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ZOOLOGY

## A REPORT ON MICRO-INVERTEBRATES ASSOCIATED WITH LITTORAL MACROPHYTES IN KAGZIPURA LAKE

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### Abstract

The present study deals with micro-invertebrates associated with littoral macrophytes of Kagzipura reservoir from January to December 2009. During the present study species of Protozoa, Rotifera, Copepoda, Cladocera and Ostracoda along with Sponges, Bryozoa, Nematodes and Insect larvae are recorded. This study will be helpful to understand the real picture of community structure of limnetic ecosystem.

**Keywords:** micro-invertebrates, Macrophytes, Community structure

### Introduction

The term aquatic macrophyte refers to macroscopic vegetation including macroalgae, mosses, ferns and angiosperms that grow in aquatic and wetland habitats (Kulstreshtra, 2005). The littoral region is often the most diverse part of the lake community, supporting variety of macrophytes, their associated micro flora and large number of animal species. Most ecological research has been focused on open water habitats rather than in the littoral zone of the lake. Littoral studies have been hampered by difficulties with quantitative sampling of the vegetation and sediment substrata (Lodge et al., 1988). Diversity is often high in the vegetative habitats as compared with pelagic (Pennek, 1966). Therefore analysis of community structure in the vegetation is indispensable for studies of the biodiversity of limnetic ecosystem (Masataka et al., 2002). This group is good biological indicator of water quality due to rapid responses for both exposure and recovery. The lake support an extensive macrophytes vegetation throughout the year and thus provides a variety of ecological niches of micro invertebrates. The peoples living on bank of lake use this water for irrigation, for cleaning pet animals and vehicles which add to the pollution load.

### Material and Methods

In this study, the macrophytes were collected for micro invertebrates of the Kagzipura Lake which is located between latitude 19° 57'N and longitude 75° 15'E near Kagzipura village about 20 Km from Aurangabad. The macrophytes were collected from two sites. Site I is located near to village and faces anthropogenic activities, site II were on opposite to I

and is mostly undisturbed. Various methods have been used for the collection of micro invertebrates in lake vegetation (Difonzo et al., 1988 and Whiteside et al., 1975). The picking up method developed by Masataka et al. (2002) was used in this study. In brief, the lake water was filtered with the help of 40µm mesh-net, to avoid contamination of Plankton. The filtered water is poured into about 1litre polythene bags. Macrophytes are cut with the help of scissors, picked up and placed in polythene bags. The twigs are primarily observed under dissecting microscope. After primary observation twigs and leaves were scret into water and immediately fixed with 4% formalin and stained with the help of Rose Bengal stain. Samples were observed under compound microscope for taxonomic identification.

### Result and Discussion

Micro invertebrates recorded during present study are recorded in table 1. Total 28 species of micro-invertebrates belonging to five groups were identified. Moreover it is well known that vegetated littoral habitats such as the Kagzipura Lake, in the present study are inhibited by diverse groups (Pennek, 1966). The group protozoa and rotifer is represented by five and twelve species respectively. The colonies of protozoa like *Stentor*, *Verticella* are observed on edges of dissected leaves of macrophytes while the colonies of rotifera on branching region of the macrophytes. In general, macrophytes with complex structure support the greater diversity of epiphytes because they offer large variety of microhabitats for colonization (Wallace, 1980, Duggan et al., 1998 and Arora et al., 2003). The macrophytes located on site II shows frequent

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colonization of protozoa and rotifera as compared to site I. The sessile rotifera are unable to tolerate stressed water (Datta et al., 1987 and Banik, 1996). The anthropogenic activities on site I may hamper the colonization of protozoa and rotifera.

Copepoda and cladocera are represented by four species each and recorded from both the sites. The ephippium of unidentified species of cladocera are recorded from site I, showing stressed water quality.

The ostracods are represented by three species only but are the most abundant in number as compare

to other groups. The ostracods feed on parts of plants (Lodge, 1991) or associated periphyton. The abundant ostracods may prevent algae blooms, thereby allowing submerged macrophytes to persist.

