Diversity of Zoolplankton in Dina River Near Mulchera Tehasil, Dist. Gadchiroli. (M.S.), India

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Abstract: Dina river is the main tributary. The Indravati river enter in Maharashtra near kowande village of Bhamaragad Tehsil in the district Gadchiroli. Its latitude 19^0 28' 24" N and longitude 79^0 57' 10" E. The Study of zooplankton diversity were carried out in Dina River at Mulchera tehasil in Gadchiroli district of Maharashtra state during season like Summer, winter and Monsoon in the year2017-2018. The zooplankton diversity of Dina River system is represented by following groups-Protozoa, Rotifera, Cladocera, Copepoda and Ostracoda. In all three different seasons,28 species of zoolplanktons were investigated in the Dina river at Mulchera area. Maximum zooplankton forms are reported in winter season and minimum species occur in monsoon season. All species occur only in winter season due to low water temperature and some species are found in rainy and summer seasons only.

Keywords: Biodiversity, Dina River, Mulchera, Zooplankton.

INTRODUCTION

Water is anmajor part for all living organisms and aquatic fauna. The freshwater ecosystems included pond, lake, river and dams which conserve the nature and other living organisms. Aquatic ecosystems are known to support a wide range of living organisms. Among these zooplankton are the free floating and microscopic animals found in aquatic ecosystem. The zooplankton are important link for fishes as they are used as source of food for life, Pimpalshende and sitre (2018). The zooplankton are broadly classified in various groups as Protozoa, Cladocera, Copepoda, Rotifera and Ostracoda. Many Researchers have studied various aspects of the zooplanktons of water bodies both in India and abroad. Zooplankton are playing important role in biomonitoring of water pollution.

In India and other than India studied on riverine zooplankton are undertaken by investigators like Altaff, K. (2004), Basu, B.K., and Pick F.R.(1996), Battish, S.K.(1992), Dutta, et. al (2010), Mahor,R.K.(2011), Pace, M.L.et.al (1992),Pawar S.(2015), Sarwade, A.B &Kamble, N.A.(2014), Raghunathan, S.V.(1983) and many more were studied.

As no previous studies were observed on Dina river of ecologically important, it has been investigated by us. Zooplankton communities were study on Dina river in Mulchera site of Gadchiroli district during three seasons. Most of the zooplankton communities are found in winter seasons. Zooplankton species groupwise divided and represented in table.

MATERIALS AND METHODS

Study Area:

Dina river is the main tributary. The Indravati river enter in Maharashtra near kowande village of Bhamaragad Tehsil in the district Gadchiroli. Its latitude 19^0 28' 24" N and longitude $79^0$57' 10" E. The study area near Mulchera tehsil of Mulchera consist of various types of zoolplanktons species were found.

Zooplankton Sample Collection and Analysis:

Samples were collected in Summer, winter and monsoon seasons from the selected sampling siteon downstream water flow. The collection of zooplankton sample was done by filtering 50Litre of water through silk bolting cloth net no. 25 (Mesh size 64µ). Samples were preserved by adding 40 % formaline which maintains the structure of animals and also helpful for settling the forms. The identification of zooplankton was done by standard literature (Edmondson, 1963; Battish, 1992; and Tonapi, 1980).

RESULTS AND DISCUSSION

The zooplankton species as important aquatic organisms which play a important role in energy transfer in aquatic ecosystems (Altaff, 2004). The major group of zooplankton observed during the present study were protozoa, Rotifera, Cladocera, Copepoda, Ostracoda and Nematoda. The protozoans are the smallest of aquatic organisms in

