Original Research Paper

Zoology



Diversity of Rotifera of Govind Ballabh Pant Sagar, Singrauli (MP)

KIRAN BILLORE

BSTRACT

PROFESSOR, DEPTT. OF ZOOLOGY, GOVT. (AUTO.) HOLKAR SCI-ENCE COLLEGE INDORE (MP)

Rotifers play a vital role in ecosystem of water body. Diversity and density of rotifers is considered as an index for eutrophic condition of a water body. G.B.PANT SAGAR DAM is a situated on RIHAND river in Sonbhadra dist. of UP and partially Singrauli dist. of MP. Its surface area is about 468 sqkm.. Present investigation is based on the study of diversity and density of rotifers of G.B.PANT SAGAR. Four sampling sitesA,B,C and D were selected for sample collection which were about 10-15 km away from each other. With the help of Rutner,s sampling method, samples were collected monthly and filtered through a silk plankton net , preserved in 5% formalin and few drops of glycerine solution . Identified with the help of identification keys and analysed.

KEYWORDS	rotifera, sampling sites, plankton net, eutrophic	
----------	---	--

INTRODUCTION: Planktons are heterogenous aggregation of minute organisms that occur in water floating with water waves (Welch 1952).Planktons which were retain by planktonic net with meshes of 45 micron are called net planktons while those that pass through it are called nanoplanktons. Rotifera constitute net planktons. These are biological indicators of pollution and their dominance indicates the vital status of water body. The present study has been undertaken to assess the monthly fluctuations in density and diversity of rotifers of G.B.PANT SAGAR

MATERIALS AND METHOD:. Samples were collected mid-monthly from January 2014 to Dec. 2014 from four sampling sites A,B, C and D. between 10 am to 12 noon on same date with the help of planktonic net. About 50 litres of sample was filtered from each site. Collected sample was preserved in 4% formaline and glycerine sol. With the help of microscope and identification key taxonomic identification was completed .APHA 2000 methods were used during investigation. Keys of Edmondson(1959)was used for identification.

For quantitave analysis Sedgwick Rafter cell counter was used

. Following formula was applied to calculate average number of rotifers per litre of sample:

organism / lit.=

Where,

C =Number of planktonic organism counted in all strips

L = Length of strip

D =Depth of a strip

W =Width of a strip

S = Number of strips counted

OBSERVATIONS AND DISCUSSIONS

In present investigation totsl 34 species of rotifera were recorded. Two peaks were observed during the period of investigation one of higher magnitude in the month of July and another of lower magnitude in the month of December . Table 1 shows monthly statistics of density and diversity:

AVERAGE POPULATION OF ROTIFERS ON SAMPLING SITES: A,B ,C,D.

sps /months	JAN	FEB	MAR	APL	MAY	JUN	JUL	AUG	SPT	ост	NOV	DEC
Anuraeopsis fissa	19	28	31	38	46	26	62	84	72	55	41	22
Asplanchna brightwelli	09	16	23	26	23	31	42	77	64	37	17	09
A.sieboldi	11	13	26	20	27	23	54	84	71	27	19	11
Asplanchnopus multiceps	05	13	22	21	24	27	31	36	21	11	05	0
Brachionus angularis	23	27	27	19	29	35	67	84	77	31	28	25
B. bidentata	37	44	46	57	55	49	83	99	48	34	29	13
B.rubens	21	28	34	41	42	59	88	124	78	44	28	22
B.calcyflorus	07	09	13	33	37	37	59	75	58	26	11	07
B.plicatilis	11	17	21	26	26	22	26	36	28	21	16	13
B.caudatus	24	27	32	34	27	29	67	98	67	43	34	28
B.quadridentata	34	47	64	46	55	74	98	112	76	44	21	15
B.fulcatus	0	0	04	07	16	18	44	68	34	19	05	0
B.forcicula	03	05	09	21	19	17	33	41	26	18	13	06
B.diversicornis	03	14	17	09	09	07	19	42	26	13	09	03
B.urceolari	03	13	27	26	19	17	28	28	21	07	04	0
B.havanaesis	00	05	11	23	23	21	31	34	15	06	04	0
Chrompgaster ovalis	00	03	13	00	11	24	33	48	21	07	04	0

