



Population Dynamics of Rotifers of Silpara Dam, Rewa (M.P.) India

KEYWORDS

Chemical control, Soybean pests, Satna region

Dr. Dinesh Prasad Patel

Department of Zoology, Govt. Model Science College, Rewa (M.P.)

Dr. Satanand Patel

Department of Zoology, Govt. S.G.S.P.G. College, Sidhi (M.P.)

Dr. Amitabh Mishra

Department of Zoology, Govt. Model Science College, Rewa (M.P.)

Dr. Umesh Prasad Patel

Department of Zoology, Govt. Maharaja (Autonomous) College, Chattharpur (M.P.)

ABSTRACT The present paper deals with the study of qualitative and quantitative fluctuations of rotifers during July 2010 to June 2011 at Silpara Dam, Rewa (M.P.). Fifteen genera of rotifers were recorded with the density range from 105.6 to 913.06 ml/l. in surface and 52.8 to 616.5 ml/l in bottom region.

INTRODUCTION

Survey of literature reveals that the rotifer is an important component of Zooplanktonic group represented as a large class of Pseudocoelomate Phylum Aschelminthes are sessile and this group have been treated in some detail by Hutchinson (1976), Ruttner (1972) and Pennak (1978).

Among Zooplankton population rotifers are apparently the most sensitive indicators of water quality and their presence may be used as a reference to the physico-chemical characteristics of their habitation. In the present investigation rotifers fauna along with quantitative fluctuations were studied in Silpara Dam, Rewa (M.P.)

MATERIALS AND METHODS

Four sampling stations were selected in Silpara dam at Rewa which is a historical dam of Rewa district. It is situated about 8 km. away from Rewa city on Rewa-Shahdol road. Its latitude is 24° 32' N latitude and longitude is 81° 18' E. Monthly planktonic collections from all study sites were made by filtering 40 litres of water using a plankton net of bolting silk

No. 40 and preserved in 5% formaldehyde solution. To determine rotifer species each replicate was counted under research microscope in Sedgewick rafter cell. The systematic identification was done using standard literature books like Edmondson (1959), Needham and Needham (1962), Tonapi (1980) and APHA (1989) etc.

RESULTS AND DISCUSSION

The rotifers constitute as main component of the zooplankton community in Silpara. The rotifers density found ranging from 105.6 to 913.06/org/litre in surface and 52.8 to 616.5/org/litre in bottom region. In the present investigation, rotifers showed two large peaks in all stations, one of these large peak was in December while the other one was in May month. This finding confirms the observation of Michael (1964). It is evident that the rotifer fauna was represented by fifteen species amongst the genus *Brachionus* was most dominated followed by *Keratella* (Second) and *Flinia* (Third) Order of dominance of rest sps. viz. *Asplanchna* sps., *Brachionus rubens*, *Platylabus quadricornis*, *Brachionus havanaensis*, *Brachionus angularis*, *Brachionus caudatus* and *Platylabus patula* respectively (Table-1).

Table-1 : Average monthly qualitative and quantitative fluctuation (org/litre) of rotifer population at Silpara Dam, Rewa (M.P.) during 2010 to June 2011

S.No.	Name of organisms	July 10	Aug. 10	Sept. 10	Oct. 10	Nov. 10	Dec. 10	Jan. 11	Feb. 11	Mar. 11	Apr. 11	May 11	June 11
1.	Brachionus rubens	B-	-	-	17.6	17.6	35.3	17.6	17.6	17.7	35.2	35.2	-
		S-	-	17.4	35.2	35.2	55.8	35.2	17.6	35.2	35.2	35.2	-
2.	Brachionus quadridentata	B-	-	17.6	-	-	-	-	-	17.6	17.6	17.6	17.63
		S-	-	17.6	-	-	-	-	-	17.6	35.2	35.2	17.6
3.	Brachionus bidentata	B-	-	17.9	-	-	-	-	-	-	17.6	17.6	17.6
		S-	-	17.9	-	-	-	-	-	-	17.6	17.6	17.6
4.	Brachionus havanaensis	B-	-	-	-	-	17.6	17.6	17.6	17.6	17.6	17.6	-
		S-	-	-	17.6	-	35.2	17.6	35.2	35.2	17.6	17.6	-
5.	Brachionus angularis	B-	-	-	-	-	-	17.6	17.6	17.6	17.6	17.6	17.6
		S-	-	-	-	-	35.2	17.6	17.6	35.2	17.3	35.2	17.6
6.	Brachionus caudatus	B-	-	-	-	17.6	17.6	-	-	-	17.6	35.2	17.6
		S-	-	-	-	17.6	35.2	-	-	-	17.6	35.2	35.2
7.	Brachionus calyciflorus	B-	17.6	-	35.2	17.6	17.6	35.2	35.2	17.6	74.4	55.8	35.2
		S-	35.2	17.6	55.8	35.2	78.9	93.1	78.9	55.8	74.4	78.9	93.1
8.	Keratella sps.	B-	-	17.6	17.6	17.6	35.2	17.6	17.6	35.2	74.4	74.5	35.2
		S-	17.6	-	35.2	35.2	55.8	55.8	55.8	74.4	78.9	78.8	74.5
9.	Keratella tropicalis	B-	-	17.6	17.6	17.6	17.6	35.2	17.6	35.2	35.2	55.8	17.6
		S-	17.6	-	17.6	17.6	35.2	55.8	35.2	74.4	74.4	78.9	78.9
10.	Keratella cochlearis	B-	17.7	17.6	17.6	-	-	-	-	-	17.6	17.6	17.6
		S-	17.6	17.6	17.6	35.2	-	-	-	-	17.7	35.2	17.6
11.	Platylabus patula	B-	-	-	-	17.6	17.6	17.6	-	-	17.6	17.6	17.6
		S-	-	-	17.6	35.2	52.8	17.6	-	-	17.6	17.6	17.6

