

POPULATION DYNAMICS OF ROTIFERS IN SAWANA RESERVOIR, MAHARASHTRA



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Rotifera is one of the fascinating group of zooplankton in the aquatic ecosystem. They occur almost universally in freshwater habitat and make an important group of zooplankton community. Rotifers or “Wheel animalcules” as are commonly referred to, are of vital significance in determining the trophic status of a water body. They constitute an important link in micro food chains operating within the aquatic medium thus, acting as energy transducers. They provide for fishes in fresh water ponds lakes and play a major role in fish production. According to Hutchinson (1967) rotifers are the most important soft-bodied invertebrates. Several studies have been made pertaining to ecology of rotifers in different water bodies of Indian subcontinent by Anderson (1889), Edmondson and Hutchinson (1934), Dhanapathi (1974), Chandrasekhar & Kodarkar (1995), Pradhan and Chakrabarty (2006). However, most of the studies are from Northern and Southern parts of India and relatively less work has been done on the rotifers fauna from Maharashtra located in the central part of India.

Among aquatic habitat relatively less work is done on zooplankton in general and rotifers in particular from lakes in the Hingoli district of Maharashtra. In the present investigation, an attempt has been made to enlist and study seasonal fluctuations in rotifer populations in Sawana reservoir.

Material and Methods: The present study was conducted for a period of one year from February, 2005 to January, 2006 at three study stations carved along reservoir area (19°-54'-0" Latitude, 77°-4'-0" Longitude) and sampling was done on monthly basis. The planktons were collected with the help of plankton net of bolting silk No.25 (mesh size 0.03-0.04 mm) by filtering 100 liters of water by a plastic bucket of 20 liters capacity. Finally, the volume of sample was adjusted to 30 ml in a tube and preserved by adding

5% formalin. The preserved samples were then brought for taxonomic studies to the laboratory and analyzed under microscope and were identified following Edmondson (1959), Pennak (1968) and Adoni (1985).

Results and Discussion: Rotifers in Sawana reservoir were represented by 15 species viz., *Brachionus falcatus*, *B. caudatus*, *B. rubens*, *B. bidentata*, *B. angularis*, *Asplanchna* sps., *Keratella quadrata*, *K. tropica*, *K. vulga*, *Filinia longiseta*, *Lecane bidentata*, *L. depressa*, *Lepadella ovalis*, *L. patella* and *Monostyla lunaris* belonging to 7 different genera (Table 1). The important feature recorded during present investigation was absence of *Brachionus rubens* and *Filinia longiseta* at station A, *Brachionus bidentata*, *Lecane bidentata* and *L. depressa* at station B and *Brachionus bidentata* at station C (Table 1). The monthly variation of rotifers in Sawana reservoir has been illustrated in Table 2 reveals that different species were appeared at different time in a year and their abundance varied with season. Similar findings have also been made in earlier studies by Wetzel (1975) and Dalpatia (1998). Table 2 revealed that quantitatively rotifers acquired peak during January, February and March and during monsoon their population falls considerably and the reasons influencing this change could be dilution through the influx of rain water from catchment area, turbulence of water which resulted in their settlement to bottom and adherence to vegetation. Similar trend was also observed by Michael (1969) and Nasar & Munshi (1975). Simultaneous occurrence of four species of genus *Brachionus falcatus*, *B. caudatus*, *B. rubens*, *B. angularis* was also reported. Thus present observation therefore supported the view point of Mandal (1979) and Dalpatia (1998) who maintained that more than two species of a genus of rotifers may exist simultaneously. The generalization

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by Pennak (1957) and Jyoti and Sehgal (1979) that no more than two species of a rotifer genus appears simultaneously in a water body was found against the observation in the present case. During the study

period, highest population density of rotifera were recorded in the month of March and total absence of rotiferan population was in the month of May, July and August (Table 3).

Table 1 List of Rotifers identified from the three study stations during Feb. 2005 to Jan. 2006.

No.	Name of species	Station - A	Station - B	Station - C
1	<i>Brachionus falcatus</i>	+	+	+
2	<i>Brachionus caudatus</i>	+	+	+
3	<i>Brachionus rubens</i>	-	+	+
4	<i>Brachionus bidentata</i>	+	-	-
5	<i>Brachionus angularis</i>	+	+	+
6	<i>Asplanchna</i> sps.	+	+	+
7	<i>Keratella quadrata</i>	+	+	+
8	<i>Keratella tropica</i>	+	+	+
9	<i>Keratella vulga</i>	+	+	+
10	<i>Filinia longiseta</i>	-	+	+
11	<i>Lecane bidentata</i>	+	-	+
12	<i>Lecane depressa</i>	+	+	+
13	<i>Lepadella ovalis</i>	+	+	+
14	<i>Lepadella patella</i>	+	+	+
15	<i>Monostyla lunaris</i>	+	+	+

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Table 2. Seasonal variations in Rotifers in Sawana reservoir during Feb. 2005 to Jan.2006.

Months	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Total
Rotifers													
<i>Brachionus falcatus</i>	52	10	-	-	1	-	-	-	90	5	-	-	158
<i>Brachionus caudatus</i>	-	7	-	-	-	-	-	4	28	8	-	-	47
<i>Brachionus rubens</i>	-	-	-	-	7	-	-	-	1	2	-	-	10
<i>Brachionus bidentata</i>	-	2	-	-	-	-	-	-	-	-	-	-	2
<i>Brachionus angularis</i>	-	2	-	-	5	-	-	-	4	10	12	85	118
<i>Asplanchna</i> sps.	110	200	-	-	2	-	-	-	-	-	4	30	346
<i>Keratella quadrata</i>	70	80	-	-	-	-	-	-	-	2	-	4	156
<i>Keratella tropica</i>	20	30	2	-	1	-	-	-	-	1	-	-	54
<i>Keratella Vulga</i>	4	20	4	-	-	-	-	-	-	2	-	-	30
<i>Filinia longiseta</i>	5	3	-	-	-	-	-	-	-	-	-	-	8
<i>Lecane bidentata</i>	-	5	10	-	-	-	-	-	10	-	3	-	28
<i>Lecane depressa</i>	-	-	-	-	2	-	-	-	4	-	-	-	6
<i>Lepadella ovalis</i>	-	-	-	-	-	-	-	-	-	4	-	-	4
<i>Lepadella patella</i>	-	-	-	-	-	-	-	-	34	10	-	-	44
<i>Monostyla lunaris</i>	-	-	-	-	-	-	-	-	-	-	60	70	130
Total	261	359	16	-	18	-	-	4	171	44	79	189	1141

Table 3. The different peaks of Rotifers during Feb. 2005 to Jan. 2006.

Months	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Total
Rotifers	261	359	16	-	18	-	-	4	171	44	79	189	1141

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