RESEARCH ARTICLE

Rotifers diversity in Kudla Dam near Umri Nanded, MS, India

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ABSTRACT

The water quality and nutrients influence population of zooplanktons. The population observed in the distribution of zooplankton is due to abiotic factors (e.g. temperature, salinity DO and other dissolved ions), to biotic factors (e.g. nutrients). Many species of zooplanktons are limited by temperature, dissolved oxygen, salinity and other physico-chemical factors. Zooplanktons constitute an important link in food chain as (primary or secondary consumers) and serve as food for fishes directly or indirectly. Therefore any harm to these will be harmful to the fish populations. The occurrence of zooplankton depends upon its productivity, which is influenced by physico-chemical parameters and the level of nutrients in water. Hence the present study was carried out on kudla dam for a period of one year from Jun 2013 to May 2014. In the present study 19 species of Rotifers were found.

Key words: zooplanktons, dam, water quality

INTRODUCTION

Most important energy source to all living organisms is the sun. The solar energy is converted into organic compounds by the process of photosynthesis. This process of converting carbon dioxide and water into carbohydrates is performed by primary producers. These primary producers in water are called as phytoplanktons. These are consumed by zooplanktons, which are again consumed by fishes and so on. These all organisms depend upon water for their growth and reproduction. Therefore any change in the quality of water affects the nature and productivity of these organisms. Change in physico-chemical parameters and nutrient content of water body plays an important role in the production of plankton which act as the natural food of many species of fishes, mainly zooplanktons form important food

source of many fishes and support the necessary amount of diet for the growth of Larval forms (Rahman and Hussain, 2008)). Phytoplankton being the primary producers forms the lowest trophic level in the food chain of freshwater ecosystem , moreover, number and species of phytoplankton's serves to determine the quality of water body (Bahura, 2001). Because of interference of man with nature, the water clarity becomes less and with the addition of nutrients and organic matter, the primary production in water increased. Zooplanktons form the important link between phytoplankton and fishes. The productivity of zooplanktons is influenced by physic-chemical para-me ters and organic contents in water. Zooplanktons feed upon the phytoplankton and make them available to fishes in the food chain (Michael, 1973).

MATERIALS AND METHODS

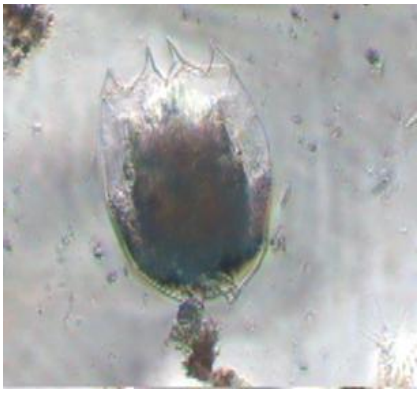
The samples were collected from four sampling stations of the dams. The present study was conducted in Kudla dam for period of one year i.e.- from Jun 2013 to May 2014. Plank tonic samples were collected on monthly basis from four stations A, B, C and D. Planktons were collected using plankton net made up of bolting silk cloth (Trivedi and Goel, 1986). Filtered samples were fixed and preserved by adding 4% formalin. For counting planktons a Sedgwick Raftor Plankton Counting Cell was used. Identification of planktons was done with the help of methods described by Sehgal (1983); Battish (1992); Dhanapathi (2000) (APHA, 1998).

RESULTS AND DISCUSSIOINS

During the study period the high incidence of rotifers in summer season indicating the influence of temperature on positive co-relation between temperature and rotifers population. Similar observations were made by Sinha and Sinha (1983); Singh (2000); Kaushik and Sharma (1994), while working with other reservoir. The maximum density of rotifers was observed during spring peak in April. This was followed by a marked decrease in abundance during the clear water phase in May, 2014.

