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## Bioremediation of pollutants in aquaculture systems using free living protozoa, an eco-friendly method

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In the present study, 19 species of free-living protozoans have been identified and characterized from the Vembanadu Lake. A total of 15 testacid rhizopods belonging to two orders, six families and nine genera and theciliates of three orders, three families were recorded. Among the testaceousrhizopods one species from Arcellidae family, five from Centropyxidae, one species from Nebelidae, six from Difflugidae belonging to the Class *Lobosea* and two species from the Class *Filosea* belonging to Cyphoderiidae and Euglyphidae families were identified. Some of these free living forms have given certain insights into the prevailing ecological conditions of the ecosystem thus acting as perfect bio-indicators. *Euglypha tuberculata*, reported in the present study is a species of wide tolerance and survives in diverse habitats. Similarly *Cryptodifflugia oviformis* which was reported for the first time in India, in this study, prefers dryer environments. Due to its smallsize, this species mainly feeds on bacteria and yeasts; their high abundance explains active decomposition process in the area. The diversity of the free-living ciliates in the study area included species belonging to three genera namely *Euplotes, Tachysoma* and *Coleps* and they were pollution indicators possessing the property of heavy metal uptake. The water quality analysis and heavy metal analysis proved that the waters are polluted with heavy metal concentrations and these dominant ciliate species can be used as good bio-indicators, reflecting the natural ecological conditions prevailing in the water body and for bioremediation of aquatic pollutants in aquaculture systems.

## Biography

Vasu Jayaprakas is currently working as a professor at Amity University Uttar Pradesh, India. He is a scientist with a wide range of experience in Fisheries, Aquaculture and Marine Science. An aquaculture expert with vast experience and knowledge in commercial farming of marine shrimps, brackish water and fresh water fishes. He is associated with academic agencies, policy makers, Government bodies and NGOs to carry out aquaculture projects in coastal areas. He is the In-charge of Integrated Research Project on Fish-cum Livestock culture, pig-cum fish culture and composite culture of carp and giant fresh water prawn.

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