V. CONCLUSION

CONCLUSION

The present investigation "Studies on the toxicity of industrial effluents on phytoplankters" was carried out to assess the impact of industrial effluents on some Chlorophycean microalgae, and thereby its effects on the effluent receiving water bodies. The microalgae selected were *Chlorella ellipsoidea* Gerneck, *Ankistrodesmus falcatus* (Corda.) Ralfs, *Scenedesmus bijuga* (Turp.) Lagerheim, *Haematococcus laccustris* (Girod.) Rostafinski, and *Chlorococcum humicola* (Naeg.) Rabenhorst. The industrial effluents included were distillery effluent, pulp - paper mill effluent and petrochemical factory effluent. The waterways studied were Cochin estuary, Muvattupuzha river and Chitrapuzha river. Definitive tests of 21 days duration were conducted with different concentrations of the effluents viz. 0.05%, 0.1%, 0.25%, 0,.5%, 0.75%, 1%, 1.5% and a control. The parameters were cell number, productivity, pigment analysis and estimation of protein and carbohydrate. Field study was conducted for a period of one year (January 2001 to December 2001) in the three water ways. The different analytes were water temperature, pH, dissolved oxygen, free carbondioxide, alkalinity, hardness, chloride, nitrite, nitrate,

phosphate, silicate, primary production, total dissolved and suspended solids, biochemical oxygen demand, chemical oxygen demand and the phytoplankton abundance. The following conclusions were made based on the results of the study.

- All the three effluents affected the growth and metabolism in all the algae studied.

- Lower concentrations of all the effluents stimulated the growth as well as other related parameters in *Chlorella ellipsoidea* Gerneck, *Ankistrodesmus falcatus* (Corda.) Ralfs, *Scenedesmus bijuga* (Turp.) Lagerheim, *Haematococcus laccustris* (Girod.) Rostafinski and *Chlorococcum humicola* (Naeg.) Rabenhorst.

- Higher concentrations of all the effluents inhibited the growth in the five Chlorophycean microalgae.

- The five microalgae showed varied responses to the different effluents treated and showed change in responses along with the time of exposure.

- Among the effluent receiving water bodies, Cochin estuary recorded the highest pollution followed by Chitrapuzha river and Muvattupuzha river.

- Phytoplankton present in the water bodies showed variations in different seasons.

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