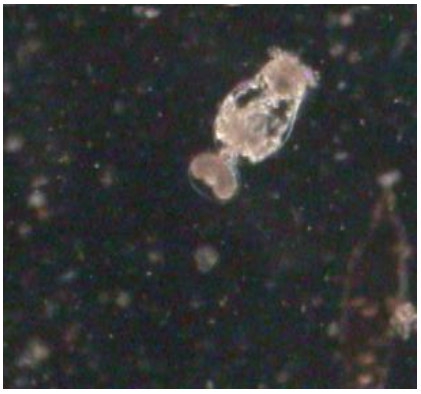
Table 1 : Zooplanton species abundance

Zooplankton	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Rotifera												
Rotararia	-	-	-	+	+	-	+	-	+	+	-	+
B.calyciflorus	+	+	+	+	+	-	+	+	+	+	+	+
Euchlanis brahmae	+	-	+	+	+	+	-	+	-	+	-	+
Asplanchana	-	-	+	+	-	+	-	+	+	+	+	+
Keratella quadrata	+	+	+	+	+	+	+	+	+	+	+	+
Keralella cochleris	+	+	+	-	-	+	+	+	+	+	+	+
Nothalca squmala	-	-	+	-	+	+	+	+	-	+	-	+
Plationus Platulus	-	+	+	+	+	+	+	+	+	+	-	-
Lecane (monostyla) bulla	-	-	-	+	+	+	+	+	+	+	+	+
B. bidentata	+	+	-	-	+	+	+	+	+	+	+	+
L.Papuana	+	+	-	-	+	+	+	+	+	+	+	+
L.doryssa	-	-	-	-	-	+	+	+	+	+	+	+
Pseudoeuchlanis longipedis	-	+	+	+	+	-	+	-	-	+	-	+
B.caudatus	+	+	-	+	+	-	+	+	+	+	+	-
B. c.v. hymani	-	-	+	+	+	+	-	-	-	+	+	+
B.plicatilis	+	-	+	-	-	+	+	+	+	+	+	-
B. quadridentatus	+	+	+	+	-	+	+	+	+	+	+	-
B. durgae	+	+	+	+	+	-	+	+	+	+	+	+
Aaplancha brightwelli	-	-	-	-	+	+	-	+	-	+	-	+

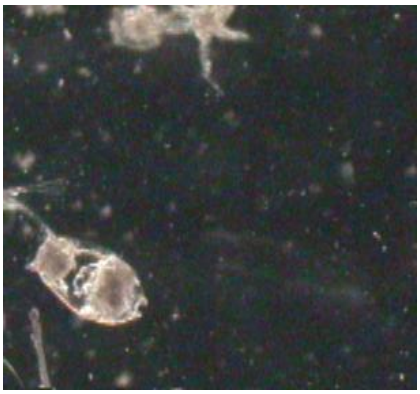


B. Plicatilis

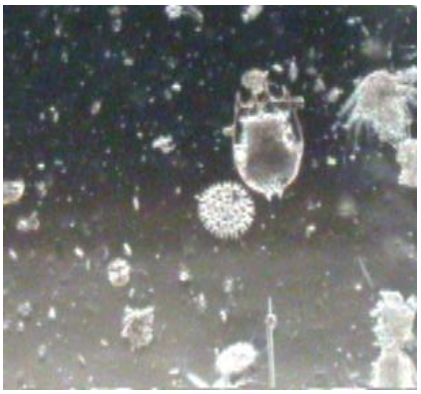
B. calyciflorus with egg



female rotifer sp.



B. Ureoceolaris sp.



B. Calyciflorus borgerti sp.

Fig.1: The selected species of Zooplanktons

Rotifers play an important role as grazers, suspension feeders and predators within the zooplankton community. The difference in population density of different rotifers can be analyzed by the biotic interactions. The monthly variations of rotifers were ranged between 04 to 07/mL at Station-A, 05 to 15/mL at Station B, 06 to 14/mL at Station C and 06 to 17/mL at Station D, in the year 2013-14. The minimum population rotifers were recorded in the month of August and the maximum population of rotifer was recorded in the month of April, 2014.

High rotifer population indicates population from organic matter due to direct entry of untreated domestic sewage from catchments area (Arora, 1967). Rao (1982) has reported less effect of abiotic factors on the abundance and fertility of pelagic rotifers. Chanadrasekhar (1962) observed that in summer and monsoon, the factors like water temperature, turbidity, transparency and dissolved oxygen (play an important role in controlling the diversity and density of rotifers).

Abdus and Altaff (1995) studied on qualitative and quantitative analysis of zooplankton population of a tropical pond during summer and rainy season and observed that the zooplankton during the month of July and November shows difference in the density of planktonic species. Dominance of rotifers over other groups has also been reported in other water bodies of the world (Michael 1968; Singh and Sahai, 19768).

The sequence of dominance of various groups was Rotifera > Cladocera > Copepoda. According to George (1966) the abundance of Rotifers is followed by cladocera is an indication of the

eutrophic nature of water bodies. The abundance of Rotifers may be attributed to their dependence on phytoplankton detritus matter and bacteria as food. Higher plankton number was recorded during summer due to an increase in Rotifer number. Present findings also support this.

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