Biosci. Biotech. Res. Comm. BIOSCIENCE BIOTECHNOLOGY RESEARCH COMMUNICATIONS Vol. (3) No. (1) June, 2010(104-106)

# Diversiy 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. Edmontson (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, (Endmondson, 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, Rotaratia, 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 varation 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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