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USE OF CILIATES IN POLLUTION MONITORING AND BIOREMEDIATION IN VEMBANAD LAKE, INDIA

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ABSTRACT

Vembanad Lake, an important Ramsar site has been subjected to a number of serious stresses from anthropogenic influences. Pollution stress in an aquatic environment is often observed by abrupt changes associated with discharges from industries and sewage. This lake thus requires an active bioremediation programme using a fast, efficient and cost effective biotic system. Ciliates are excellent water qualifiers as they call attention to a system, overload, indicate cause and gravity of the situation in their own way. With this in view a study was conducted in Karaparambil site located in the southern part of Vembanad Lake. The diversity of the free-living ciliates in the site was observed for a period of three months. The frequently noticed ciliate species in the study area belonged to 3 genera namely Euplotes, Tachysoma and Coleps. Interestingly they were pollution indicators possessing the property of heavy metal uptake (Rehman et al. 2006, 2008). These ciliates survive in the polluted waters and accumulate the heavy metals in their body. The water quality analysis and heavy metal analysis also proved the waters of the lake is polluted with heavy metal concentrations. Thus the present study points out the possibility of using these dominant ciliate species for bioremediation in this lake. The above ciliate species can be cultured in the laboratory and released into the lake for controlling heavy metal pollution in the lake.

KEYWORDS: Bioindicators, Biomonitoring, Free Living Protozoans, Heavy Metal Uptake