ISSN - 2250-1991 | IF : 5.215 | IC Value : 79.96

Epiphanes clavu- lata	00	03	07	07	13	18	21	33	11	09	05	0
E. senta	00	00	03	06	05	07	15	24	09	06	04	0
Keratella coch- learis	00	04	09	12	06	08	17	39	23	08	05	0
K. tropica	02	07	17	17	23	29	58	88	49	22	11	3
Lecane ungulata	09	13	25	25	43	48	66	96	33	25	20	9
L.luna	00	05	17	24	23	34	47	66	24	15	11	3
Monostyla bulla	13	12	16	27	29	43	59	84	39	33	27	18
Notholca acumi- nata	00	03	03	14	25	23	35	46	21	11	07	0
Platyias quadri- cornis	00	07	11	13	11	12	33	54	24	12	04	0
P.patulus	11	19	17	26	29	24	48	75	54	28	17	13
Polyarthra vul- garis	09	12	16	16	27	29	51	67	23	19	15	11
Scaridium longi- caudam	07	15	17	21	25	19	55	77	33	19	13	10
Synchaeta pect- inata	07	13	22	25	23	32	61	82	52	31	17	11
Trichocerca similis	00	04	09	17	19	15	39	57	31	11	07	05
T.capucina	02	08	11	15	12	23	41	76	44	27	12	09
Roteria citrinus	09	15	22	24	21	20	45	65	42	23	18	15
Testidunella sps.	00	05	12	15	26	25	49	89	57	25	11	06
TOTAL	279	454	654	751	848	925	1605	2288	1372	767	492	287





OBSERVATIONS AND RESULTS:

In present investigation population of Rotifers was recorded from January 2013 to December 2013. Maximum 34 species were recorded in the month of August and minimum 23 were recorded in the month of January. Brachionus rubens, ,B.quadridentata, B. bidentata, B. caudatus and Lecane ungulata,were found dominating .With slight fluctuations a rising trend of Rotifers was noted from February to August and declining trend was recorded from September to January. Temperature is one among the prominent factors governing the chemistry of surrounding environment King C.E.(1972). Almost similar results were reported by Sivakami *et.al.* (1996;2007;2011;2013), Paulose and Maheshwari(2008) and Tidame and Shinde(2012) in different water bodies Temperature

REFERENCE:

- A.P.H.A.1995. Standard methods for examination of water and waste water 19th edition, NEW YORK, USA.
- Edmondson, W.T.1965a. Fresh water biology, John Wiley and sons, Inc, NEW YORK.
- Edmondson, W.T. 1965b. Reproductive rates of planktonic rotifers as related to food and temperature in nature. Ecol. Monogr., 35:61-111

- Edmondson, W.T.1946. Factors in the dynamics of rotifer populations. Ecol. Monogr.16:357-372.
- King,C.E.1967. Food, age and the dynamics of a laboratory populations of rotifers. Eology, 48:111-128.
- Sivakami, R., Sugumar, R., Sumitra, P. and Amina, S. 2013. Rotifer diversity and its seasonal variation of two perennial temple ponds of Tiruchirapalli , Tamil Nadu.
- Goldman, C.R. and Horne, A.J. 1983. Limnology. Mcgraw Hills International Book company Pp. 464
- Paulose, P.V. and Maheshwari,K.2008 Seasonal variation in zooplankton community structure of Ramghat lake, Jaipur Raisthan.12th world lake conference:82-87
- Tidame, S.K. and Shinde, S.S. 2012. Seasonal variation in rotifer diversity of sample ponds of Nasik distt (M.S.) India. 2(5);19-22