V. Summary and Conclusion
CAHAPTER V

SUMMARY AND CONCLUSION

The following aspects have been studied during the course of the present investigation: (a) A comparative study of the tribal people in four tribal communities selected giving special attention to the socio economic conditions, their association with the medicinal plants seen in the locality, knowledge of diseases and their remedies (b) Enumeration of the medicinal plants used by them (c) Detailed study of the 10 selected plants, their taxonomy, conservation, seed germination, vegetative propagation by stem cuttings, qualitative and quantitative study of the metabolites using histochemical techniques.

The study was intended to do a participatory making of an inventory of the plants available in the area. The people who are related to the forests are the main target group in this context and the aboriginals are given special attention.

The different groups of people in the four settlements viz. Ulladan and Urali of Kannampady, Urali of Vanchivayal, the Mannan and Paliyan of Kumily claim to have Tamil origin. The Malapandaram - a nomadic primitive tribal group is the characteristic of Purakkayam. They are a suppressed group compared to the other tribal groups. They do not have permanent houses and they live under the shades of large rocks or in the caves. They live in temporary
shelters. Agriculture is not practiced and they totally depend on forests for their livelihood. Sometimes they get second-hand goods as gifts from some visitors. The educational status is very low. The social bondages are very weak. The minor diseases are treated by themselves and they are aware of many medicinal plants and their uses. The other group viz. Ulladan, Urali, Mannan and Paliyan are more advanced in having permanent houses, side houses and tree top houses. And also they are aware of agricultural practices. However the groups depend on the forest for collecting fruits, honey, firewood etc. The literacy level is above 60% in all other groups except Malapandaram. Modern medical facilities are a dream for these people. They depend on their own treatments using the medicinal plants they know and also on some Vaidyas. In all the cases they adore Hindu Gods and Goddesses, spirit of the dead and also the natural forces.

They are able to identify many diseases and prescribe remedies using the various types of medicinal plants that grow in their premises. In the present study it is observed that 369 plants in 99 families are used for one or other medical purposes. The family Euphorbiaceae is prominent with 23 medicinal plants and Fabaceae stands second with 21 plants. Out of these, 26 plants are RET species. The medicinal plants which are most familiar to them include Piper longum, Linn., Ocimum sanctum, Linn. Zingiber officinale, Rosc. Leucas aspera, Spr., Adhatoda Vasica, Nees, Vernonia cinerea, Less. and Emilia sonchifolia, DC.
It is observed that the people in the different locations use different plants and formulations for the same disease conditions. For example against the poison of snakes, the people in Purakkayam community use *Pittosporum dasyclon*, Miq. bark decoction. In the absence of this plant they use *Alstonia venenata*, R.Br. They claim that the *Pittosporum* has more quality than the other but in the absence of the first plant they use the second plant. For the same disease condition people from Kannampady use the plants *Aristolochia indica*, Linn., *Aristolochia krisagathra*, Sivarajan & Pradeep or *Aristolochia Tagala*, Cham. They find these three plants as more or less of equal quality in the treatment. In this study various medicinal preparation were observed as single remedy or combination remedy against 46 disease conditions.

As a part of the study the plants which are frequently used by them were recorded with their natural order and local names. Out of the 10 medicinal plants selected for taxonomic and propagation studies, eight plants come under the Rare, Endangered and Threatened (RET) category. Among these plants three are climbers, two are woody climbers, two are shrubs and the remaining three are tree forms.

The seed germination study was carried out for all the plants and were found that in *Embelia ribes*, Burm.f. the germination percentage was very low. Of the various germination media selected, the vermi compost medium proved to be slightly better that the others.
For the vegetative propagation studies stem cuttings treated with different concentration of IBA were used. Of this 250 ppm concentration of IBA produced the best result.

In the nursery condition most of the species studied showed more than 50 % germination. In the vegetative propagation the low concentration rate treatment of IBA could provide a higher percentage of sprouting and rooting. These experiments were done in the standard nursery conditions with extra care. The establishment rate of these plants are less in the natural habitat due to many reasons. But it is possible to rehabilitate those Rare, Endangered and Threatened (RET) species by propagating them in standard nursery conditions and may be re-introduced to the forests.

Qualitative analysis of the starch in leaves of the selected plants proved that the epidermal and subsidiary cells were devoid of them in all the plants studied. In majority of the plants analysed, the contents of sulphated and carboxylated polysaccharides were high. Of the 10 plants studied, eight plants showed the presence of proteins in the cytoplasm of guard cells and epidermal cells.

In the case of the lipid analysis *Emelia ribes, Burm.f.* shows highest content and *Coscinium fenestartum, Colebr.* shows the lowest content. However both are considered to be very valuable medicinal plants.
A major concern, which prevents the large-scale cultivation of the medicinal plants, is the doubt about their medicinal quality variation in different agro climatic conditions. This aspect was studied by analysing the metabolite quantity and quality in the plant. The observations made, indicate that there is no such variation in plants. The plants selected were from three widely separated regions but from its natural conditions. The variation is much less because the samples were collected from its natural conditions. However no study was conducted to observe how the analysed parameters appear in the cultivar varieties of medicinal plans. It is found that there is a correlation present between the chlorophyll content and carbohydrate production. None of the factors influence the protein content in the plant.

The qualitative histoc6hemical analysis also shows the presence of various metabolites in the leaf epidermis, which is an indicator of the medicinal property of that particular plant. In the plants where the leaves or shoots are used as a medicinal ingredient, it is found that the protein content was high in the leaf epidermis (Eg: Baliosprwm montanum,M.Arg., Celastrus panicultus, Willd.). In the plants with more medicinal property in the roots, the various metabolites were found to be less in the leaf tissue (Mappia foetida, Miers).

In the quantitative analysis of the selected species in terms of their pigment content and carbohydrate content, matrix correlation analysis shows
that the factors are varying according to the environment but it does not have any significant importance in their medicinal property. The quality variation of the plants based on the region they grow is very menial and negligible in the present study.

The study helped to unravel the sad condition of the tribal communities in the study area. They are the wisdom carriers who store a valuable treasury of knowledge about innumerable medicinal plants. Therefore, steps have to be taken for uplifting them and making use of their knowledge without exploiting them. It is a widely accepted fact that, many medicinal plants are getting extinct due to various reasons. The studies on propagation both by seeds and vegetative means proved that, the plants can be grown in the nursery and can be transplanted into their natural habitat. Histochemical analysis of plant metabolites may be used as a less expensive experiment to determine the useful part of the plant without using the highly sophisticated technologies.