6. Summary

Detailed study on the abundance, distribution and species composition of microzooplankton from the Gulf of Mannar regions were carried out from March 2006 to May 2008 (From Rameswaram to Tuticorin). Seasonal variation of different parameters are investigated. A total of 116 species belonging to different genera were identified based on staining and culture techniques. Conspicuous seasonal variations were noticed both in species composition as well as population density of microzooplankton from the Gulf of Mannar regions. Protozoan ciliates and microcrustaceans had emerged as the dominant groups in the microzooplankton. Population density was ranged from 1400-23200 m⁻³. pH, phosphate and nitrate positively correlated with microzooplankton populations and they were found as the key factors that controls the qualitative and quantitative distribution of microzooplankton. The statistical data of ANOVA showed that the microzooplankton quantity was highly significant at 0.01% level within the stations. These results were analyzed and compared with biodiversity of protozoan ciliates. Grazing activities were measured from the commercial finfish seabass larvae (Lates calcarifer). The hatchlings such as 3rd to 5th day larva fed the Euplotes sp. rather than rotifers. Biochemical profile were performed in the different protozoan ciliates like Euplotes vannus, E. crassus, Uronema sp. (Non-pathogenic and free living ciliates) Parauronema sp. and Strombidium sp. 43.71% of protein present in Strombidium sp. which was more than that of commercial feed rotifer. Seabass’s pathogenic parasites scuticociliates were cultured under the laboratory condition and tested against Euplotes crassus’s compound. This compound showed high inhibition against pathogen of finfish, Lates calcarifer which concentration of 0.1:10ml measurement scale rather than bacterial and fungal pathogens. After ethical committee clearance, Directorate of Medical Education, Chennai (Letter Ref. No. 2254/ME1/2009 dated 07.05.2009), three test were done. 14 days single dose acute toxicity studies were conducted in the wistar albino rats (Rattus norvegicus). The efficacy of the drug was measured with standard tool. Lacrimation, sedation, and conjunctival vasculature were observed. Histo-pathological studies were carried out after 30 days under the laboratory conditions. Metabolic portal tissues and excreted tissues were affected by drug’s adverse effect. This adverse condition was
measured by vernier scale, such as animals kidney and liver swelling process. 50% lethal dose LD₅₀ values were measured (950-1000mg/weight). The drug from *Euplotes crassus* has potential to inhibit the prostaglandin and kinin functions of albino rat were also observed. Anit-inflammatory effect was processed with standard drug indomethacin and 83.12% of inhibition was recorded. In molecular characterization, 18S rDNA sequence of *Moneuplotes crassus* (previous name *Euplotes crassus*) NTNA-17 have submitted to the GenBank nucleotide sequence database and got accession number HQ256516. Using MEGA 5 (Molecular Evolutionary Genetics Analysis) software, through (Neighbor Joining Method) phylogenetic tree was constructed for *Moneuplotes crassus* species.