



ZOOPLANKTON DIVERSITY AND THEIR POPULATION IN DEVCHANDI DAM, WASHIM, MAHARASTRA, INDIA

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Abstract

Zooplankton diversity studies were carried out for a period of one year from December 2012 to November 2013 from the five stations of Devchandi Dam. In present study 51 species of Zooplankton were recorded from different sampling stations reveal that the dam water can be utilized for irrigation, fish culture, cattle drinking purpose. The communication provides an insight into the population of Zooplankton inhabiting the dam.

Keywords

Population of Zooplankton, Devchandi Dam.

Introduction

Animals of fresh water are extremely diverse and include representative of nearly all phyla. The Zooplankton includes animals suspended in water with limited power of locomotion. Fresh water Zooplankton was dominated by four major groups of animals: protozoa, rotifers and to subclasses of crustacea, the cladocerans and copepods. Zooplanktons are abundant in shallow areas of most of the water bodies and distributed vertically and horizontally in an ecosystem. The Zooplanktons are important group as they occupy an intermediate position in the food web, many fishes feed upon different Zooplankton. Zooplankton, an important index of secondary production and a natural source of food for higher organism. Which play a key role in transferring energy from one trophic level to other in the aquatic habitats. They are also use as a biological indicators of trophic status of a water body. Inland fresh water bodies are the main sources of drinking water for the rural population. Deterioration in these water sources due to contamination with planktons, parasites and pollutants create health problem on fishes and drinking person and cattle. Evolution of safety water through assessment of biotic and abiotic characteristic of water has not been undertaken on a large scale. Several worker such as Ganapati, (1943); Nasar, (1975, 77); Sehgal, (1980); V. Hague et.al, (1988); Biswas and Konar, (2000); Narsimha Rao and Jaya Raju, (2001), Gupta, (2002).





Material and Method

Devchandi Dam is one of the important drinking water source for the cattle and fish culture. Five stations were selected for the investigation of Zooplanktons during December 2012 to November 2013. For the analysis of Zooplanktons samples were collected monthly for a period of one year from December 2012 to November 2013 from the five sampling stations. The samples were preserved using 4% formalin. The concentrate of the samples were examined under microscope and estimation of Zooplankton. The samples were examined with optic research microscope. The organisms were identified and counted with magnification varying from 100X x 400X. Zooplanktons were calculated using Lackey's Keys Drop Count Method. Qualitative and quantitative analysis of Zooplankton were also carried out and expressed in org/Lit. Identification of Zooplanktons were carried out using key by APHA, (1989); Tonapi, (1980); and other literature.

Result and Discussion

Devchandi Dam one of the drinking water source and the most productive man made water body near Karanja(lad) Dist. Washim. The Zooplanktons in the investigation area during study period were analyzed. Station wise numerical abundance zooplankton and their percentage composition are shown in table 1. The co-relation study of Zooplankton of Devchandidam was found to be highly significant with alkalinity ($r=0.945$). A feeble to moderate positive co-relation was also found in between chloride ($r=0.489$) and with sulphate ($r=0.465$). Abiotic factors influence the growth of Zooplankton this is in agreement with Ade et.al, (2001). Zooplankton abundance was in the order of copepod > rotifers > cladocerans > ostracods > protozoan > worms and larvae (fig. 1). A strong positive co-relation was also observed in between Zooplankton and Phytoplankton ($r=0.879$). This is in conformation with the observation of Meshram, (1996). Among Rotifers, Karetellatropica, Lecane, Rotararia, Pompholyx, Asplanchna and Trichotria species were observed at all the sampling sites. This might be due to large particulate matter (Sarwar and Praveen, 1995); Meshram, (1996); Ade, (2001). Similarly from the observation of five sampling stations I to V are highly populated zones followed by station III respectively (Table 1). The observation to confirm that the water is productive and capable of supporting intensive fish culture and useful tool for further ecological assessment and monitoring of this dam ecosystem.





Table No. 1 – Numerical abundance of Zooplankton (Org/Lit.) at different sampling stations during December 2012 to November 2013.

Sr. No.	Zooplankton	Station I	Station II	Station III	Station IV	Station V	Total	%
1	Protozoa	1931	1120	1366	1211	1042	6670	9.81
2	Rotifera	3092	2945	2656	2360	3010	14063	20.69
3	Cladocera	2810	3420	3101	1190	2987	13508	19.87
4	Copepoda	5014	3840	4551	2300	2990	18695	27.50
5	Ostracoda	2230	2840	2520	1355	980	9925	14.60
6	Worms and Larvae	480	1335	1810	680	815	5120	7.53
		15557	15500	16004	9096	11824	67981	100

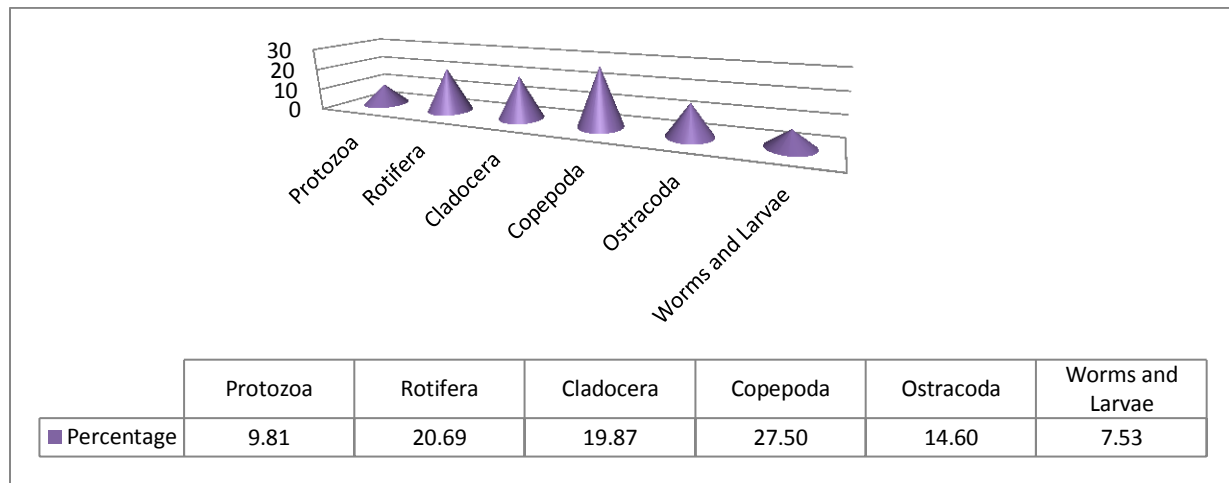


Fig. No. 1 – Percentage composition of Zooplankton of Devchandi Dam

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