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ZOOPLANKTON SEASONAL DIVERSITYOF SARNGPURI RESERVOIR, ARVI DISTRICT WARDHA

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Abstract:
Zooplanktons are present in natural water bodies are organized . They respond to the ecological factors. zooplankton ,the floating inconspicuous plant plays a major pole in the food chain of aquatic ecosystem by biosynthesis of organic matter and thus act as the producer of food on which other life forms depend . This paper deals with zooplankton seasonal diversity of sarangpurireservoir ,Arvi. District wardha. The samples were collected seasonally during year 2008-2009.The total No. of 27 species of zooplankton were identified belonging to four groups. Rotifera ,were dominant by contributing 12 species folloed by Cladocera 8 species , Copepoda by 5 species and Ostracoda by 2 species .Among these maximum density was recorded under Chlorophyceae .

Keywords: Zooplankton, Rotifera, Copepoda, Cladocera, Ostracoda Sarangpuri Reservoir.

Introduction-:

Zoooplankton are the primary consumer's forming the second trophical level in the food chain. Diversity of planktonic organisms is quite high in fertile standing water bodies. zooplankton diversity responds rapidly to changes in the aquatic environment particularly in relation to nutrients. zooplankton, the passively floating or markly swimming animal life, found in the bottom of water is generally in conspicuous. But it is of basic importance of aquatic environments (pond, lakes and seas) as the consumer producers of organic material on which other forms of life depend. The knowledge of zooplankton in India is still fragmentary. zooplankton play very important role in regulating dynamics of the aquatic food web and become a driving force in shopping community structure.

The present investigation deals with Seasional diversity of zooplankton in Sarangpuri reservoir, Arvi. District-Wardha.

Material And Method-:

The sample were collected seasionally for a period of 1 year 2008-2009 from the sarangpuri reservoir.

During the period of investigation separate samples were collected by a plankton net made of silk bolting cloth No. 25, (Mesh size 56). Water sample (50 liter) was filtered through the net from littoral and open water zones and carefully transferred to 50 ml bottle and preserved in 4% formalin. Preserved samples were examined under a Binocular microscope with different magnification. Quantitative analysis and identification was done on a Sedgwick Rafter counter cell by taking 1 ml sample. Detailed taxonomic identification was carried out with Pennak (1978), Tonapi (1980) and Kodarkar (1992).

Result

In the present investigation, total 27 species were identified belonging to four main groups Rotifera ,Copepoda , Cladocera , Ostracoda (Table-1). Yearly total zooplankton density was recorded 1986.00 ind/ltr during the year 2008-2009 During the year 2008-09, Rotifera (1117ind/ltr) was dominant followed by copepoda (412 ind/ltr), Cladocera (346 ind/ltr) and Ostracoda (111 ind/ltr)

Rotifera:

During the present investigation, 12 species of Rotifera were recorded. It was dominant in winter followed by summer and least appearance in monsoon during 2008-09 During the year 2008-09, Rotifera maximum during winter season 119.25 ± 9.0, moderate in summer season 100.75 ± 17.27 ind/ltr and least appearance during monsoon season 59.25 ±29.25 ind/ltr. During the present investigation, yearly the density of Rotifera was recorded 279.25 ± 55.6. ind/ltr during the year 2008-09

Copepoda:

During the present investigation, 05 species of Copepoda were recorded. It was dominant in summer followed by winter and least appearance in monsoon during the year 2008-09.During the year 2008-09, Copepoda was maximum during summer season 45.00 ± 8.06ind/ltr , moderate in winter season 34.25 ± 2.86ind/ltr and least appearance during monsoon season 23.75 ± 15.22ind/ltr. minimum 65.00 ± 20.83 ind/ltrind/ltr. During

the present investigation, yearly the density of Copepoda was recorded 103.00 ± 26.1ind/ltr during the year 2008-09

Cladocera:

During the present investigation,8 species of Cladocera were recorded. It was dominant in winter followed by summer and least appearance in monsoon during 2008-09 During the year 2008-09, Cladocera was maximum during winter season 35.75±6.10 ind/ltr, moderate in summer season 29.5 ± 4.39 ind/ltr and least appearance during monsoon season 21.25 ± 9.42 ind/ltr. During the present investigation, yearly the density of Cladocera was recorded 86.5±19.9ind/ltr during the year 2008-09

Ostracoda:

During the present investigation, 02 species of Ostracoda were recorded. It was dominant in summer followed by monsoon and least appearance in winter during both the year 2008-09 During the year 2008-09, Ostracoda was maximum during summer seaso21.00 ± 5.61ind/ltr, moderate in monsoon season 6.25 ± 6.18 ind/ltr and least appearance during winter season 0.5 ± 0.87 ind/ltr. Seasonally, the maximum density of Ostracoda was recorded 25.5 ± 4.27 ind/ltr during the winter season of 2008-09 During the present investigation, yearly the density of Ostracoda was recorded27.75 ± 12.7 ind/ltr during the year 2008-09

Discussion

In the fresh water system, the zooplankton forms an important faunal group, as most of them live on primary producers and makes them available to be eaten by higher organisms in the food chain including fish and contribute significantly in the biological productivity of the ecosystem. They play an important role in aquatic ecosystem as a primary consumer and can be used as indicators of the tropic phases of a water body. Zooplankton studies based on taxonomic foundations are imperative need to understand species-specific environmental requirements and their ecological niches in various tropical lentic biotopes of India.

