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ZOOLOGY

STUDY OF ZOOPLANKTON DIVERSITY OF NIRA LEFT BANK CANAL SHARDANAGAR TAL BARAMATI DIST PUNE WITH REFERENCE TO PHYSICO CHEMICAL PARAMETERS

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Abstract

Zooplankton is free swimming microscopic animals. They play important role as a food for aquatic fauna. We may even consider them as the most numerous animals on earth. They play an integral role in transfer of energy to the consumers hence they form the second tropic level in the energy flow. Detailed studies of Zooplankton diversity have been made on Nira left bank canal of Shardanagar Baramati District Pune. The water samples were collected monthly from two different sites and studied for Zooplankton diversity. During the study, atmospheric temperature, water temperature, pH & dissolved oxygen were recorded. A total 25 species have been found of which Rotifer 10 species, Cladocera 8 species, Copepoda 5 species, Ostracoda 2 species have been found. The season wise analysis showed that average water temperature in the canal was maximum during summer, comparatively less during monsoon and least during winter. The pattern of fluctuation is similar with that of atmospheric temperature. The minimum Dissolved oxygen was recorded during summer and maximum during monsoon. In the present investigation species diversity of Zooplankton was recorded in Nira left Bank canal. The present study revealed that it is good source for pisiculture.

Keywords: Zooplankton, Diversity, pH, Water temperature, Dissolved Oxygen.

Introduction

Water is precious commodity for survival. Hydrobiology is the study of fresh water which is contends with continental boundaries (Goldman & Har ne 1983).

Zooplankton provides the main food item of fishes and can be used as indicators of the tropic status of water body (Varma & Munshi 1987). Zooplankton is most important unit of the water body because they acquire important position in the tropic structure of the ecosystem. The Zooplankton plays an important role in the early detection and monitoring the pollution of water. Thus in the present Investigation an attempt has been made to evaluate the imp physico-chemical and biological parameter of Nira left bank canal Baramati region which flows through Shardanagar.

Topography of area

Nira left bank canal is built up during the year 1882. It has been built from the veer dam and flows through the Purandar, Baramati & Indapur region covering large area of irrigation. It ends in Shetfal it lies at latitude18° 08' 02.28" north and longitude 74° 32' 02.02" east. So far no study has been done on Zooplankton diversity of Nira left bank canal of Baramati region so far.

Material and Methods

The collection of water sample was started from period of January 2010. Samples were collected using plankton net made by bolting nylon cloth (mesh size 25 um) by sieving a 40liter volume of water sample for Zooplankton investigation during 7am to 9am. The collected Zooplankton were preserved in 4% formalin which is best for chitinous structure in 100 ml bottles the samples were studied for the diversity of Zooplankton.

Zooplankton were observed and identified under research Binocular microscope by using standard key and literature (Tonapi 1980, Murugan 1998, Kodarkar et al 1998 Kodarkar et al 2006)

The diversity of the Zooplankton is controlled by several physico-Chemical factor of water. The pattern of algal distribution, temperature, dissolved oxygen and organic matters are the important factors which control the zooplankton growth (Hanazato & Yasuno 1985 and Bhatia & Rana1987). The air water, Temperature, pH and Dissolved Oxygen were also recorded at minimum during winter and maximum during the summer period.

Table;1 shows min & max parameter recorded

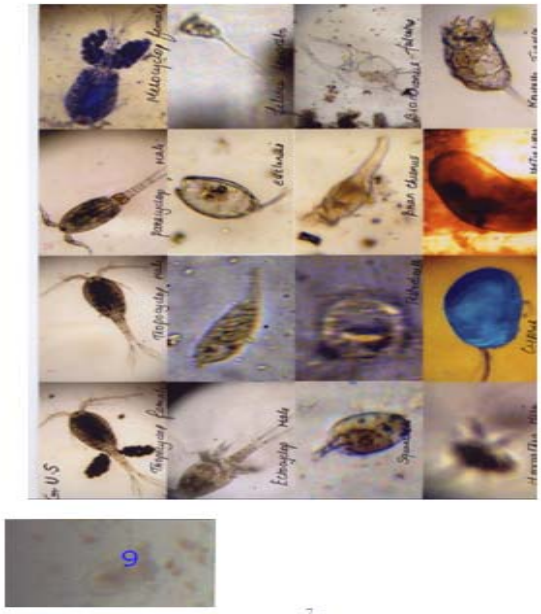
Sr No	Parameter	Min winter S1	Min winter S2	Max summer S1	Max summer S2
1	*Atmospheric temperature*	22	23.1	31	30
2	*Water temperature*	19.1	19.2	28	28
3	*pH*	7.1	7.1	7.5	7.5
4	*Dissolved Oxygen*	8.3mg/liter	8.2mg/liter	5.6mg/liter	5.7mg/liter