12.	Platyais quadri-cornis	B-	-	-	-	17.6	17.6	17.6	-	-	17.6	35.2	17.6
		S-	-	-	17.6	35.2	52.8	17.6	-	-	17.6	35.2	17.6
13.	Filinia terminalis	B-	17.6	17.6	17.6	17.6	35.2	-	-	17.6	17.6	17.6	17.6
		S-	35.2	55.89	35.2	37.2	56.8	-	35.2	55.8	55.8	74.4	52.6
14.	Filinia longiseta	B	17.6	-	-	-	17.6	17.6	-	-	-	17.6	17.6
		S	17.6	-	-	-	17.6	35.2	-	-	-	17.6	35.2
15.	Testudinella sps.	B-	-	-	-	-	-	-	-	-	-	17.6	-
		S-	-	-	-	-	-	-	-	-	-	17.6	-

Where, B=Bottom, S=Surface

The genera which were common at all study sites during different months were Brachionus, Keratella, Asplanchna and Colurella showing their tolerance power to different conditions. They may be treated as pollution indicator. Platyias, Filinia, Lecene and Monostyla genera were uncommon at different stations. Thus the occurrence of rotifers, viz. Brachionus, Keratella, Asplanchna and Colurella tropica at studied water body during winter and summer showed that these forms were able to tolerate mild pollution.

Its density shows continuous increase from September to December after December a sudden drop occurred in the month of January and February a increase of this group takes place in the summer season. Similar observations were made by Vasisht and Dhir (1970) in four ponds in Punjab and Jyoti and Sehgal (1979) from lake Surinsar.

ACKNOWLEDGEMENT

Authors are highly thankful to the Dr. N.P. Tripathi, Retired Principal, Govt. New Science College, Rewa (M.P.) and Dr. V.K. Krishan, Asstt. Professor, Deptt. of Zoology, Govt. M.G.M.P.G. College, Itarsi for completion of this work.

REFERENCE

- APHA, AWWA and WPCF (1989). Standard method for the examination of water and waste water. 17th edn. APHA Inc., New York, pp. 1268. | Edmondson, W.T. (1959). Fresh water biol. John, Willy and sons. Inc. New York. | Hutchinson, G.E. (1976). A treatise on limnology, Introduction to the lake biology and limnoplankton, Wiley, N.K. 2 : 115. | Jyoti, M.K. and Sehgal, H. (1979). Ecology of rotifers of Surinsar, A subtropical freshwater lake in Jammu (J & K) India. Hydrobiologica. 65(1) : 23-32. | Michael, R.G. (1964). Use of rotifers and Cladocerans as potential bioindicators of Indian fresh water ecosystems Symp. Biomonitoring state Environ., pp. 82-83. | Needham, J.G. and Needham, P.R. (1962). A guide to the study of fresh water biology. John, Willy and sons. Inc. New York. | Pennak, R.W. (1978). Fresh water invertebrates of the United states. 2nd edn. John Willey and Sons Inc. New York, p. 803. | Ruttner, Kolisko, A. (1972). Rotatoria, In : das zooplankton der Binnengewasser. 1. Teil, Die. Binnengewasser. 26(1) : 9-234. | Tonapi, G.T. (1980). Fresh water animals of India. Oxford and IBH Publishing Company, New Delhi, p. 341. | Vasisht, H.S. and Dhir, S.C. (1970). Seasonal distribution of freshwater zooplankton of four tanks, Chandigarh. Ichthyologica. 10(1-2) : 44-56. |