealers/ Nurseries of Medicinal Plants	131
6.	Profiles on Economy of Cultivation	20

INVESTMENT

According to the study conducted by R.K. Hitech Centre Pvt. Ltd., to create an infrastructure including laboratories and Tissue culture unit with few nurseries to give a boost to this sector will cost around Rs. 20-30 crores.

Depending upon the plant variety of the species, the profitable size for each farm or plantation shall be as follows:

Sl. no.	Type of Medicinal plant Species	Plantation/ Cultivation Size (hac.)	Investment Rs. In Crore
1	Root yielding plant (herb, shrubs and climbers)	30	1.90-2.00
2	Bark yielding plant (tree)	80	3.70-4.00
3	Leaf/ whole plant yielding plant (herb, shrubs)	40	2.10-2.25
4	Leaf and/or wood yielding plant (tree)	80	3.40-3.60

The estimated investment consists of land cost as follows:

Rs. 3.75lakhs per ha for 30 ha land.

Rs.2.75lakhs per hectare for 80 ha land

Rs. 3.00 lakhs per hectare for 40-hectare land

The above farm/plantation sizes are considered viable under the following yield consideration

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| 1. Dry bark yield from trees | : 800-1200kg |
| 2. Dry root yield from climbers | : 20-24 tonne/acre |
| 3. Dry root yield from herbs/ Shrubs | :1000-1100 kg/acre |
| 4. Aromatic leaf yield from herb | : 9-10 tonne/acre |

- Envisaged investment for extraction bulk-pharmaceutical units--3-10 crores
- Envisaged investment for Ayurvedic medicine----- 1.75-3.25 crore
- Envisaged investment for small scale herbal preparation units----0.50 - 1.75 crores
- Envisaged investment for centralized drying, storage and packaging0.25-0.50

The estimated annual demands of some of the important herbal crude drugs used in the preparation of Indian System of medicines are:

Sl.no.	Botanical Name	Trade name	Quantity tonne
1	Tinospora cordifolia	Gilancha	10,000
2	Pulchea racemosa		3,000
3	Emblica officinalis	Amla	2,750
4	Withania somnifera	Aswagandha	2,500
5	Asparagus racemosus	Satamuli	2,500
6	Centella asiatica	Thankuni	1,500
7	Commiphora wightii	Gugul	1,000
8	Cassia angustifolia	Sonamukhi	1,000
9	Terminalia chebula	Harikati	1,000
10	Andrographis paniculata	Kalmegh	1,000
11	Aloe vera	Ghritakumari	1,000
	Total		27,250

According to CHEMEXCIL, growth rate of national pharmaceutical market is 20 % per year.

From these facts we can infer that there is a large scope for medicinal plants in North East India.