

Ecological studies of zooplankton found in fresh water of Khindsi lake, Nagpur, Maharashtra

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SUMMARY: A group of zooplanktons is the characteristic indicator of water quality, eutrophication and pollution status and also form an important link in the aquatic food chain. The knowledge about zooplankton present in Khindsi lake in Nagpur district of Maharashtra is not yet known. An attempt has been made to investigate the seasonal variations in zooplankton along with physico-chemical parameters. The present work was carried out for two years (June 2007 - May 2009) to collect data, abiotic and biotic components of Khindsi lake. The biological indicator *i.e.*, zooplankton attained the lowest and the highest population 123.00 ± 35.69 in 2007-2008 and 133.00 ± 42.67 in 2008-2009, respectively. Zooplanktonic communities in these years were represented by *Rotifer*, *Ostracoda*, *Cladocera* and *Copepoda*. The abundance of *Ostracoda* of total zooplankton was significantly low during the winter season when compared to monsoon and summer seasons, during which the abundance of all these variables was significantly higher. In all 768.0 zooplanktonic forms were recorded. During the entire study period fourteen positive and six negatively significant correlations were observed. The regression analysis revealed that *Rotifers* are positively correlated with chloride and T.S. *Ostracodas* were positively correlated with T.S., chloride and hardness. *Cladocera* with hardness and *Copepoda* positively correlated with hardness, T.S. and temperature. In general, group-wise composition of zooplankton communities indicated the following ranking: *Copepoda* > *Rotifers* > *Cladocera* > *Ostracoda*.

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Zooplanktons are microscopic organisms that formulate the base of food chains and food webs in all aquatic ecosystems. They are mostly small, many of them are minute, and their structure can only be seen clearly with the aid of a binocular or compound microscope, with the exception of some large animals. Although they belong to different taxa, they have one thing in common *i.e.* lack of strong locomotory organs like fish, they are weak in locomotion and can only drift about in water at mercy of waves and currents, being incapable of moving anywhere as fish (Zheng Zhong, 1984).

Zooplankton plays an important food item of omnivorous and carnivorous fishes, (Alam *et al.*, 1987). The larva of carps feed mostly on zooplankton (Bardach *et al.*, 1972) because zooplanktons provide the necessary amount of

protein required for the rapid growth and development of different organs in fishes and also brood fishes productivity. Many researchers worked on the physico-chemical conditions and seasonal variations of zooplankton (Ali and Islam, 1981; Bhuiyan *et al.*, 1981, Bhuiyan and Nessa (1998) and Cottenie *et al.*, 2001).

The present study has been undertaken to know the role of zooplankton on the seasonal variations and occurrence of some zooplankton in respect to physico-chemical parameters in Khindsi lake near Nagpur city.

EXPERIMENTAL METHODOLOGY

Morphology of lake :

This investigation has been conducted in Khindsi lake site at outskirts of Ramtek Tahsil near

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