Summary and Conclusion

The present project entitled "Studies on Some Medicinal Plants used in Ayurvedic Formulations" was undertaken during 1994-2001.

Extensive survey was conducted in Kerala and adjoining states and 432 plants were collected and scientifically identified. These plants are conserved at the herbal garden of Kerala Ayurveda Pharmacy Ltd., (KAPL) Nedumbassery. Herbaria of these plants were prepared and preserved at the R & D Division of KAPL.


These plants are consumed in the state in large quantities in the manufacture of ayurvedic drugs. They were introduced to the herbal farm of KAPL at Nedumbassery and were grown under experimental condition. The growth and yield pattern of the plants were recorded and specific observations were made regarding their suitability for cultivation. The study demonstrated the feasibility of commercial cultivation of these ayurvedic drugs in Kerala and recorded the following.

a) The trials on *Bacopa monnieri* clearly showed that it can be successfully grown in paddy fields.

b) The tuber size of cultivated *Holostemma adakodien* was much greater than the one obtained from wild.
c) Maximum leaf yield of *Indigofera tinctoria* was recorded by plants between 4 1/2 and 7 1/2 months of age.

d) Rhizome yield of *Kaempferia rotunda* was very high when compared to other *Zingiberaceous* crops.

e) Plant introduction of *Operculina turpethum* recorded an average root yield of only 141.66g/plant.

f) Leaf yield of *Pogostemon patchouli* (20t/ha) was 15 times higher than that of the earlier report.


Cultivation of *Acorus calamus* under different spacings revealed that a wider spacing of 60 x 60 cm was more economical. The plant gave better yield even in factory effluent water, which is unsuitable for many other drug plants.

A new ecotype of *Adhatoda zeylanica* named as *manjapra* ecotype was found to be superior in yield to *Adhatoda zeylanica* and *Adhatoda beddomei* and offers great potential for large-scale cultivation.

Biochemical studies on *Holostemma adakodien* helped to identify the optimum period of harvest of the plant at the 17th and 18th month stage. Clonally propagated plants gave higher yield of tubers as compared to seed propagated ones.
As against the conventional method of cultivation, better tuber yield was obtained from plants grown in untilled soil. The significant superiority of tuber yield of May-planted crop over August-planted crop was established. The quality of *Holostemma adakodien* tuber of market sample was much inferior to the cultivated samples with respect to the biochemical constituents.

Effect of date of planting on performance of *Indigofera tinctoria* showed that May-planted plants produced 15% more yield than January planted crops. The colour of *Neelibhringadi* oil greatly depends on the quality of *Indigofera tinctoria* (*neeli*) leaves. Leaf juice of *neeli* impart same colour to the oil, irrespective of the age of leaves. An interaction exists between *Indigofera tinctoria* and other herbal constituents of *neelibhringadi oil* in determining the final colour of the formulation.

*Mentha arvensis* can be successfully cultivated in Kerala under 50% shade.

Vegetatively propagated plants of *Operculina turpethum* gave better yield in a much shorter period in Kerala condition.

Comparative evaluation of fruit yield of *Piper chaba* and *Piper longum* highlighted the superiority of the former over the later on the basis of dry matter yield.

Necessity of 75% shade for the growth of *patchouli* cuttings was established in the study of *Pogostemon patchouli*.

Significant differences in leaf yield were observed between *Ruta chalepensis* planted under shade and unshaded conditions.

*Wedelia chinensis* when cultivated at a spacing of 50 x 50 cm showed higher yield unto 1000 t/ha.
A qualitative evaluation of different rasna drugs was done with respect to their methyl cinnamate content - a marker compound. The commonly used rasna drugs viz. *Alpinia officinarum*, *Alpinia calcarata*, *Alpinia galanga*, *Rheum emodi* and *Vanda tessellata* were subjected to analysis. Of these *A. officinarum* and *A. calcarata* are the best anti-rheumatic drugs. *Rheum emodi* (*chuvannaratha*), the cheap alternative of *Alpinia* spp. lack methyl cinnamate content and hence its use should be discontinued in formulations.