

## Status of Rotifers and Copepods in high altitude pond Sarkoot located in district Kishtwar of J&K

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### ABSTRACT

The high altitude Sarkoot pond located at Kishtwar (33° 0' – 34° 0' N latitude and 75° 0' – 76° 45' E longitude) at an altitude of 5300 ft. and having a maximum depth of 12 feet with its present expanse of 37.33 kanals is presently being put to the illogical and undesired use. The pond being rich source of zooplanktons can hold a variety of fishes but due to its unfavourable physico-chemical conditions remains unexploited scientifically.

**Key words :** Rotifer and Copepod fauna, Population dynamics and Sarkoot Pond.

### INTRODUCTION

Sarkoot pond is situated in highly mountainous area in district Kishtwar of J&K state. The pond being picturesque can be developed as a tourist spot once restored with its pristine beauty, its water quality improved and fish cultured and introduced for sport. This pond has the potential of being a good source of fishes as it contains a healthy amount of zooplanktons like rotifers and copepods. Both rotifers and copepods are well recognized secondary consumers and an important source of food for fishes and also act as an indicator of trophic status besides water quality of an aquatic ecosystem.

### MATERIAL AND METHOD

The present study was conducted for period of one year from March (2002) to February (2003). Plankton sample were collected every month from Sarkoot pond (natural earthen pond) located at Kishtwar of J&K state. The three study station (Station I, Station II and Station III) were established along the pond circumference. Each Sample was collected by filtering 50L of water through plankton net. Filtrate was collected in 20ml plastic bottle and 5% formalin was added to preserve the sample for

further studies in the laboratory. Plankton species belonging to rotifera and copepoda were identified with the help of standard literature (Edmondson, 1959; Pennak, 1968; Adoni, 1985).

### RESULTS AND DISCUSSIONS

Rotifers in Sarkoot pond are represented by fourteen species viz., *Brachionus bidentata*, *B. rubens*, *B. Calyciflorus*, *B. patulus*, *B. quadridentata*, *Asplanchna* sps., *Filinia longiseta*, *Testidunella* sps., *Keratella tropica*, *Lepedella* sps., *Mytilina ventralis*, *Monostyla bulla*, *Lecane quadridentata*, *Philodina* sps. whereas Copepods were represented by five species viz., *Cyclops* sps., *Nauplius*, *Mesocyclops leuckarti*, *M. hyalinus*, *Diaptomus* sps.

The dominance of rotifers over other groups has also been reported by Sewell (1934); Alikunhi (1957); Michael (1968); Jindal and Vashisht (1985) and Kumar (1990).

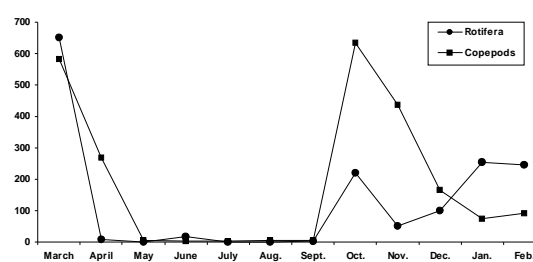
According to George (1966), the abundance of rotifers followed by other groups like Cladocera and Copepoda is an indicator of entrophic nature of water body. Qualitative predominance of rotifers has also been observed in high altitude water bodies of Kashmir by Zutshi *et al.*, (1980), Zutshi

and Vass (1982) and Yousuf *et al.*, (1986). The dominance of rotifers is thus linked with rich benthos and phytoplankton which characters holds true for present pond where sewage of the entire town is flushed in and it stays there for natural putrification.

The rotifers shows their seasonal presence and they are totally absent in the month of May, July and August. On the other hand Copepods shows their perennial presence in this pond Table 1. Similar planktonic presence of various zooplanktonic groups has also been reported earlier by Schonborn (1962), Jyoti and Sehgal (1980), Zutshi and Vass (1982) and Yousuf *et al.*, (1984, 1986). A look at the Table 2 also reveals that quantitatively rotifers acquire peak during January, February and March and the spurt in population is because of the addition of new class being produced through successive reproductive ability of plankton. On the other hand copepods, acquire two distinct population peaks during March-April and October – November. Smith *et al.* (1979), Nayak (1986) and Gochait and Nayak (1990) also reported such bimodal peaks in different aquatic habitats.