Apart from all identified micro invertebrates the other groups like coelenterates, Statoblast of Bryozoa, nematodes, annelids, Chironomus larvae and ephippium of Cladocera are also recorded but their identification is not conformed.

Table: 1 showing identified micro-invertebrates associated with macrophytes in littoral region of Kagzipura Lake.

Sr.	Group	Site I	Site II
1	Protozoa	<i>Euplotes Plumies</i> <i>Paramecium Spp.</i> <i>Stylonychia</i>	<i>Verticella campanula</i> <i>Stentor Spp.</i> <i>Euplotes Plumies</i> <i>Paramecium Spp.</i> <i>Stylonychia</i>
2	Rotifera	<i>Lepedella spp.</i> <i>Lecane Bulla</i> <i>Lecane spp.</i> <i>Monostyla</i> <i>Keretella trophica</i> <i>Brachionus forficula</i> <i>Brachionus calyciflorious</i> <i>Brachionus Quadridentatus</i>	<i>Filinia terminalis</i> <i>Lepedella spp.</i> <i>Lecane Bulla</i> <i>Lecane spp.</i> <i>Monostyla</i> <i>Testudinella</i> <i>Keretella trophica</i> <i>Brachionus forficula</i> <i>Brachionus calyciflorious</i> <i>Brachionus Quadridentatus</i>
3	Copepoda	<i>Calanoid Naplius</i> <i>Cyclopid Naplius</i> <i>Mesocyclop leuckart</i> <i>Spicodiantomus spp (male)</i>	<i>Calanoid Naplius</i> <i>Cyclopid Naplius</i> <i>Mesocyclop leuckart</i> <i>Spicodiantomus spp (male)</i>
4	Cladocera	<i>Daphnia carinuta</i> <i>Leydigia</i> <i>Macrothrix</i> <i>Alona spp.</i> <i>Moina spp.</i>	<i>Daphnia carinuta</i> <i>Leydigia</i> <i>Macrothrix</i> <i>Alona spp.</i> <i>Moina spp.</i>
5	Ostracoda	<i>Cypris</i> <i>Stenocypris malcamseni</i> <i>Centocypris</i>	<i>Cypris</i> <i>Stenocypris malcamseni</i> <i>Centocypris</i>

## References

- Arora et al (2003). Species diversity of Planktonic and Epiphytic rotifera in the Backwater of the Delhi segment of Yamuna River, with remarks on new Records from India, Zoological Studies 42(2):239-24.
- Banik S. (1996). New records of sessile rotifers from freshwater fishpond of Tripura-II, Proc. Indian Sci. Acad. B62 (2):111-116.
- Lodge D.M. (1991). Herbivory on freshwater macrophytes, Aquat. Bot. 41:195-224.

- Datta N.C. and Banik S. (1987). Periphytic community on Glass slides substrata in a freshwater lake in relation to abiotic factors. Proc. Indian Sci. Acad. B53: 245-247.

- Difonzo and Cambell (1988): Spacial partitioning of microhabitats in littoral cladoceran community. J. Freshwater Ecol. 4: 303-313.

- Duggan et al. (1998): Rotifera in relation to Littoral ecotone structure in Lake Rotomanuka, North Island, New Zealand. Hydrobiologia 387/388:179-197.

- Kulstreshtra S.K. (2005): Biodiversity of tropical ecosystem Anmol pub. New Delhi.
- Masataka et al. (2002): Methods for quantitative sampling of epiphytic micro-invertebrates in lake vegetation., *limnology*: 3 115-119.
- Natalia et al. (2006). Distribution of planktons freshwater
- Lodge et.al. (1988) spatial heterogeneity and habitat interactions in lake communities, cahter 12 in complex interactions in lake communities, carpenter. (ed.) Springer-verlag New York Inc.p181-208.
- Pennek PW (1966): Structure of Zooplankton population in littoral macrophytes zone of some Colorado lakes *Trans. Am. Microsc.sic.* 85:329-349.
- Whiteside and Williams (1975): A new sampling technique for aquatic ecologist. *Verein Limnol.*19: 1534-1539.
- Wallace R.L. (1980): Ecology of sessile rotifers *Hydrobiol.*73:181-193.