In the present investigation, zooplankton were represented by four group's viz. Rotifera, Cladocera, Copepoda and Ostracoda. Total 27 species of zooplankton were recorded from all the sites of the reservoir. Zooplankton population abundance showed that Rotifers dominated the water body followed by Cladocera, Copepoda and Ostracoda. Similarly, Shastrakar and Tijare (2012) observed total 36 spcies of zooplankton in Asolamendha lake. Moitra and Bhowmik (1968) observed members of 3 main zooplankton groups that are Rotifera, Cladocera and Copepoda in fresh water fish pond in Kalyani West Bangal. Bais and Agarwal (1993) have reported maximum number of zooplankton belonging to 4 major groups during summer in Sagar and military engineering lakes. On the basis of his studies on population dynamics of Moina micrura Kurz (Cladocera: Moinidae) and Ceriodaphnia cornuta Sars (Crustaces; Cladocera) from a seasonal pond in Madurai.

Rotifera

In the present investigation, among the zooplankton maximum number of species belongs to Rotifera. Group Rotifera represented by 12 species. The maximum concentration of Rotifers was found during winter season and minimum appearance during monsoon. These were recorded during the study period were Asplanchna spp., *Brachionus fulcatus, B. forficula, B. quadricornis, B calciflrous, Filinia logiseta, Keratella spp., Lecane spp., Lepadella ovalis ,Monostyla spp., Tricocerca longiseta and T. cylindrica.* Similarly, Khune and Parwate (2012) observed 07 species of rotifers in Shionibadh reservoir. Edmondson (1965) stated that the higher rotifer population in winter could be attributed to favourable temperature and availability of abundant food in the form of bacteria, nanoplankton and suspended detritus. Somani and Pejaver (2003) stated that Rotifera is quite a diverse group of organism and large generic variety is observed in various lentic environments all over India. However, *Brachionus spp.* and *Keratella spp* .are the most commonly recorded genera in Indian lakes.

Coadocera

In the present investigation, group Clodocera represented by 08 species. The maximum concentration of Clodocera was found during winter season and minimum appearance during monsoon and summer season. These were recorded during the study period were, *Alona spp., Bosmina longirostris, Ceriodaphnia spp., Chydorus spp., Diaphanosoma spp., Moina branchiata, Moinodaphania spp and Simocephalus spp.* Similarly, Bhandarkar and Paliwal (2010) recorded 08 species of cladocera in Lakhani lake. Pawer *et al.,* (2003) have recorded higher percentage of Cladocera in winter in Sirordam near Mulched, Nanded (M.P).

Copepoda

In the present investigation, group copepoda was represented by 05 species, viz, *Cyclops spp., Diaptomus spp., Eucyclops spp., Mesocyclops*

spp. and Nauplius. Numbers of Cladocerons were high during winter season and low during summer and monsoon season. Similarly, Pawar and Sonawane (2012) observed total 09 species of copepods at three water bodies of Satara. Venkatraman *et al.,* (2000) investigate highest diversity of cladoceran species in Santragachi beel was presumably due to important bio-ecolgical relationship between macrophytes and zooplankton along with possible dispersal of zooplankton by avian agents.

Ostracoda

In the present investigation, Ostracoda was represented by only two species *Eucypris spp.* and *Cypris spp.*, Ostracoda showed maximum density during summer season and minimum during winter. Similarly, Waghmare *et al.,* (2012) observed the highest population of ostracoda summer and monsoon season and further stated that the water temperature and availability of food might be affecting the ostracoda population. Solanki (2006) recorded the maximum density in the march at all the stations and minimum in the month of August from Bellal and Pandu lakes of Bodhan, A.P.

Conclusion-:

From the study of Zooplankton it may be concluded that the reservoir water is not polluted and free from sewage contamination with rich diversity of flora,fauna and wildlife.Looking at the utility of the reservoir and a varied rich biodiversity,proper measures are essential to avoid the degradation of reservoir in future.

Table: 1 Seasonal variations of groupwise Zooplankton Diversity during year 2008-09

Sr. No.	Parameters	Monsoon 2008	Winter 2008	Summer 2009
A	Rotifera	59.25±29.25	119.25±9.04	100.75± 17.27
B	Copepoda	23.75±15.22	34.25±2.86	45.00 ± 8.06
C	Cladocera	21.25±9.42	35.75±6.10	29.5± 4.39
D	Ostracoda	6.25±6.18	0.5±0.87	21.00± 5.61
	Total	**110.5±60.07**	**189.75±18.86**	**196.25± 35.33**

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