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Diversity of rotifer fauna of Kolavoi Lake, Chingleput district, Tamil Nadu

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ABSTRACT:

The biodiversity of the rotifer fauna of Kolavoi Lake, Chingleput was studied through weekly sampling programme advocated from Jan 2010 to Nov 2010. Remarkably rich rotifer community consisting of 23 species was recorded including 3 species reported for the first time from Kolavoi Lake. *Brachionus forficula* and *Keratella vulga* were frequently occurred species. *Mytilina mucronata, Macrochaetus collinsi* and *Manfredium eudactylotum* are first time reported from this lake.

Keywords:
Rotifer fauna, Kolavoi Lake, *Mytilina, Macrochaetus* and *Manfredium*.

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INTRODUCTION:

Since late 1970's, studies of rotifer diversity attract attention worldwide (Dumont, 1980). For evaluating environmental changes; understanding the functional properties of rotifer fauna are important (Błędzki & Ellison, 2003).

Rotifers address its ecological importance in aquatic environments, filtering suspended material of different sizes and advocate new methods to obtain their food, help to classify them as generalists or specialists. They play an important link in energy flow and nutrient cycling because of their high population renewal rates (Esteves, 1998). Another salient feature is their high tolerance ability to face changes in the environmental conditions (Allan, 1976)

The present study concentrates on the biodiversity of rotifer fauna of Kolavoi Lake (Chingleput) with reference to their general nature and composition of toxocoenosis.

MATERIALS AND METHODS:

Kolavoi Lake:

Kolavoi Lake is situated in the Chingleput district, 58 Km away from the Chennai City. It is one of the largest lakes of Chingleput district, lake water has been used for agriculture, recreation and fishing activities. It is a perennial lake irrigating about 2000h area covering 12 nearby villages. The total capacity of the lake is 13.50 Mm^3. The water spread area is 8.82 Km^2, 3.3 Km long and 1.6 km wide mostly infested by the aquatic vegetation (Bharathi 2003) (**Fig 1 & 2**).

Samples were collected qualitatively from five locations (Thirivandraum gate, Chingleput railway station, Pulipakkam and Paranur (2 Locations) from Jan 2010 to Nov 2010. The samples consist of several horizontal hauls made using 53 µm and 120 µm plankton nets which were preserved in 4% formaldehyde solution. Specimens were sorted under dissection microscope, examined and drawn figure using Labomed Microscope.

RESULTS AND DISCUSSION:

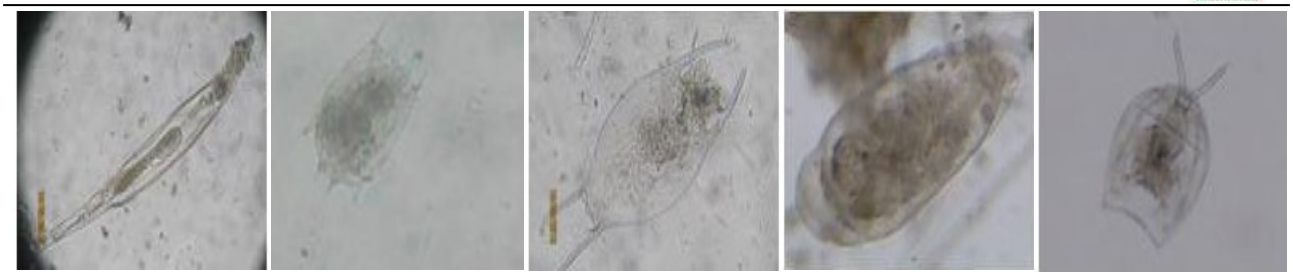
Twenty three species *Brachionus angularis, Brachionus calyciflorus, Brachionus diversicornis, Brachionus forficula, Cephalodella forficula, Euchlanis dilate, Filina terminalis, Filinia longiseta, Keratella vulga, Lecane depressa, Lecane hemata, Lecane luna, Lecane ohioensis, Lecane popouava, Manfredium eudactylotum, Marochaetus collinsi, Monostyla bulla Monostyla quadridentata, Mytilina mucronata, Plationus patulas, Platyas quadricornis, Rotatoria reptunia and Trichocerca kostei* were totally reported. Three of which *Manfredium eudactylotum, Marochaetus collinsi and Mytilina mucronata* are first reports from the Kolavoi Lake, Chenglepet from five locations studied (**Table 1**). *Macrochaetus collinsi, Manfredium eudactylotum* and *Mytilina mucronata* are widely distributed in the oriental region (**Fig.3**). *M. collinsi and M. eudactylotum* were reported earlier from tropical floodplain lakes of the Brahmaputra river basin, Assam (Sharma and Sumita Sharma, 2001).

