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Study of zooplankton wheel animalcules (Rotifers) from Kholi Dam, Maharashtra (India)

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Abstract

The Zooplankton organisms occupy an important position in the food webs of aquatic ecosystem which has a significant role in transfer of energy. Zooplankton are the consumers of aquatic ecosystem. The Rotifers or wheel animalcules is one of the facinating group of the Zooplankton, Rotifers are mostly free living almost found in freshwater every where, generally rotifers are solitary some are sessile also, rotifers are the important group of Zooplankton community. Rotifers indicate tropic status of water bodies, rotifers used as food of fishes in water reserviores and play an important role in fishery production. The present study deals with the Zooplankton rotifers in Kholi Dam.

Key words : Zooplankton, Rotifers, Kholi dam.

Introduction

The aquatic ecosystem consist plenty of Zooplankton among these in aquatic ecosystem zooplankton form an important group of aquatic organisms, most of the zooplankton feeds up on the primary producers from water and most of the higher animals depends on zooplankton for their food chain (Michael, 1973) among various zooplankton rotifers are the dominating group of Kholi dam which play a role in transfer of energy and helps to increase the production of fishes from Kholi dam. According to Hutchinson (1967) rotifers are the most important soft bodied invertebrates, many works has been takes places pertaining to ecology of rotifers from various water reservoirs of Indian subcontinent by Anderson (1889), Edmondson and Hutchinson (1934), Dhanpathi (1974), Chandrasekhar and Koderkar (1995), Pradhan and Chakrabarty (2006) among these most of the studies are from northern and southern parts of India. In comparison to this less work has been done on rotifers from Marathwada region of Maharashtra in the aquatic ecosystem particularly less work has been done on zooplankton. In present study effort has been made to focus on the seasonal variations in rotifers population from Kholi dam.

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Material and Methods

Kholi dam is located on Aurangabad-Vaijapur road about 15 km away from Vaijapur. Vaijapur Taluka is situated at the latitude of 19°40' to 20°15' north and longitude of 74°35' to 75°00' East which covers approximately 1511 sq. km area and fall in Survey of India Toposheet No. 46 L/16, the population is 259601 according to 2001 census.

The zooplankton samples were collected monthly during the study period from August 2010 to May 2011 in the morning periods between 9.00 A.M. to 11.00 A.M. the zooplankton samples were preserved in 4% formalin solution and identification were carried out with the help of keys provided by Tonapi (1998), Penank (1978), Battish (1992), Dhanpati (2000), Mishra & Tripathi (2001) Kulkarni and Anuradha (1998), APHA (1998).

Results and Discussion

In present study abundance Zooplankton was found during August 2010 to May 2011 among the zooplankton rotifers density was at high level the rotifer density in Kholi dam varied from 17 to 690 ind/l. It was minimum during the month of August 2010 and found to be maximum during the month of May 2011 in all groups about 16 species of rotifers were identified during the study periods among these in rotifers large generic variation is observed, however the Brochionus and Keratella are the dominant group found during study, similar observations made by Somani and Pejaver (2003).

In present study maximum population has reported during summer season in 2011 supported by Khan *et al.*, (1986), Sharma (1992), in the summer maxima population of Zooplankton were observed due to higher temperature, lower transparency and high standing of primary producers leading to major availability of food, similar observations were made by salve and Hiware (2010), the continuous increasing in the alkalinity of water also affects on increase the population of zooplankton during summer in Kholi dam similar observations have been made by Ramkrishan and Sarkar (1982), Bhati and Rana (1987) Kumar and Datta (1994).

In present study lower rotifer population were observed during the late monsoon season, during months of August 2010 to October 2010, as the water from kholi dam dilutes due to rains. Which decreases photosynthetic activities by primary producers and also decreases the population of rotifers. Similar observations also make by Bias and Agrawal (1993) the population of rotifers are begins to increase slowly from winter season normally. It is high during the months of December 2010 to January and February 2011 as compared to monsoon season. The population of rotifer show high level in winter because of favorable environmental conditions including temperature dissolved oxygen and availability of plenty of food in the form of bacteria and other plankton Edmondson (1965) and baker (1979).

During the present study the population of epiphanies was observed in lower value and Brachionus was the significantly abundant group of rotifer and which was followed by the group keratella such type of observation also carried by George (1966). Jayadevi (1994) and Hiware and Jadhav (1998), the predominance of one or two genera is the characteristic of rotifers population (George, 1961).

During the study period rotifers from five families were identified. Viz family Brachionidae, family filinidae, family colourelcide, family leconidae and family trichocercidae among these family Brachionidae was the dominant group on Kholi dam. The brachionous group is worldwide in distribution and is the best genus from India.

Brachionous shows large species variation and consists 19 species with more than 14 subspecies in India battish (1992) during present work Brochinus was represented by 5 species among these B. Angularis was dominant in Rotifer population followed by B. Calcisforus which is also the dominant genera of Rotifers supported by the observations of Patil (1978) Isairasu (1997) and Malathi (1999). It was also found as dominant group by Nene (1985) during his work.

List of Rotifers Families observed during work (August-2010 to May 2011).

1) **Family Brachionidae**
   - B. Angularis
   - B. Rubens
   - B. Bidentata
   - B. Calciflorus
   - B. Caudata
   - B. Rubens
   - Keratella Tropica
   - K. Quadrata
   - K. Cochlearis
   - Epiphanes- Senta
2) **Family colurellidae**
   - Lepedella - ovalis
   - Lepedella - Patella
3) **Family- lecanidae**
   - Lecane - (M) sinuata (Hauer)
   - Lecane - Monostyla
4) **Family- Filinidae**
   - Filinia - longista
5) Family - Trichocercidae
   - T. -Rattus
   - T. Cylindrica

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List of rotifers identified from kolhi dam - (August -2010 to May 2011)

Sr.	Name of Rotifers	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	Total
1	B. angularis	02	02	04	08	08	08	29	35	40	50	196
2	B. Rubens	01	03	03	04	06	10	26	28	35	42	166
3	B. Bidentata	01	02	02	02	04	07	20	35	40	45	158
4	B. Calciflorus	01	01	04	04	08	08	25	30	41	50	172
5	B. Caudata	01	02	04	03	07	07	20	39	37	47	167
6	K. Tropica	02	02	04	04	06	06	20	33	30	44	161
7	K. Quadrata	02	02	02	03	05	05	18	29	36	45	147
8	K. Cochlearis	01	01	05	06	06	08	18	30	35	45	155
9	E. Senta	00	01	02	04	06	05	22	32	43	50	139
10	E Longista	01	02	03	04	04	04	15	25	37	45	140
11	L. Ovalis	01	01	02	04	05	05	18	25	37	44	142
12	L. Patella	01	02	03	04	04	08	25	24	36	45	152
13	Lecane Sinuata	01	02	04	05	03	06	24	21	45	44	155
14	M. Lacane	01	01	03	04	06	06	14	20	40	50	145
15	T. rattus	01	01	04	08	07	09	18	35	38	34	155
16	T. cylindric	00	02	04	04	04	09	14	29	34	49	149
	Total	**17**	**27**	**53**	**71**	**89**	**93**	**326**	**470**	**604**	**690**	

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