

Volume 3, Issue 2, February 2023

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

# Study of Zooplankton Diversity of Mul Lake of Chandrapur District, Maharashtra State (India)

Kiran R Borkar<sup>1</sup> and Sachin S. Choudhari<sup>2</sup>

Department of Zoology, R.M.G. Arts, Com. & Science College, Saoli, Chandrapur, Maharashtra, India<sup>1</sup> Department of Botany, R.M.G. Arts, Com. & Science College, Saoli, Chandrapur, Maharashtra, India<sup>2</sup> Corresponding Author: kirankapgate14@gmail.com

Abstract: Zooplankton organisms play a very crucial role in the trophic dynamics and energy transfer in aquatic ecosystem. Their abundance increases in eutrophic water. They are also sensitive to pollution and many species are recognized as indicators of pollution. It is an integral component of an aquatic ecosystem. The Mul town is in the Chandrapur district of eastern part of Maharashtra and is situated between 200,07,N and 790,67, E. It is a taluka headquarter and commercially important town on Gondia, Chandrapur south central eastern railway line. It is popularly known as Rice city because of number of modern rice processing units in an around the town. It has also been a centre for educational facilities which culminated in progressively increasing urbanization with a population of about 30,000. The area being traditionally paddy growing, in the town there are two ponds and one lake, the water of which is primarily used for irrigation, aquaculture and for other sociocultural practices. Water samples were collected in polythene bottles (two litters capacity) once in month from the selected sampling sites of two lakes to analyze the water quality parameters for the period of 24 months i.e. from January 2011 to December 2012. Zooplankton belonged to Rotifera, cladocera, copepod and ostracoda of the lake, the two year average showed the following sequence of their abundance.

Mul Lake = Rotifera> Cladocera > Copepoda> Ostracoda .In the present investigation, total zooplankton was recorded maximum during summer and minimum during monsoon.

Keywords: Zooplankton, Rotifera, Copepoda, Cladocera, Ostracoda& Mul lake

### REFERENCES

- Adarsh kumar, Qureshi T.A. and Prashar A. (2006): Biodiversity assessment of macro-invertebrates in Ranjit Sagar Reservoir, Jammu, J & K, India. J. Aqua. Biol., Vol.21 (2): 45-50) pp.
- [2]. Angadi, S.B., Lingannaiah. B., EshwarlalSedamkar (1999): Limnological studies of Jagat Tank, Gulabarga, Karnataka, Freshwater Ecosystem of India, by Vijaykumar, Daya Publication House, Delhi: 133-159 pp.
- [3]. Arora, H.C. (1966) : Rotifers as indicators of Trophic nature of environments. Hydrobiologia. XXVII, Face. 1-2 pp.
- [4]. Arvind kumar (1994) : Periodicity and abundance of Rotifers in relation to certain Physico-chemical characteristics of two ecologically different ponds of Santhal parganas (Bihar). Indian J. Ecol. Vol. 21(1) : 54-59 pp.
- [5]. Bhandarkar, W.R., Bhandarkar, S.V. and Murkute, V.B. (2008) : Observations on species diversity of Brachionus (Rotifera) from Kalikar pond, Bramhapuri, Dist. Chandrapur, Maharashtra. J. Aqua. Bio. 23 (1) : 4-7 pp.
- [6]. Chandrasekhar, S.V.A. and Kodarkar, M.S. (1994) : Biodiversity of zooplankton in Saroornagar lake, Hyderabad. J. Aqua. Biol. 9(1 & 2) : 30-33 pp.
- [7]. Dahegaonkar, PM Telkhede, WR Bhandarkar (2012) : Studies on water quality of river Wardha at Ballarshah near Chandrapur (MS), India
- [8]. Dhanpathi, M.V.S.S.S. & Rama Sarma, D.V.(2000) : Further studies on the Rotifers from A.P.,India, Incluing a new species. J. Aqua. Biol., Vol. 15 (1 & 2) : 6-15 pp.
- [9]. Edmondson, W.T. (1959) : Freshwater Ecology, 2<sup>nd</sup> Ed. John Wiley & Sons, Inc. New York.

