

Executive summary of Minor Research Project (Shibu A Nair) entitled Pesticide (Endosulfan) Induced Haematological and Biochemical Alterations in *Etroplus suratensis*.

The study revealed that the sublethal doses endosulfan significantly altered the concentrations of biochemical constituents in the metabolically active tissues if gills, liver and muscles in *Etroplus suratensis*. The reduction of nutritive value, particularly the protein content in fish exposed to sublethal doses of endosulfan necessitates the immediate need of stringent regulatory measures to contain the pollution caused by pesticides in general and organochlorine pesticides in particular. Further studies with absorption and depuration of endosulfan among different target tissues could be useful in better understanding of endosulfan mediated tissue damage and its metabolism in target tissues. Still, the results of the present study may be useful for assessing early warning signals of pesticide insult and support the possibility of the fish *Etroplus suratensis* as a flagstone species of coastal and estuarine pollution by organochlorine pesticide like endosulfan.

The role of blood parameters in the assessment of the health status of fish is emphasized by the observations of Cyriac *et al.* (1989) and Omoregie (1998) who noted the possibility that changes in the blood reveal conditions within the body of the fish long before any manifestation of disease or alterations. In contrast to the observations of Moiseenko (1998), it is very difficult to forecast changes in fish, especially in natural water bodies on the basis of haematological indices due to age, seasonal, and sexual fluctuations of these indices (Luskova, 1997). However, for monitoring and prediction of adverse effects

of xenobiotics like pesticides, the use of haematological parameters as a useful biomarker to measure the pesticide related insult on fish cannot be ruled out.

The present study suggests that the pesticides, especially the organochlorine compounds have adverse effects on fish, as disclose by the histopathological revelations. Normally these pesticides are drained to the riverine systems from agricultural sector, the fishes in the river and nearby estuarine system face high level of risk, like *Etroplus suratensis*. A number of pesticides are known to cause distinct histopathological alterations in various organs in fishes. The use of histopathological techniques is a promising field of research in aquatic toxicology as it reveals the real picture of the adverse effects imposed and the role of pesticides in either disturbing or destroying the vital organs of fishes like gills, liver and kidney. The alterations at cellular and organelle level could be considered as earliest warning signals of an ensuing catastrophic phase.