Such rich amount and quality of rotifers and copepods found in this pond are enough to support a variety of organisms if present there. The bottom of Sarkoot pond also comprises annelids and arthropods which on the other hand can also support a variety of fishes.

Presence of healthy total population of zooplanktons like rotifers and Copepods in Sarkoot pond, therefore suggests that pond can meet the needs of varieties of fish (fin or shell fish) that depends on zooplankton as their food.



**Fig. 1: Showing different peaks of Rotifera and Copepods from March 2002-February 2003**

**Table 1: List of rotifers and copepod species identified from the three study stations during March 2002 to February 2003**

Rotifera	Station I	Station II	Station III
<i>Brachionus bidentata</i>	+	+	+
<i>B. rubens</i>	+	+	+
<i>B. calyciflorus</i>	-	+	+
<i>B. patulus</i>	+	-	-
<i>B. quadridentata</i>	+	+	+
<i>Asplanchna</i> sps.	+	+	+
<i>Filinia longiseta</i>	+	+	+
<i>Testudinella</i> sps.	+	+	+
<i>Keratella tropica</i>	-	+	+
<i>Lepidella</i> sps.	+	-	+
<i>Mytilina ventralis</i>	+	-	+
<i>Monstyla bulla</i>	+	+	+
<i>Lecane quadridentata</i>	+	+	+
<i>Philodina</i> sps.	+	+	+
COPEPODA	-	-	-
<i>Cyclops</i> sps.	+	+	+
<i>Nauplius</i>	+	+	+
<i>Mesocyclops leuckarti</i>	+	+	+
<i>M. hyalinus</i>	+	+	+
<i>Diaptomus</i>	-	+	+

Table 2 : Seasonal variation in Rotifera and Copepoda in Sarkoot pond (Kishtwar) from March (2002) to February (2003)

Months	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total No.
<b>Rotifera</b>													
<i>Brachionus bidentata</i>	18	-	-	1	-	-	-	133	9	-	-	72	233
<i>B. rubens</i>	11	-	-	-	-	-	2	32	10	-	-	-	55
<i>B. calyciflorus</i>	-	-	-	9	-	-	-	1	3	-	-	-	13
<i>B. patulus</i>	3	-	-	-	-	-	-	-	-	-	-	-	3
<i>B. quadridentata</i>	3	-	-	2	-	-	-	4	12	14	115	-	150
<i>Asplanchna</i> sps.	424	-	-	3	-	-	-	-	-	4	33	135	599
<i>Filinia longiseta</i>	125	-	-	-	-	-	-	-	1	-	3	3	132
<i>Testidunella</i> sps.	32	4	-	-	-	-	-	-	1	-	-	3	40
<i>Keratella tropica</i>	2	-	-	-	-	-	-	-	-	-	-	7	9
<i>Lepidella</i> sps.	-	6	-	-	-	-	-	12	-	3	-	-	21
<i>Mytilina ventralis</i>	-	-	-	3	-	-	-	2	-	-	-	-	5
<i>Monstyla bulla</i>	-	-	-	-	-	-	-	-	3	-	-	-	3
<i>Lecane quadridentata</i>	-	-	-	-	-	-	-	38	12	-	-	-	50
<i>Philodina</i> sps.	-	-	-	-	-	-	-	-	-	70	102	-	172
Total	618	10	-	18	-	-	2	222	51	91	253	220	1485
<b>COPEPODA</b>													
<i>Cyclops</i> sps.	274	73	2	-	-	2	3	589	273	98	37	58	1409
<i>Nauplius</i>	260	154	2	4	2	3	3	43	122	30	32	30	685
<i>Mesocyclops leuckarti</i>	40	32	1	-	-	-	1	1	37	39	5	4	160
<i>M. hyalinus</i>	-	3	-	-	-	-	-	-	5	-	-	-	8
<i>Diaptomus</i>	10	2	-	-	-	-	-	-	-	-	-	-	12
Total	584	264	5	4	2	5	7	633	437	167	74	92	2274

**Table 3 : Showing different peaks of Zooplankton from March (2002) to February (2003)**

	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Rotifera	618	10	-	18	-	-	2	222	51	91	253	220
Copepods	584	269	5	4	2	5	7	633	437	167	74	92

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