6. SUMMARY

The thesis entitled "Studies on the ecology of fungi in the East coastal regions of Tamil Nadu" deals with the physico-chemical properties of Ennore, Pichavaram, Muthupet and Thondi mangrove soils, diversity of fungi from soil and driftwood samples, the relationship between fungal diversity and physico-chemical properties of soil, extracellular enzyme production of fungi and the influence of some physico-chemical factors on the production of enzymes.

The physicochemical properties of the mangrove soil collected from four different localities in the East coast mangroves were analyzed. The relation between these properties of the soil and the population of fungi was statistically analysed.

Totally 42 species of fungi belonged to 15 genera were isolated from different stations of East cost mangrove soil. Among them, 38 species belonged to Deuteromycetes, 3 species belonged to phycomycetes and one from Ascomycetes.

Altogether 38 species of obligate marine fungi belonged to 33 genera were recorded from driftwood samples. Among them, 31 species

belonged to Ascomycetes, 6 belonged to Deuteromycetes and one to Basidiomycetes.

About 42 species of fungi were screened to determine their enzyme producing ability including amylase, cellulase and pectinase. Among the 42 fungi tested, 30, 22 and 27 species showed amylolytic, cellulolytic and pectinolytic activities respectively. Among them, *A. candidus, A. fumigatus, A. niger, A. terreus, P. expansum, P. funiculosum, T. harzianum* and *T. viride* exhibited comparatively more enzymatic activity than other species of fungi tested.

Influence of environmental parameters such as pH, salinity, temperature and nutrients including carbon, nitrogen and phosphorous on the enzyme activity was also studied. In general, the production of extracellular enzymes was maximum at pH 5 and 6, salinity 20 to 30 ppt, temperature 30 to 40°C, carbon and nitrogen 0.1 to 0.2 per cent and phosphorous 0.2 to 0.3 per cent. Thus the species of fungi showed variation in their enzyme producing ability in relation to environmental parameters and available nutrients. From the research carried out, the following conclusions were made.

- Species belonged to Deuteromycetes were dominant over other groups of fungi. Members of Phycomycetes, Ascomycetes and Basidiomycetes were poorly represented, most of them were facultative marine fungi,

- The physico-chemical properties of the soils including temperature, pH, salinity and the nutrients including carbon, nitrogen and phosphorous influenced the population of fungi.
- Species of obligate marine fungi were present as saprophytes in the driftwoods. Most of them belonged to Ascomycetes.
- Most of the fungi isolated from the mangrove soil showed enzymatic activities.
- The enzyme producing activity of the fungi was influenced by the physico-chemical properties and the nutrient contents including carbon, nitrogen and phosphorous, and
- East coast region harbours distinct habitats with rich source of microbial biodiversity, which could be explored not only for the new records but also as a potential source of bioactive compounds.