Macrochaetus collinsi and *Manfredium eudactylotum* were primarily during the warmer months and are therefore designated as warm-stenothermal species (vide Koste, 1978) in the present study. *M.collinsi* was reported from north eastern USA bogs, North America also (Błędzki & Ellison, 2003).

Three individuals of *M. collinsi* were collected from Thirivandrum gate and Pulipakkam.

Figure 1: Satellite image showing Study area – Kolavoi Lake, Chingleput.

Figure: 2 Map showing study area – Kolavoi Lake, Chingleput.



A.Rotaria reptunia | *B. Brachionus calyciflorus* | *C. Brachionus diversicornis* | *D. Cephalodella forficula* | *E. Lecane popuava*

F. Monostyla uadridentata | *G. Platyas quadricornis* | *H. Mytilina mucronata* | *I. Lecane Luna* | *J. Macrochaetus collinsi*

Figure 3: Rotifer fauna present in Kolavoi Lake, Chingleput.

Table 1: List of Rotifera identified from Kolavoi Lake

S. No	ROTIFERS	L_1	L_2	L_3	L_4	L_5
1	*Brachionus angularis*	+	+	+	+	+
2	*Brachionus calyciflorus*	+	+	+	+	+
3	*Brachionus diversicornis*				+	+
4	*Brachionus forficula*		+	+	+	+
5	*Cephalodella forficula*		+			
6	*Euchlanis dilata*				+	
7	*Filina terminalis*				+	
8	*Filinia longiseta*		+	+	+	+
9	*Keratella vulga*			+	+	+
10	*Lecane depressa*	+				
11	*Lecane hemata*				+	
12	*Lecane luna*	+		+	+	
13	*Lecane ohioensis*	+		+		
14	*Lecane popouava*	+				
15	*Manfredium eudactylotum**	+				
16	*Marochaetus collinsi**	+		+		
17	*Monostyla bulla*	+				
18	*Monostyla quadridentata*			+	+	
19	*Mytilina mucronata**	+		+	+	
20	*Plationus patulas*				+	+
21	*Platyas quadricornis*	+				
22	*Rotatoria reptunia*				+	
23	*Trichocerca kostei*	+	+			
	Total Number of Species	**12**	**6**	**10**	**14**	**7**

Where,

- *** denotes first report from Kolavoi Lake**
- **L_1 - L_5 - Location of sampling sites.**

Four individuals of *Mytilina mucronata* were collected from Thirivandrum gate, Pulipakkam and Paranur. One individual of *Manfredium eudactylotum* was collected from thirivandrum gate.

Among about 22 species of the genus *Brachionus* was reported from the Indian waters (Sharma, 1996), only four species were observed from the Kolavoi lake. The relative paucity of brachionid species indicated the acidic nature of the Lake and re- affirms the findings of Fernando & Zankai (1981) and Sharma (1996).

Paranur station one contained the most diverse rotifer toxocoenosis (14 species) followed by Thirivandrum gate (12 species) & Pulipakkam (10 species) and Paranur station two (7 Species) finally the Chingleput railway station nearby area (6 Species) respectively.

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