



STUDY OF QUALITATIVE DIVERSITY OF ROTIFER COMMUNITY OF FRESHWATER KATEPURNA RESERVOIR, DISTRICT AKOLA, MAHARASHTRA, INDIA

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Abstract:

The biodiversity of the rotifer fauna of Katepurna reservoir was studied by monthly sampling advocated from July 2013 to August 2015. Remarkably rich rotifer community consisting of 20 species. In the present study the total Rotifers are represented by 7 families including 2 sub-families and 9 genera consisting of 20 species was recorded.

Keywords: Rotifers, biodiversity, Katepurna reservoir, Trophic level.

Introduction:

Since late 1070's, studies of rotifer diversity attract attention worldwide. For evaluating environmental changes; understanding the functional properties of rotifer fauna are important (Bledzki and Elison, 2003). Rotifers address its ecological importance in aquatic environments, filtering suspended material of different sizes and advocate new methods to obtain their food, to classify as generalists or specialists (Sonia and Ramanibai, 2012). They play an important link in energy flow and nutrient cycling because of their high population renewal rates. Rotifera is one of the fascinating group of zooplankton on the aquatic ecosystem. Rotifers occur almost universally in freshwater habitat and make an important group of zooplankton community.

The rotifers are microscopic soft bodied freshwater invertebrates. Their distribution and ecology have interesting evolutionary implications (Krishnamoorthy and Sakhivel, 2007). Rotifers are remarkable indicators of trophic status of water body. The abundance of rotifers is more or less governed by interaction of number of physical and chemical and biological processes and is related to the suitable conditions for their survival in the water.

The present study concentrates on the biodiversity of rotifer fauna of Katepurna reservoir with reference to their role at trophic level.

Material and Methods:

Katepurna Reservoir: The Katepurna reservoir is the construction on the Katepurna which is originated from Kata village located near Washim City. The flowing direction of the Katepurna river is from South to North and longitude is 20-28'-30" whereas latitude is 77-09'-00". The area under investigation is a part of Purna river basin, of

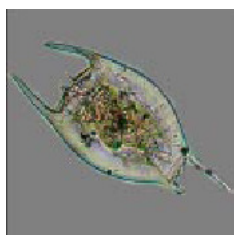
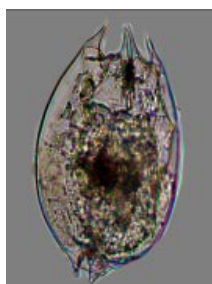
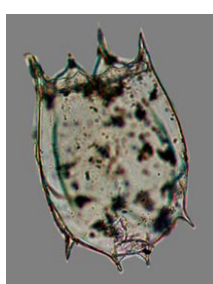
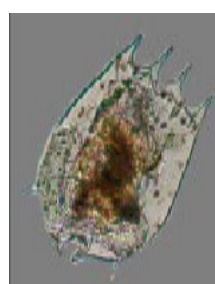
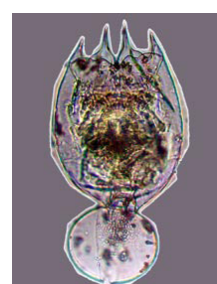
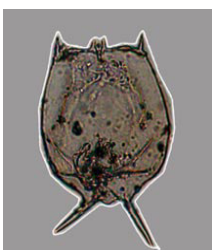
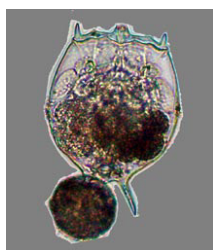
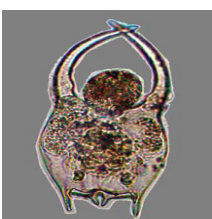
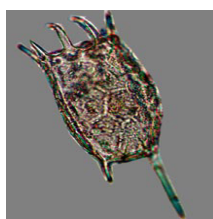
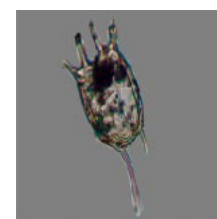
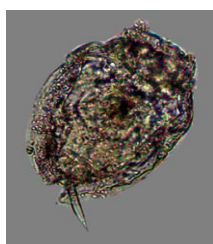
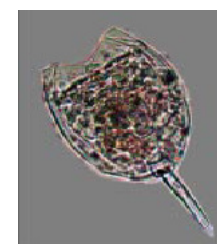
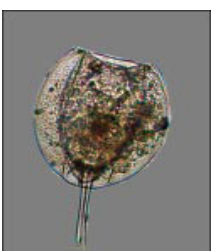
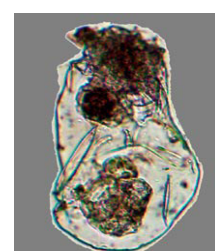
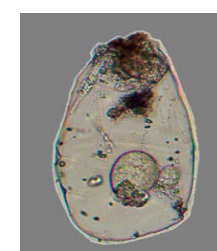
Which Katepurna river is one of the major tributaries, covering part of Washim and Akola dist.

