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Zoology

POPULATION DYNAMICS OF ZOOPLANKTONS IN SIRPUR LAKE IN INDORE DIST., (M.P)

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ABSTRACT The present paper deals with study of six month variations in the zooplankton population during March to August 2017. The diversity and population. Dynamics of zooplankton is under the control of numerous physic-chemical factors pollution influence etc. A Study revealed that 28 species of zooplanktons belonging to four major groups were observed. Highest zooplankton populations were recorded in summer.

KEYWORDS :

INTRODUCTION

plankton are the groups of microscopic plant and animals which are minute and able to spend their whole life floating in the water is called as plankton zooplankton forms the microscopic animals. That play an important role in an aquatic food chain as they are largely consumed by fishes and other higher organisms in food chain. The present study was undertaken to investigate the zooplankton density in Sirpur Lake through different month and season during the period March to August in order to assess the species composition, population density and seasonal fluctuation of this faunal group.

MATERIALS & METHODS

Sirpur lake, which covers 600 acres an the Indore –Dhar highway was a natural habital. The rain fed lake, the study of zooplankton, samples were collected in monthly basis for a period of 6 month from March to August 2017. For qualitative and quantitative Studies of zooplankton 100 liters. Of surface water was passed through the plankton net120u.The collected samples were preserved in 4% formalin solution. These samples were observed and identified under microscope using keys and zooplankton were counted with the help of Sedgwick Rafter cell method. The following are the specific volumes used for the identification of different groups of zooplankton like Rotifers, copepods, cladocerans. For using "Sedgwick Rafter cell" as par procedure given in standard methods. Average 5 to 10 counts for each sample were taken and results were expressed in number of organisms/liter.

Fig.1 Geographical locationn of the study area

RESULTS & DISCUSSION

In the present study, total 28 species of zooplanktons were recorded. 8 species of protozoa were found as follows; Laxodes, Urocentrum, Vorticella, coleps and Sarcodina. Belonging to Rotifera 7 species Branchionus, Filinia, Haxarthra, keratella, Monostyla, Notholca, polyarthra were recorded. 6 species of copepods were recorded as Cyclops, Heliocliapttomous virdis, Mesocyclops, Macrocyclops, Nauplii, Phyllocliaptomus.7 species belonging to cladocera were recorded as bosmina, chydorus spharious, Daphnia duplex, Leydigia, Macrothrix laticornis, Moina, Simocephalus. The monthly variations of zooplankton are illustrated in table 1. Species richness was high in the summer season and it was minimum during monsoon.

Zooplankton is the intermediate link between phytoplankton and fish, which are the secondary producers in the aquatic environment. Zooplanktons are good indicators of changes in water quality, because they are strongly affected by environmental conditions and responds quickly to change in environmental quality. Hence, qualitative and quantitative study of zooplanktons is of great importance.

OBSERVATIONS

As shown in table 1 for month wise population density (no./lit) of different zooplankton groups.(march to August 2017)

MONTH-WISE POPULATION DENSITY(NO./LI OF DIFFERENT ZOOPLANKTON GROUPS MARCH. 2017 TO AUG 2017

Zooplankton component	Station		Summer			Monsoon		Total
		Mar.	Apr.	May.	Jun.	July.	Aug.	
Protozoa	S1	91	60	54	19	29	39	292
	S2	88	83	47	32	37	43	330
Rotifer	S1	161	130	110	82	16	11	510
	S2	92	114	91	102	36	33	468
Cladocera	S1	45	54	78	62	30	15	284
	S2	68	52	73	67	42	37	339
Copepod	S1	54	68	67	19	20	13	241
	S2	80	62	57	54	15	32	300
Total zooplankton	S1	351	312	309	182	95	78	1327
	S2	328	311	268	255	130	145	1437

Protozoa:

As components of the micro and macro fauna protozoa are an important food source for micro invertebrates. Thus, the ecological role of protozoa in the transfer of bacterial and algal production to successive tropghic levels is important. As predators, they prey upon unicellular or filamentous algae, bacteria and micro fungi. Protozoa are both herbivores and consumers in the decomposer link of the food chain. They also control bacteria populations and biomass to some extent. All the 5 species had been reported from the sirpur lake where density was maximum in summer, i.e. in march, while it was minimum in monsoon, i. e. in june.

Centrophyxis Species

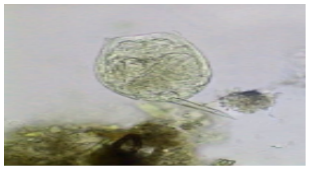
Vortecella Species

Opercularia Species

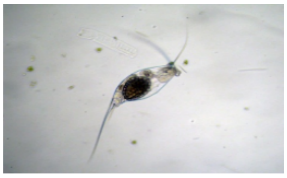
Euglepha speccies

Rotifers:

The rotifers are being considered as the most important soft bodied invertebrates. They play a significant role in aquatic food chain and thereby constitute an important food item for fishes. Taxonomic dominance of rotifers was reported in several water bodies. This pattern is common in tropical and sub-tropical fresh water. Whether in lakes, ponds, reservoirs, rivers or streams. In the present study population density of rotifers was maximum in march and minimum in monsoon, in June.



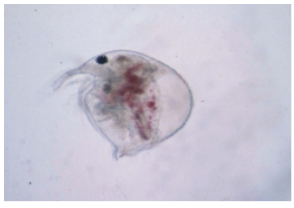
***Monostyla* Species**



***Filinia* Species**

Cladocera:-

They are popularly called as 'water flea' prefers to live in deep water and constitute a major item of food for fish. Thus they hold key role in food chain and energy transformation. The cladoceran population showed minimum in monsoon, i.e. in June 58/lit and Aug 37/lit and maximum population of cladoceran in summer in mar 106/lit and may 73/lit.

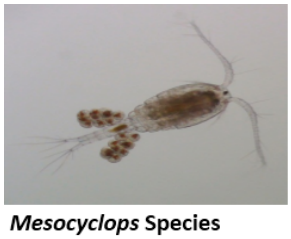


***Bosmina* Species**

***Daphnia* Species**

Copepods:-

Freshwater copepods occur in all types of water bodies. They serve as food to several fishes and play a major role in ecological pyramids. During the present investigation, copepods were found to be maximum during in summer, i.e.in April 131/lit and may 57/lit and minimum during monsoon in June 106/lit and 15/lit.



***Mesocyclops* Species**

***Cyclops* Species**

CONCLUSION

The zooplankton analysis showed that, the total zooplankton density was more in summer season due to minimum temperature, favorable for phytoplanktonic growth as abundance of food.

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