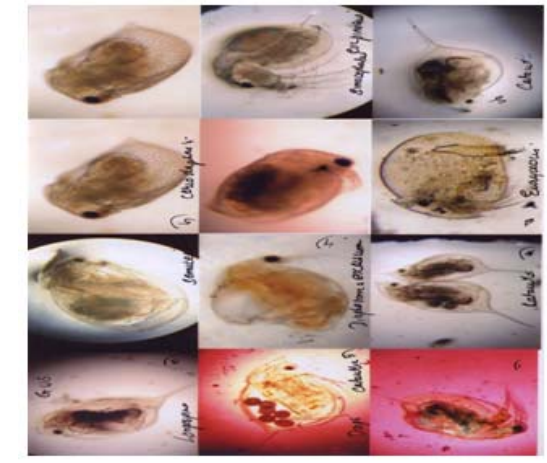
Table no 2.: List of Zooplankton of Nira Left Bank Canal Sharda nagar Baramati

Sr.	GROUP	Name of the species
1	COPEPODA	*1 Tropo cyclop Prasinus Male*
2		*2 Tropo cyclop Prasinus Female*
3		*3 Ecto cyclop Phaleratus Male*
4		*4 Mesoo cyclop Phaleratus Female*
5		*5 Paracyclop prasinus Male*
6	*ROTIFER*	1 *Filinia longisita*
7		*2 Euclanius sp*
8		*3 Asplanchea sp*
9		*4 Squatinella sp*
10		*5 Testudinella sp*
11		*6 Branchionus sp*
12		*7 Branchionus falcatus*
13		*8 Keratella tropica*
14		*9 Hexarthra mira*
15		*10 Rotaria rotaria*
16	CLADOCERA	*1 Moina micrura*
17		*2 Daphnia catawba with eggs*
18		*3 Daphina longispina*
19		*4 Diaphanosoma exisum*
20		*5 Ceriodaphnia laticaudata.*
21		*6 Euryceous*
22		*7 Cereodaphina reticulata*
23		*8 Daphnia catawba*
24	OSTRACODA	*1 Cypris*
25		*2 Hetro Cypris*

Photograph are placed according to table no.2

1 Tropo cyclop prasinus M
2 Tropo cyclop prasinus F
3 Ecto cyclop phaleratus M
4 Meso cyclop
5 Para cyclop M
6 Moina Micrua
7 Diaphanosoma exisum
8 Cereodaphinia Reticulata
9 Asplanchea Sp
10 Filinia longisita
11 Euclanius
12 Squatinella
13 Asplanchea
14 Testudinella
15Daphnia Longispina with eggs
16Ceriodaphnia Laticaudata
17Daphnia Catawba
18Branchious
19 Branchious Falcatus
20 Keratella Tropica
21 Hexarthra Mira
22 Rotaria rotaria
23Daphnia Longispina
24Euryceous
25 Cypris





Result and Discussion

The present study reports the zooplankton community of Nira Left Bank canal of Baramati region have resulted in total 25 species of which 10 species of Rotifer, 5 species of copepod, 8 species of cladocera; 2 species of ostracoda.

The season wise analysis showed that average water temperature in the canal was maximum during summer .Camparatively less during monsoon and least during winter (Table no 1). The pattern of

fluctuation is similar with that of atmospheric temperature. The minimum Dissolved Oxygen was recorded during summer and maximum during monsoon.

ROTIFER> CLADOCERA> COPEPODA> OSTRACODA

In the present investigation species diversity of Zooplankton was recorded in Nira left Bank cannal (Table no 2).

Rotifer

In the present study rotifer represented by 10 species Rotifer were maximum during the period of November *Branchious Falcatus and Kertella tropica* were during study period This observation is in suport of singh (2000) This may be due to their species characteristic less specilised feeding high fecundity and frequent parthenogenesis

Copepoda

In the present study Copepod represented by 5 speceies .Are most dominant group's present in fresh water . *Tropocyclop Prasinus Male* and female species have been found *Ectocyclop Phaleratus Male Mesocylop Phaleratus* female and *Paracyclop Prasinus* male has been found the pattern of Identification depends upon arrangement of their abdomen part attachment of eggs.

Cladocera

In the present study Cladocera represented by 8 speceies. They are common water flea *Ceriodaphnia longispina* and *Ceriodaphnia reticulate* were dominated in the Cladocera.

Ostracoda

In the present study Ostracoda represented by 2speceies. The fresh water Ostracoda are free living species *Cypris* and *Hetrocypris were occurred.*

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