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Zooplankton Diversity in Certain Lentic Water Bodies in Mid-Wester Ghat Region of Karnataka

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Abstract

Zooplankton in these water bodies was assessed during June 2006 to May 2007. During the period of investigation 17 species of zooplanktons representing four main taxonomic groups such as Rotifera, Copepoda, Ostracoda and Cladocera were recorded. Out of which rotifers included 5 species, Copepods 4 species, Cladocerans 6 species and Ostracoda 2 species. The Cladocera were dominant over other groups in these ponds.

Key words : Zooplankton, Diversity, Water bodies, Mid-western ghat.

Zooplanktons are the pioneers of an aquatic food chain. The productivity of aquatic environment is directly correlated with the density of zooplankton. The zooplanktons have a great significance in the biology of an estuary as they provide the food for other organisms. Further, physico-chemical factors of water are directly related to their production. The seasonal changes in zooplankton species are related to the physico-chemical and biological parameters of aquatic environment. The zooplanktons are always inversely proportional in an aquatic environment because the zooplanktons feed on the phytoplankton. Thus density of phytoplankton is directly correlated with fishery potentiality of an aquatic ecosystem (Qasim 1973). In the present study main focus was given on the species composition of zooplanktons of lentic water bodies. Zooplanktons are the most fascinating group of microorganisms found in aquatic body. The zooplankton in water belongs to four main taxonomic groups such as Rotifera, Copepoda, Ostracoda and Cladocera. Copepoda and Cladocera are the dominant groups of crustacean in fresh water habitats. They are abundant in the shallow areas of the reservoirs, but only few species are abundant in the open water. The zooplankton which play a role of converting phytoplankton into food, suitable for fish and aquatic animals. They can also play an important role in indicating the presence or absence of certain species of fishes or in determining the population densities. Several workers such as Chakravarthy (1983), Fasibuddin and kumar (1990), Choudhary and Singh (1999) and Pawar et al. (2003) have reported on different aspects of zooplanktons inhabiting Indian freshwater. The paper deals with studies on zooplankton diversity in certain lentic water bodies in mid-western ghat region of Shimoga.

Methods

The zooplankton samples were collected from the ponds for a period of one year, from June 2006 to May 2007 at selected two sites of three ponds (Kallambi, Vaddekere and Gudavi pond) at an interval of 15 days. The samples were allowed to settle by adding Lugol's iodine, centrifuged and the concentrate was made upto 20 ml with 5% formalin. Permanent slides of zooplankton were made for taking microphotographs. Identification of the zooplankton was done with the help of monographs and workshop manual (Needham and Needham 1941, Battish, 1992, Islam 2000, APHA et al. 2000).

Results and Discussion

Studies on zooplankton are important in any water body to assess its biological status. Water was collected from the three fresh water ponds of Sorab and its surrounding areas. Altogether 17 species of zooplanktons were identified showing good zooplanktonic diversity in these ponds. Seventeen species of zooplanktons representing four groups namely Retifera, Cladocera, Copepoda and Ostracodas were reported. Rotifers included 5 species, Copepoda 4

Table 1. Diversity of zooplankton in the present water bodies. + Present; –Absent.

	Kallambi pond	Vadde-kere	Gudavi pond
Rotifera			
Brachionus falcatus	–	+	+
B. caudatus	+	+	+
B. calciflorus	–	–	+
Filinia longiseta	+	–	–
Keratella tropica	–	–	+
Cladocera			
Daphnia carinata	+	+	–
Diaphanosoma sarsi	–	–	+
D. excisum	–	–	+
Moina daphnia	+	+	–
Macrothrix laticornis	–	+	–
Bosmina sp.	–	–	+
Copepoda			
Cyclops sp.	+	+	+
Mesocyclops leuckarti	+	–	–
Paracyclops fimbriatus	–	+	–
Heliodiaptomus viduus	–	+	+
Ostracoda			
*Cypris subglobos*a	+	+	–
Heterocypris sp.	+	+	–

species, Cladocera 6 species and Ostracoda 2 species (Table 1).

Zooplanktons play a significant role in determining the productivity of ponds and form food for many aquatic organisms which in turn are good sources of food for water birds. Cladocera were dominant over other groups. The zooplankton abundance was in the order of Cladocerans>Rotifer>Copepod>Ostracods (Fig. 1). Similar results have been reported by Le Fevre (1993), Ganpati (1943) and Pawar et al. (2003). The rotifer Brachionus caudatus and Copepod Cyclops sp.were observed at all the three stations which might be due to large particulate matters (Bhagat and Meshram 2007).

Similarly from the observation of three sampling stations the Vaddekere showed high populated zones followed by Gudavi and Kallambi ponds (Table 1). The observations confirm that the water is productive and it helpful to some water birds.

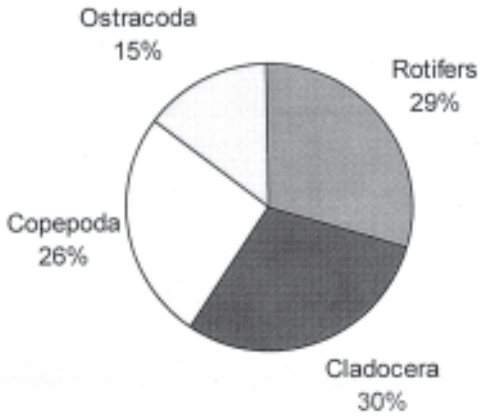

Figure 1. Percentage composition of zooplankton in these water bodies.

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