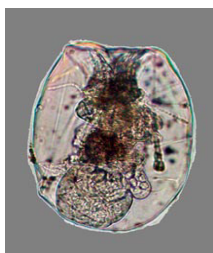
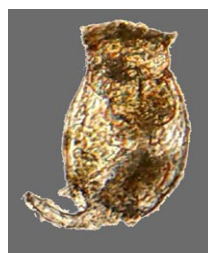
The Katepurna reservoir is a perennial reservoir, such reservoir contains water throughout the year. The main aim of the construction of Katepurna reservoir is to provide sufficient water for some purposes such as drinking, washing and fishing activities in relation to maintain the economical employment to the fisherman.

Monthly collection of zooplankton was carried out from four different sites of the reservoir by using the Nylon Plankton Net of mesh size 25 μ . To preserve the Qualitative samples, the samples were fixed by adding equal volume of hot water followed by 4% formalin, few drops of glycerin to keep the sample away from the evaporation. To avoid the clumping few drops detergent were added in these samples. The identification of the rotifer species were evaluated by using the literature of Dhanapati, 2000, Edmondson, (1959). Observation of rotifers was done under the Olympus Phase Contrast Microscope and Coslab digital camera DC 10+ was used for their photography.

Result and discussion:

In the present study the total Rotifers are represented by 7 families including 2 sub-families and 9 genera consisting of 20 species which are *Brachionus diversicornis*, *Brachionus falcatus*, *Brachionus caudatus*, *Brachionus forticula*, *Brachionus calyciflorus varhymani*, *Brachionus calyciflorus vardorcas*, *Keratella tropica*, *Keratella cochlearis*, *Keratella avalga*, *Colurella obtusa*, *Lecane cornuta*, *Lecane curvirostris*, *Lecane tessellata*, *Lecane pyriformes*, *Trichocerca rattus*, *Asplanchna priodonta*, *Asplanchna abrightwelli*, *Asplanchna sieboldi*, *Filinia opoliensis*, *Lindia intermedia*, *Pseudoembata acutipoda*, etc.

Fig. A- *Brachionus Diversicornis*Fig. B- *Brachionus diversicornis* with footFig. C- *Brachionus diversicornis* with foot and eggFig. D- *Brachionus calyciflorus v. dorcas*Fig. E- *Brachionus calyciflorus*Fig. F- *Brachionus calyciflorus*Fig. G- *Brachionus calyciflorus v. dorcas* with eggFig. H- *Brachionus caudatus*Fig. I- *Brachionus caudatus* with eggFig. J- *Brachionus fulcatus*Fig. K- *Brachionus forticula*Fig. L- *Brachionus forticula* with eggFig. M- *Keratella tropica*Fig. N- *Keratella cochlearis*Fig. O- *Keratella valga*Fig. P- *Colurella obtuse*Fig. Q- *Lecane pyriformes*Fig. R- *Lecane curvicornis*Fig. S- *Lecane cornuta*Fig. T- *Lecane Tessellata*Fig. U- *Trichocerca rattus*Fig. V- *Asplanchna brightwelli*Fig. W- *Asplanchna sieboldi*

Fig. X- *Asplanchna priodonta*Fig. Y- *Filinia opoliensis*Fig. Z- *Pseudoembata acutipoda*Fig. Z1- *Lindia selenura*

Filinia opoliensis was the species of rotifer which was observed only during the summer months of both years and the similar observations are given by Dede and Deshmukh (2015). *Filinia* has observed as most sensitive form and such observation was also opined by Palharya and Malviya (1988) during the study of Narmada river at Hoshangabad in Madhya Pradesh. In the present study the *Brachionus fulcatus* and *Keratella tropica* was found maximum during the month of November of both years. This observations favour with the work of Ghantaloo (2011).

In the present study the *Brachionus* and *Keratella* found as the dominant species of rotifera. According to Goel and Charan (1991) these are the pollution tolerant species and indicate accumulation of organic matter.

Asplanchna priodonta was absent in November month of both years and *keratella tropica* was absent in the month of December and in June during 2013-14 and in January and July of 2015, *Monostyla lunaris* was absent in August, September and October during the first year and in August and September of during second year, *Keratella valga* was found absent in June and July during first year 2014 and during second year in August 2014. *Keratella cochlearis* is marked as absent species during month of April, May, June and July of 2014 (first year) and July 2015(Second year), all these results are similar with the findings of Beraet al., (2014) During the study the *Trichocerca* species is mostly observed in rainy season. *Brachionus calyciflorus* and *Keratella tropica* were most dominant species in the alkaline water, this result agrees with the study of Halvorsen (2004) and Vasisht (1968).

Conclusion:

Brachionus calyciflorus species of rotifera is a indication of eutrophication. The rotifers performs a vital role at the trophic level of freshwater impoundments and serves as living capsules of eutrophication.

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