

Diversity of microfauna in Ambadi irrigation dam, of District Akola (Maharashtra)

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Received: 13/1/2010

Accepted: after revision 30/4/2010

ABSTRACT

Ambadi irrigation dam is located in the vicinity of foot hills of Satpuda ranges and is used by the localities for drinking, irrigation and other domestic purposes. In the present study, variation of zooplankton population is described. The microscopic examination of micro fauna was carried out by using compound research microscope and CCD camera. In Ambadi dam 5 groups and 67 genera have been recorded during February to May 2006, while during June to October, minimum density line zooplankton was recorded. During the study period 7- protozoans, 29-rotifers, 12-cladocerans, 12-copepods and 5-ostracods have been recorded.

Keywords: Diversity Zooplankton Irrigation dam

INTRODUCTION

Zooplanktons have attracted the attention of several workers throughout the world as they occupy a central position between the autotrophs and heterotrophs and are important link in the food webs of aquatic ecosystem. Edmondson (1959). They play a significant role in aquatic ecosystem as primary consumers and can be used as indicators of the trophic phase of a water body. They also have an important role in transferring energy to the consumers; forming next higher trophic levels in the energy flow, (Mathew 1975, Verma and Munshi 1987). The density and diversity of the zooplanktons in lakes are controlled by several ecological factors of water. Algal density and distribution is the main biological factors affecting the density and diversity of zooplanktons. Levels of certain physical and chemical parameters in water body plays an important role in controlling the growth of zooplanktons. Several workers have studied the seasonal variations of zooplankton, in various water bodies. Sinha and Islam, (2003), Gupta and Khanna, (2007), Khanna *et al.*, (2007) and Sawane *et al.*, (2006, 2009).

MATERIAL AND METHODS

Five sampling stations were selected by considering the following features after survey. Sampling station I is the inlet area of dam, at eastern side of dam sampling station II is characterized by the human domestic activities. At southern side sampling station III fishing activities are seen. Sampling station IV is the central

area of dam. Station V is characterized by cattle interference and human activities and located at western side of dam.

For analysis of zooplanktons one litre of water sample filtered through planknet (64 mm) and concentrate preserved in 5% formalin. Counting is done by drop count method, (Edmondson, 1959), (Dhanpati, 2004)., by formula – plankton unit / l = [(N x c) / Y] x 10. Where N – numbers counted in 1ml conc., c – total vol. of conc. In ml., Y – total vol of water filtered for sample in liter (1 litre).

RESULTS AND DISCUSSION :

In the present investigation seasonal succession of protozoan (org/l) was in the order winter>summer>monsoon. During monsoon protozoan density suddenly falls, might be due to influx of pollutants entering in the dam along with runoff and increased turbidity. 7 species of 6 genera were recorded, which formed 10.12% of total zooplanktons. The number, type and distribution of zooplankton present in any aquatic habitat provide a clue on the environmental condition prevailing in that particular habitat (Khanna *et al.*, 2009). Several workers, Fule *et al.*, (2009), Kesre *et al.* (2007), Makode and Charjan (2009) have studied zooplankton of various reservoir and lakes and opined that limnological change of any water body alter the zooplankton diversity.

Rich rotifer populations represented by 29 species from

21 genera in dam water. The quantity of rotifers showed dependence on the nutrient level and on temperature. However, the magnitude of rotifer population is found correlated with the density of phytoplanktons. Among observed rotifers five species *Branchionus falcatus*, *Cephalodella*, *Rotaritia*, *Lepadella*, *Monostyla* were pollution indicator species and abundantly found at stations I, II and V, where washing bathing and cattle activities were observed in shallow water. These factors may create unstable condition, therefore tolerant species were observed at station I, II and V. (Sudzaki, 1964). These findings corroborate with Sawane *et al.*, (2009), 12 species of group cladocera were recorded. Among total Cladocerans *Daphnia* were shown dominance over other species with predominant population at station V. Cladocerans showed their peak in summer followed by winter season. Chlorophyceae and bacillariophyceae were found to be favouring the abundance of Cladocerans. (Das, 2002, Sawane *et al.*, 2006, and Ramu *et al.*, 2009).

Copepods formed major bulk from the total zooplanktons observed and contributes 26.20%. seasonal variation showed remarkable increased during summer season followed by winter months, but no definite pattern of distribution was noticed except in the month of December, where the copepods were absent and recorded at station I. Low density is noticed during the monsoon and total absence at all stations during the month of October. Copepods exhibited two peaks one in the month of summer and other in the winter months. (Chapman, 1972 and Govind, 1978).

Five different species of ostracods were identified from the Ambadi dam. It contributes 13.27 % in population abundance, but less abundance was occurred at station IV. During monsoon, ostracod population was found at almost all stations except at station III. Which indicate productive nature of dam water. Seasonal variation in abundance of ostracod fauna was in order summer>winter>monsoon.

Table -1.1
Seasonal variation in zooplankton abundance in Ambadi irrigation dam during 2005-06

Station	Season	Protozoa	Rotifera	Cladocera	Copepods	Ostracods	Total
Station I	Monson	70	280	210	910	70	1540
	Winter	1470	1330	1260	910	210	4760
	Summer	560	1610	1120	2240	1330	6580
	Total	2100	3220	2590	4060	1610	12880
Station II	Monson	70	420	140	770	70	1470
	Winter	700	1400	1330	560	770	4760
	Summer	210	910	1400	2030	1750	5880
	Total	980	2730	2870	3360	2590	12110
Station III	Monson	70	350	280	1400	280	2380
	Winter	700	1400	1190	630	210	4130
	Summer	350	840	1820	2310	1680	7000
	Total	1120	2590	3290	4340	2170	13510
Station IV	Monson	140	490	70	140	-	840
	Winter	560	910	490	700	70	2730
	Summer	350	840	700	1260	840	3990
	Total	1050	2240	1260	2100	910	7560
Station V	Monson	140	910	140	910	-	2100
	Winter	630	1190	1400	490	280	3990
	Summer	350	770	1330	1260	840	4550
	Total	1120	2870	2870	2660	1120	10640

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