

POSSIBLE FIELD OF COLLABORATION REGARDING MEDICINAL PLANTS

## INTRODUCTION

From times immemorial, importance of medicinal plants for remedy of many diseases has been known to man all over the world. The medicinal plants continued to enjoy supremacy till beginning of the current century when a number of the medicinal plants and drugs made from these started losing their markets with mass scale production of synthetic allopathic medicines by the western countries.

In recent years, in view of increasing awareness about adverse side effects of synthetic drugs and their high cost, the beneficial curing properties of medicinal plants are once again gaining recognition. A number of old granny prescriptions have also been converted into prized life saving drugs by the scientists. Some of these are reserpine, digitalin and vinblastine. However, due attention has not been paid and enough resources not placed at the disposal of the Government and private agencies for this purpose. Till today, medicinal plants constitute a minor forest produce only, though they are a valuable source for increasing income from forests. Our forests are a rich source of a number of medicinal plants. Some of these have pharmacopoeial importance and others find use in the traditional system of medicine for which the demand is increasing. Further, these plants also provide income and self-employment opportunities to the people living in the hilly regions of Pakistan.

Dried herbal drugs and manufactured 'unani' medicines of plants origin have good potential for export to middle and south-east asian countries where 'unani' and 'ayurvedic' systems of medicine are used. This export potential can only be harnessed, if local firms are supplied pure and authentic crude drugs from plants resources.

At present, the drug plants are generally collected from the forests in a haphazard way. Limited transport facilities in these areas obstruct timely transportation of plants collected through crude means. The market rates generally fluctuate widely with chances in international and domestic demand and often make collection and transportation uneconomical with the rising labour costs.

#### CULTIVATION AND PROPAGATION OF MEDICINAL PLANTS

Establishment of herb gardens by the ancient medicine man was the initial step towards cultivation of medicinal plants which were commonly used by the 'tabibs' and herbalists to cure ailments. Though several thousand different kinds of plants are used as drugs by man still, only few are cultivated due to their economic importance. Pakistan has a variety of climatic and soil conditions and there is considerable altitude variations which are ideal for regeneration and cultivation of a number of valuable medicinal plants.

Some of the important medicinal plants occurring in Pakistan can be classified into two categories for the purpose of cultivation and propagation, i.e., plants requiring long period of growth (3-8 years) alongwith higher elevation (Group A) and plants which can be cultivated as short duration crops in foothills and plains (Group B) as follows:

<u>Group 'A'</u>	<u>Group 'B'</u>
<u>Plants requiring long period of growth and higher elevation</u>	<u>Plants requiring short period of growth and lower elevation</u>
<u>Dioscorea deltoidea</u> (Kanis)	<u>Plantago ovata</u> (Ispaghul)
<u>Podophyllum emodi</u> (Bankakri)	<u>Carum copticum</u> (Anjwain)
<u>Aconitum nepellus</u> (Atis)	<u>Nigella sativa</u> (Kalonji)
<u>Valeriana wallichii</u> (Mushkbala)	<u>Foeniculum vulgare</u> (Sonf)
<u>Berberis lycium</u> (Darhald)	<u>Psoralea corylifolia</u> 'Babchi)
<u>Saussurea lappa</u> (Kuth)	<u>Cardiospermum helicacabum</u> (Hub-e-kil kil)
<u>Paeonia emodi</u> (Mamekh)	<u>Mentha arvensis</u> (Mint)
<u>Saxifraga ciliata</u> (Zakham-e-Hayat)	<u>Cymbopogon citratus</u> (Lemon grass)
<u>Atropa acuminata</u> (Angoor shafa)	<u>Apium graveolance</u> (Ajmod)
<u>Digitalis purpurea</u> (Berg lafah)	<u>Datura fastuosa</u> (Datura)

Colchicum luteum  
(Suranjan talkh)

Catharanthus roseus  
(Sada Bahar)

Gentiana kurro  
(Kor)

Pimpinella anisum  
(Anisoon)

Acorus calamus  
(Warch)

Hygrophilla spinosa  
(Talmakhana)

Chrysanthemum cineraria-  
efolium (Pyrethrum)

Linum usitatissimum  
(Alsi)

Rheum emodi  
(Revand chini)

Matriocaria chamomilla  
(Gul baboona)

It would be observed that plants mentioned in group 'A' could not be cultivated on commercial scale, rather their regeneration is needed in the natural habitat for the preservation of the species and their systematic exploitation on rotation basis for sustained supply of crude drugs to the markets.

Plants mentioned in group 'B' can be easily cultivated in the foot-hills and plains. It has to be kept in mind that these crops cannot compete with the existing food and cash crops in their income. Generally, the farmer feels shy to cultivate these crops on large scale due to unsure demand, post-harvest care, storage and pest, market problems and unscrupulous traders who offer nominal price to the farmers to earn more profit for themselves. However, some of the crops like fennel, ajwain, black cumin and ispaghol etc., having constant demand, are cultivated as minor cash crops in certain

pockets of Pakistan to earn additional income by the farmers. Some of the crops like *Mentha arvensis*, *Cymbopogon citratus*, *Apium graveolance* *Pimpinella anisum* have good potential to develop as industrial crops provided some pharmaceutical firms take up their cultivation on large scale.

The Pakistan Forest Institute has undertaken experimental cultivation of medicinal plants in order to standardise their cultivation techniques as well as determine their agronomical requirements, post-harvest care and economic feasibility. Results have been published in the form of bulletins and research papers to provide guidelines to cultivators, traders and pharmaceutical concerns. As a result of continuous dissemination of this knowledge and guidance, a number of medicinal and aromatic plants are being cultivated as specialized crops by enlightened farmers in various parts of the country.

#### PROBLEMS FACED BY THE GROWERS TO INCREASE PRODUCTION OF MEDICINAL PLANTS

1. Trial cultivation of medicinal plants is generally required before their commercial production. The outcome of trial production is uncertain due to various reasons.
2. Planting, cultivation and harvesting of medicinal plants crops require a relatively large investment in human labour and are, therefore, often not economical.

3. Medicinal plants may require, in addition to their cultural requirements, special processing techniques and apparatus for their conversion into drugs. These may not be available to all farmers.
4. Drug plants are subject to law of supply and demand, just as other farm products. Few drug plants have large market demand to make their cultivation common. A relatively small increase in supply of any one of them causes a corresponding decrease in its market price.
5. Disease and pests damage drug crops and are as diverse as those effecting other crops. Viruses, wilts, leaf spots and root diseases and insect pests attacks are common among drug and condiment plants. Therefore, diseases and pest control measures need to be determined.
6. Marketing of medicinal plants produce is another problem which restricts their cultivation on large scale. There are few drug dealers who have monopolised the market and genuine difficulties are faced by the farmers for disposal of their produce at reasonable rates.

## POSSIBLE FIELDS OF COLLABORATION

1. Exchange of seed and planting stock of medicinal plants between the two countries for experimental trials.
2. Exchange of visits by the research scientists to study the medicinal plants, their scope of cultivation and techniques of collection and processing, etc.
3. Assistance in the establishment of a research section on medicinal plants in the Punjab Forestry Research Institute, Faisalabad to promote naturally occurring and cultivated medicinal plants in the country.
4. To consider possibility of export-import of medicinal plants between the two countries.