



Zooplankton Diversity in Ramkund of Godavari River, Nashik District, Maharashtra

KEYWORDS

Zooplankton, Ramkund, Rotifera

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ABSTRACT Zooplankton is an important aquatic organism occurring abundantly in all types of aquatic habitats, they play a vital role in energy transfer in an aquatic ecosystem. The aim of present study is to know the diversity of Zooplankton groups found in Ramkund of Godavari River, Nashik District, Maharashtra. In the present study 32 species of zooplankton were identified. The results of present investigation reveal that Rotifera dominated in the water bodies of Ramkund.

INTRODUCTION

Zooplankton groups are a characteristic indicator of water quality, eutrophication and pollution levels, and are an important source of food chain (Sharma, 1983; Saksena, 1987). Zooplankton plays an important role in the food chain of fish as animal food, which supply amino acids, fatty acids, vitamins, minerals, etc. (Watanabe et al., 1983). Several workers such as Baburao et al., (1981), Beenamma and Yamakanamardi (2010), Kudari and Kanamadi (2006, 2008), Rajashekhar et al., (2009, 2010), Chhatopadhyay and Barik (2009), Sawane et al., (2009) and Vanjare et al., (2010) have reported on different aspects of zooplankton inhabiting Indian fresh waters.

The aim of present study is to know the diversity of zooplankton groups in Ramkund of Godavari River in Nashik city during April 2012 to March 2013.

MATERIALS AND METHODS

Zooplanktonic samples were collected at monthly intervals from April 2012 to March 2013 and were preserved in 5% Formalin. The systematic identification of zooplankton was done with the help of Standard text (Battish, 1992). The numerical estimate of zooplankton was made by Sedgewick Rafter cell and expressed in number per litre.

RESULTS AND DISCUSSION

During present investigation zooplankton community was mainly represented by following four groups: Rotifera, Cladocera, Copepoda and Ostracoda. Rotifera and Cladocera were represented by 11 and 9 species respectively, while Copepoda and Ostracoda were represented by 8 and 4 species respectively. The group wise species recorded in the Ramkund of Godavari River are shown in Table 1.

Table 1 Zooplankton diversity in Ramkund of Godavari River, Nashik

Rotifera	Branchionus caudatus, Branchionus calciflorus, Branchionus angularis, Branchionus urceolaris, Euchianis dilate, Keratella cochlearis, Keratella valga, Notholca laurentiae, Platylabus patulus, Trichocera longiseta, Filinia longiseta.
Cladocera	Pleuroxus striatus, Polyphomus pediculus, Ilyocryptus spp., Daphnia numholtzi, Daphnia magna, Daphnia ambigua, Daphnia retrocurva, Alona setulosa, Eubosmina coregoni.

Copepoda	Microcyclops varicans, Cyclopoid nauplis, Cyclops viridis, Moina macrocopa, Macrocyclus fuscus, Osphranticum labronectum, Acanthocyclops rubustus, Phyllodiaptomus annae.
Ostracoda	Cypris obensa, Stenocypris archoplites, Cyclopris globosa, Candocypris osborni.

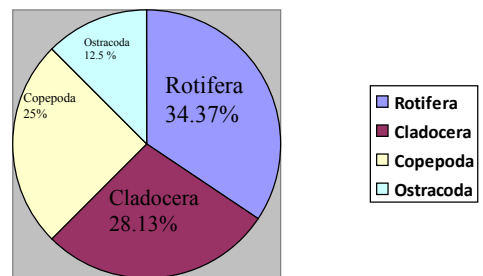


Figure 1: Percentage composition of Zooplankton groups

- Wani (1998) reported dominance of rotifera in water bodies of Kashmir.
- Siddiqui and Khan (2002) identified 41 species of zooplankton, which included 19 species of rotifers, 11 of cladocera, 7 of copepod and 4 of ostracoda.
- Pawar et al., (2009) recorded 26 species of zooplankton consisting 7 species of cladocera, 5 of copepod, 11 of rotifer and 3 of ostracoda.
- Rajashekhar et al., (2009) recorded 29 species of zooplankton from three fresh water lakes of Gulbarga district, Karnataka.
- Rajagopal et al., (2010) reported 24 rotifers, 9 copepods, 8 cladocerans, 4 ostracods and 2 protozoans from three perennial ponds of Virudhunagar district of Tamil Nadu.

During present investigation zooplankton community was mainly represented by the groups – **Rotifers 11, Cladocerans 9, Copepods 8 and Ostracoda 4**. During summer season a higher population of zooplankton was recorded. All groups of zooplankton showed maxima in summer and minima in winter. These findings are in accordance with Sakhare and Joshi (2006/2007). In Narmada River, zooplankton density exhibited a single peak during summer season (Sharma et al., 2010).

Rotifers were represented by 11 species. The *Branchionus caudatus* accounted in 10 months, *Keratella valga* for 4 months and *Trichocera longiseta* for one month only.

Cladocerans were represented by 9 species. The species *Daphnia ambigua* and *Eubosmina coregoni* were recorded in 11 months, while *Alona setulosa* was accounted for 9 months only.

Copepods were represented by 8 species. The species *Cyclops viridis* and *Moina macrocopa* were present throughout the investigation, while *Phyllodiaptomus annae* was recorded only during summer months.

Ostracoda was represented by 4 species. The species *Cypris obensa* was recorded for 11 months, *Cyclopris globosa* for 7 months and *Candocypris osborni* for 9 months only.

Table 2 Composition of Rotifera (density: organisms/litre)

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
<i>Branchionus audatus</i>	40	35	22	15	15	12	-	-	15	10	5	10
<i>Keratella valga</i>	20	18	15	12	-	-	-	-	-	-	-	-
<i>Trichocera longiseta</i>	-	10	-	-	-	-	-	-	-	-	-	-

Table 3 Composition of Cladocera (density: organisms/litre)

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
<i>Daphnia ambigua</i>	31	30	25	23	18	20	25	-	15	10	5	15
<i>Eubosmina coregoni</i>	32	45	30	28	24	30	26	18	-	5	5	20
<i>Alona setulosa</i>	54	45	42	25	20	15	-	-	-	19	15	24

Table 4 Composition of Copepoda (density: organisms/litre)

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
<i>Cyclops viridis</i>	30	24	15	10	5	5	15	10	5	10	30	25
<i>Moina macrocopa</i>	25	30	28	15	20	10	20	5	10	18	30	28
<i>Phyllodiaptomus annae</i>	18	30	-	-	-	-	-	-	-	-	16	20

Table 5 Composition of Ostracoda (density: organisms/litre)

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
<i>Cypris obensa</i>	30	20	15	10	14	20	-	5	10	14	18	25
<i>Cyclopris globosa</i>	20	15	15	15	25	14	-	-	-	-	-	19
<i>Candocypris osborni</i>	26	20	14	15	20	18	5	-	-	-	10	22

CONCLUSION

The present study reveals that the diversified Rotifer fauna of Ramkund water can be linked to favourable conditions and availability of abundant food in the form of bacteria, nano-plankton and suspended detritus in the water of Ramkund.

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