the zooplankton communities. The rotifers are tiny wheel animals considered as natural water purifiers as they perform clean up services in slow moving aquatic environments. In the present study group rotifer was represented by *Rotaria Neptunia, Trichocera longiseta, Polyarthra vulgaris, Lecane leontiana, Lecane curvicorins, Lecane quadridentate, Lecane bulla, Brachionus angularis, Branchionus calyciflorus, Brachionus diversicornis, Branchionus quadrientatus, Keratella tropica and filinia opoliensis,* etc. Protozoa were represented by *Bursaria, Paramoecium caudatum, Stentorspp, Vorticellaspp,*. Copepoda by *Pseudodiaptomus Speciosus, Pseudodiaptomus trihanmatus, Tropodiaptomus vicinus, Neodiaptomus yangtsekiangensis and Mesocyclops leuckarti,* while Cladocera *by Bosmina longirostris, Diaphanosoma sarsi, Macothrix spinosa, Moina macrocopa and Daphnia spp.* and Ostracoda by *Stenocypris* sp.

Rotifers species were the dominant group with 13 different species and some indicate pollution status of water. Proptozoa group are represented by 4 species and similar observations are reported by Sharma(2009). Rotifers group of genus *Brachionus* and *Keratella* are abundant in the water of Dina river in Mulchera. Their occurrence in eutrophic waters was well documented (Sarwade and Kamble, 2014). The species composition and species diversity of them also points out towards the polluted nature of water. These findings will help in the future studies for biomonitoring of this river ecosystem. Similar observations were reported by Sarawde and Kamble (2014) in Krishna river in Sangli, Maharashtra. Cladocerans are represented by 5species. Similar observations are made by Dutta and Verma (2010) in river Chenab, 7 species from Tungabhadra river by Suresh *et al*., (2009), whereas Kamble *et al* (2013) documented 4 species of clacoderans from Krishna river ghat at Miraj. Also Green *et al* (2005) reported 5 species of Cladocerans in their study.

Zooplankton communities of Cladocera, Copepoda, Rotifera and Ostracoda are most important in terms of population density, grazing, production of biomass and the nutrient regeneration in all the aquatic ecosystems. The presence of indicator forms of organic enrichment points out towards organic pollution in the Dina river downstream as evident by presence of indicator species. In all 28 different zooplankton species are found in the river stretch in up and downstream in our investigation. Maximum forms are reported in polluted and stagnant water downstream near bridge due to organic pollution of man made origin caused by dumping and decomposition of nirmalya and other offerings.

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Table: Zooplankton species occur in Dina River at Mulchera area.

Sr.No	Name of Species	Summer	Monsoon	Winter
Rotifera				
1	*Rotaria Neptunia*	+	+	+
2	*Trichocera longiseta*	+	+	+
3	*Polyarthra vulgaris*	+	+	+
4	*Lecane leontiana*	+	+	+
5	*Lecane curvicorins*	+	+	+
6	*Lecane quadridentate*	+	-	+
7	*Lecane bulla bulla*	-	+	+
8	*Brachionus angularis*	+	+	+
9	*Brachionus calyciflorus*	+	+	+
10	*Brachionus diversicornis*	+	-	+
11	*Brachinonus quadridentatus*	+	+	+
12	*Keratella tropica*	+	-	+
13	*Filinia opoliensis*	-	+	+
	Total=13			
Copepoda				

1	*Pseudodiaptomus trihanmatus*	+	+	+
2	*Pseudodiaptomus Speciosus*	+	+	+
3	*Tropodiaptomus vicinus*	+	+	+
4	*Neodiaptomus yangtsekiangensis*	-	+	-
5	*Mesocyclops leuckarti*	+	+	+
	Total=05	+	-	-
Cladocera				
1	*Bosmina longirostris*	+	+	+
2	*Diaphanosoma sarsi*	+	+	+
3	*Macothrix spinosa*	-	-	-
4	*Moina macrocopa*	+	+	+
5	*Daphnia sps.*	+	-	+
	Total=05	+	+	+
Ostracoda				
1	*Stenocypris sps..*	+	-	-
	Total=01			
Protozoa				
1	*Bursaria sps.*	+	+	+
2	*Paramoeciumcaudatum*	+	+	+
3	*Stentor sps.*	+	+	+
4	*Vorticella sps.*	+	+	+
	Total =04			

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