## IJARSCT



## International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

#### Volume 3, Issue 2, February 2023

- [10]. Edmondson, N.T. (1995) : Reproductive rates of planktonic rotifers related to food temperature in Nature Ecol., Vol.5 : 61-68 pp.
- [11]. Ghosh, A.K. and Chattopadhyay, S. (1994) : Biological resources of a petri urban wetland SantragachiJheel, Howrah district, West Bengal. Indian J. Landscape system and Ecol. Studies 17 (1) : 1-7 pp.
- [12]. Hatchinson, G.E. (1967). : Treaties on limnology. II Introduction to the Lake Biology and Limnoplankton. John Wiley and Sins, Inc. New York.
- [13]. Jayabhaye, U.M. and Madlapure, V.R. (2006) : Studies on zooplankton diversity in Parola Dam, Hingoli, M.S. India. J. Aqua. Biol., Vol. 21 (2), 2006 : 67-71 pp.
- [14]. Jorge, J.C., Sarma, S.S.S., Ibarra, M.M. and Nandini, S.(2009) : Seasonal changes in the rotifer (Rotifera) diversity from a tropical high altitude reservoir (Valle de Bravo, Mexico). J.Env. Biol. 30(2) : 191-195 pp.
- [15]. Kadam, M.S. Pampatwar, D.V. and Mali, R.P. (2007) : Seasonal variations in different physic-chemical characteristics in Masoli reservoir of Parbhani Distt. M.S. J. Aqua. Biol., Vol. 22 (1), 2007 : 110-112 pp.
- [16]. Kar S and Kar D (2016) : Zooplankton diversity of a Freshwater wetland of Assam .
- [17]. Kaushik, S. and Sharma, N.(1994) : Physico-chemical characteristics and zooplankton population of a perennial tank, Mataya Sarovar, Gwalior. J. Env. Ecol.,1 : 429-434 pp.
- [18]. Kulshreshtha, S.K., M.P. George, Rashmi Saxena, Malini Johri and Manish Shrivastava, (1992) : Seasonal variations in the limnochemical characteristics of Mansarovar reservoir of Bhopal. In Aquatic Ecology (S.R. Mishra and D.N.Saxena Eds.), 275-292 pp. Ashish Publishing House, New Delhi.
- [19]. Kumar, A.C. Bohra and Singh, L.K. (Ed). Environmental pollution and management. APHA pub. Corp., New Delhi. 604 pp.
- [20]. Meshram Wasudha J., Meshram Nandini and Bhandarkar W.R. (2012) : Study on some physico- chemical parameters of Railway Station Pond at Gondia, M.S., India Jour. of sci. infor, (3) : 100-102.
- [21]. Michael, R.G. and Sharma, B.K. (1988) : Fauna of India and adjacent countries, Indian Cladocera (Crustacea : Brachiopoda : Cladocera), ZSI- Calcutta
- [22]. Pawar B.A. and Mane U.H.(2006) : Hydrography of Sadatpur Lake near Pravaranagar, Ahmednagar district, Maharashtra. J.Aqua. Biol., Vol 21(1) : 101-104 pp.
- [23]. Padmanabha, B. and Belagali S.L. (2008) : Ostracods as indicators of pollution in the lakes of Mysore. J. Environ. Biol. Vol. 29 (3) : 415-418 pp.
- [24]. Pennak, R.W. (1944) : Diurnal Movements of Zooplankton Organisms in Some Colorado Mountain lakes. Ecology, 25: 387-403 pp.
- [25]. Pennak, R.W. (1978) : Fresh Water Invertebrates of the United States, 2<sup>nd</sup> Ed. Wiley Interscience Publ. John Wley& Sons, New York.
- [26]. Pennak, R.W. (1989) : Fresh water invertebrates of the United states 3/e, 628 pp. John Wiley and Sons Inc., New York.
- [27]. Plaskit, F.J.W. (1997) : Microscopic fresh water life, Biotech Books, Delhi-110035.
- [28]. Proctor, V.W., Malone, C.R. and Deevaming (1967) : Dispersal of Aquatic organisms. Ecology, 48: 672-676 pp.
- [29]. Raghunathan, M.B. and K. Revathi, (1999) : Limnological Studies of a village pond in Tamil Nadu, Freshwater ecosystem of India, by K. Vijayakumar, Daya Pub. House, Delhi : 160-166 pp.
- [30]. Schindler, D.W. and Noven, B. (1971) : Vertical distribution and seasonal abundance of zooplankton in two shallow Ontario. J. of Fisheries Research, Canada. 28: 245-256 pp.
- [31]. Sehegal, K.L. (1983) : Planktonic Copepod of Freshwater Ecosystem Interprint, New Delhi.
- [32]. Sharma, P.D. (1995) : Ecology and Environment, published by Rastogi publications, Meerut, 6<sup>th</sup> Edition : 273-284 pp.
- [33]. Sharma Jayashree, Mandloi and Pathak Era (2007) : Planktonic diversity in a lentic water body at Jabalpur (M.P.). NSL-2007 : 258-261 pp.
- **[34].** Sharma, P.D. (1995) : Ecology and Environment, published by Rastogi publications, Meerut, 6<sup>th</sup> Edition : 273-284 pp.

## IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

#### Volume 3, Issue 2, February 2023

- [35]. Sharma, S.P. (1992) : Systematics, Distribution and Ecology of freshwater Rotifers in West Bengal, pp 231-273. In S.R. Mishra and D.N. Saxena (Ed) Aqua. Ecology, Ashish Publ. Delhi.
- [36]. Sharma, R.K. and Rathore Vinita (2000).: Pollution ecology with reference to commercially important fisheries prospect in rural based water body: The lake SarsaiNawar, Etawah in U.P. (India). Poll. Res. (19) 4 : 641-644 pp.
- [37]. Sharma,A.,M.M. Ranga and P.C. Sharma (2010) : Water quality status of historical Gundolav Lake at Kishangarh as a primary data for sustainable management. South Asian Joun. Of Tourism and Heritage (2010),Vol.3,No.
- [38]. Singh Sudha, Sapna Sisodia, C. Padmakar, Mogali, J. Nandan and Yadava, R.N. (2007) : Environmental Status and Limnology of Hathaikheda Reservoir, Bhopal, (M.P.), Limnology Souvenir World Lake Conf. Jaipur NSL- 2007: 296-299 pp
- [39]. Somani V. U. & Pejaver M.K. (2003). : Rotifer diversity in Lake Masunda ,Thane (M.S.). J. Aqua. Biol., Vol. 18(1): 23-27 pp.
- [40]. Sunkad, B.N. and Patil, H.S. (2000) : Biodiversity of Rotifers in Fort lake of Belgaum city, North Karnataka. Internet collection. 1-5 pp.
- [41]. Tonapi, G.T. (1980) : Fresh Water Animals of India, an ecological approach, Oxford and IBH publishing Co. New Delhi.
- [42]. Venkataraman, K.; Das S.R. & Nandi N.C.(2000) : Zooplankton diversity in freshwater wetlands of Haora district, West Bengal. J.Aqua. Biol., Vol.15 (1& 2) : 19-25 pp.
- [43]. Verma, R.K. and Dutta Munshi, J.S. (1987) : Plankton community structure of Badua reservoir, Bhagalpur(Bihar). Trop. Ecol. 28 : 200-207 pp.
- [44]. Vijaykumar, K. Holkar Devendra and Kaur,Kuldeep (1999) : Limnological Studies on Chandrampalli reservoir, Gulbarga. Freshwater ecosystem of India by Vijaykumar, K.,Dayapubl.,Delhi.,: 59-108 pp.
- [45]. Wasudha Meshram (2010) : Investigations on the hydrobiological profile of some fresh water ponds at,Gondia(M.S.).,Ph.D Thesis by RTM University Nagpur.