

# Diversity study of Rotifers with reference to biological monitoring of water quality From Ekruk Lake from Solapur, Maharashtra.

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**Abstract:** Present investigation focuses on rotifer species diversity of Ekruk tank, Solapur. Rotifer comprises one of the important biological components of freshwater resources. Rotifers act as biological indicators. Rotifer community is associated with overall health, trophic status and stability of aquatic habitat as rotifers easily adopts various biological and ecological circumstances. The present work was carried out on Ekruk Tank, which is a lentic freshwater ecosystem. During study period 16 species of rotifers belonging to 4 families from 3 orders are reported.

## INTRODUCTION

Rotifers are tiny, microscopic, and acts as one of the biological indicators act for eutrophication of various water resources. Eutrophication is the process characterized by excess growth of nutrients of water body. These passive swimmers are sensitive to any changes aquatic habitat where they live. Now a days unprecedented Industrialization, urbanization and recent development in agriculture lead to greater threat to natural resources including water habitats. Freshwater resources including rivers, streams, lakes and dams are getting severely polluted due to different human activities. Zooplanktons are very much sensitive to these rapid changes occurring surrounding them and especially rotifers quickly responds and adopts various ecological and biological circumstances. Bhandarkar (2015) highlighted importance of zooplankton population in the trophic dynamics of freshwater resource and underlined them as treasured bioindicators of to define trophic status of watery habitats. According to Pawar and Dhabade (2016) rotifers acts as living capsules of eutrophication occurring in trophic dynamics in aquatic habitats. Rotifers play important role due to their heterotrophic habit, helping in transfer of energy from producers to higher trophic levels in aquatic habitats therefore they acts as important constituent of secondary production. According to Dhanpati (2000) rotifers assimilate dissolved nutrient substance from surrounding water and feed on organic particulate matter They occupy wide ranges of different life forms such as pelagic, benthic and littoral area. Similar observation is noted down by Segars.(2008).

Martinez *et.al.*,(2016) stated that rotifers acts as attractive models for toxicity screening of chemicals and environmental samples with their effective role in aquatic food chain. They act as important objective for aquatic ecotoxicity for determination of effects of toxic compounds in organisms. According to them rotifers can modify their relative susceptibility to toxicants. Different aquaculture practises and their related technologies are focused to produce enormous quantities of rotifers as they act as food for economically important fishes. According to Ekhande *et.al* (2013) in general rotifer form dominant group in zooplankton community. Similar observations are reported by Deshkar and Patil *et.al.*(2013).

## MATERIALS AND METHODS

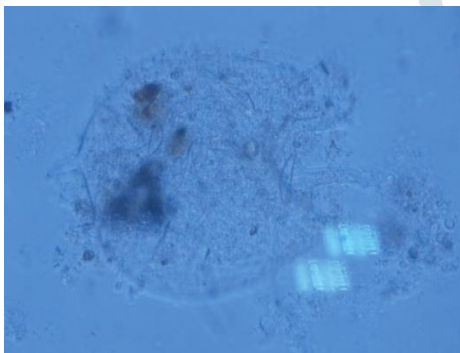
Ekruk Tank is situated 5 km away from Solapur City. After surveying the entire tank five study sites were selected and named as I to V. For analysis of rotifers samples were collected bimonthly during February 2011- March 2012. For study of rotifers samples were collected in early morning using silk bolten planktonic net. Samples were filtered at water surface level having minimum disturbance. The filtered water sample collected in 250 ml bottles and preserved in 4% formalin. Samples were labelled according respective study sites, date and month. For Identification of rotifers taxonomic keys are referred viz Edmondson (1959), Battish(1992), Dhanpati(2000).

## RESULTS AND DISCUSSION

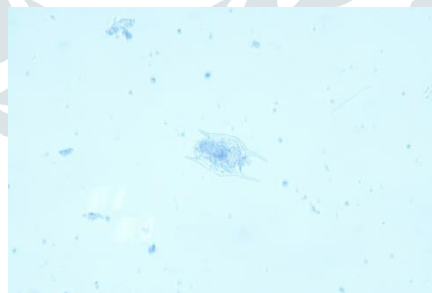
In present study 25 species of rotifers belonging to 6 families from 3 orders are recorded. The systematic list of rotifer species is given in Table 1.

## Systematic List of Rotifers recorded at Ekruk Lake

Sr. No.	Classification
	Phylum: Rotifera
	Subclass: Eurotatoria
	Superorder: Monogononta
	Order: Ploimida
	Family: Brachionidae
i	<i>Brachionus forticula</i>
ii	<i>Brachionus diversicornis</i>
iii	<i>Brachionus calyciflorus</i>
iv	<i>Brachionus angularis</i>
v	<i>Brachionus quadrientatus</i>
vi	<i>Brachionus falcatus</i>
vii	<i>Brachionus bidentata</i>
viii	<i>Brachionus caudatus</i>
ix	<i>Platius spp</i>
x	<i>Anuraeopsis fissa</i> Gosse, 1851
xi	<i>Filinia longiseta</i>
xii	<i>Keratella tropica</i>
xiii	<i>Keratella vulga</i>
ivx	<i>Keratella lorica</i>
	Family Trichocercidae
xv	<i>Trichocerca spp</i>
	Family: Lecanidae
xvi	<i>Lecane spp</i>
	Family: Asplanchnidae
xvii	<i>Asplanchna brightwelli</i> Goose



*Platius spp*



*Brachionus forticula*



### *Keratella tropica*

Somani *et al.*, (2012) studied occurrence of rotifers and its relation to water quality in lake Kacharali. In their study they observed 13 species of rotifer among which rotifer were mainly represented by *Branchionus* spp and *Keratella* spp. Similar results are observed during investigation. In present study family Branchionidae was dominant with 10 species followed by *Keratella* genus representing 2 species. According to Unni (1985) some species Branchionidae family are indicators of mesotrophic and eutrophic waters in several Central Indian waters. In present investigation genus *Asplanchna*, genus *Aneurosis*, *Filinia*, *Lecane* were rarest species reported during investigation. Manikandan (2016) studied zooplankton diversity and seasonal variation of three lakes in Coimbatore Tamil Nadu India. During their investigation total 30 genera of zooplanktons composed of 8 genera of Protozoa, 9 genera of rotifers, 7 genera belonging to cladocera and 6 genera of copepod in three lakes. According to them abundance of *Branchionus* spp and *Keratella* spp is an indication of alkalinity and organically reached conditions. Ruttner- Koliske (1947) observed that *Trichotria* species found to be an isolated migrant along water plants.

**CONCLUSION:** Rotifer constitutes dominant group during investigation. Rare occurrence of genus *Filinia* and *B.anbularis* indicates oligotrophic nature of this tank. The overall rich diversity of rotifers occurring in this tank might be due to rotifer's high tolerance to salinity, parthenogenic reproduction and ability to adopt and enriched easily lead to their overall rich diversity in present study. Overall in present investigation at Site I which is also known as Dhobi ghat rotifer species occurrence is predominate. Therefore it might be due activities are influencing overall occurrence in rotifer diversity.

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