



Seasonal diversity of Zooplankton in Bembla river of District Yavatmal, Maharashtra, India

Abhay Patki

Department of Zoology, S. P. M. Science nad Gilani Arts, Commerce College, Ghatanji, Dist- Yavatmal, India- 445 301
Email: akpatki@yahoo.com

Manuscript details:

Received: 21.10.2018
Accepted: 26.12.2018
Published: 31.12.2018

Cite this article as:

Abhay Patki (2018) Seasonal diversity of Zooplankton in Bembla river of District Yavatmal, Maharashtra, India, *Int. J. of Life Sciences*, Volume 6(4): 1042-1044.

Copyright: © Author, This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

Available online on
<http://www.ijlsci.in>
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)

ABSTRACT

The Present study deals with the seasonal diversity of zooplankton in Bembla river district Yavatmal. Samples were collected from two regions of the river khadaksawanga and Babhulgaon region during the period of one year durin September, 2016 to August 2017 at the interval of each and every season of per month. The specimens were assessed to study seasonal diversity. The samples belongs to Protozoa, Rotifers, Dadocera, Nematada, Branchiopoda were reported. Out of this studied zooplankton the diversity of Protozoans and Rotifers were dominant. This seasonal study reveals the variations in zooplankton and it was maximum in summer and minimum in rainy and winter season.

Keywords: Zooplankton, Diversity, Bembla River, Yavatmal district.

INTRODUCTION

Planktons are the assemblage of microscopic plants and animal they are minute and free floating organism in the water. Zooplankton occupies intermediate position in food web and mediates the transfer of energy from lower to higher trophic level (Water, 1977, Khare, 2005). The study of zooplankton is ecological important parameter to evaluation the quality of water. Most of the research carried out in this field (Altaff, 2019, Pawar, 2019, 2018, Dekate and Baviskar, 2016, Pradhan, 2014, Vasanth et al., 2013, Shaikh *et al.* 2012, Kadam *et al.* 2014, Belkode and Sitre, 2016, Santosh Kumar Singh, 2017). Zooplankton acts as main sources of food for many fishes and plays an important role in early detection and monitoring the pollution of water. The study of zooplankton has been a fascinating subject for a long time. In the last two decades much attention has been paid in tropical countries towards the study of biology, ecology and toxicology of zooplankton due to their important role in the rapidly emerging concepts in environmental management like Environmental Impact Assessment (EIA), bio indication of pollution and biological monitoring (Salve and Hiware, 2010). Zooplankton is good indicators of the changes in water quality because they are strongly affected by environmental conditions and respond quickly to changes in water quality. Zooplankton is the intermediate link between phytoplankton

and fish. Hence qualitative and quantitative studies of zooplankton are of great importance in Reservoir water body.

MATERIAL AND METHODS

Yavatmal district lies in the south-western part of the wardha. The district lies between 19.26' and 20.42' north latitudes and 77.18' and 79.9 east - longitudes. The Bembla basin in the northern parts of Babhulgaon tehsil. The samples were collected from khadaksawanga to Babhulgaon region. Investigations were carried out during September 2016 to August 2017. Samples were collected monthly from fresh water by using plankton net and collected samples were shifted into the 1 liter plastic bottles. The collected samples were allowed to centrifuge to concentrate and made up to 100ml after removing the surface water in the centrifuge tube. The populations of plankton present in the centrifuge tube were transfer to other bottle and preserved in Lugol's Iodine solution of further investigation (Sabitakumara, 2018). Take a drop of well mixed water by slightly shaking on a clean slide place the cover (Ship on it under the proper magnification slides were) observed and the samples were identified with the help of relevant literature (Batish, 1992).

RESULT AND DISCUSSION

The sampling site shows seasonal diversity in the zooplankton according to their nutrient. The zooplankton in the area studied reveals 18 species and 09 genera of various groups Protozoa (4 Species of 2 genera), Rotifers (8 species 3 genera) cladocera (2 species genera), Nematoda (2 species 1 genera), Branchiopoda (2 species 2 genera). The protozoans and rotifers are dominant than other reported planktons. Some genera act as bioindicators of organic pollution. The seasonal diversity reveals variation in plankton it was maximum in summer and minimum in rainy and winter season. Primary production is responsible for increasing the population density of zooplanktons in summer season. Normally monsoon is associated with lower densities due to its dilution effect and decreased photosynthetic activities by primary production. Similar results were reported by Salve and Hiware (2010) in Wanprakalpa reservoir of Nagapur. The abundance of some zooplankton in the aquatic food web has been reported to indicate eutrophication (Halbach *et al.*,

1983). Sharma and Diwan, (1993) studied plankton dynamics of Yeshwant Sagar reservoir in which the Cladocera showed maximum density in June. In summer season the absence of inflow of the water brings stability to the water body. The availability of food is more due to production of organic matter and decomposition Kiran *et al.* (2007).

REFERENCES

- Altaff K (2019) Zooplankton diversity of freshwater lakes of Chennai, Tamil Nadu with reference to ecosystem attributes, *Int. J. of Life Science*, Volume 7(2): 236-248.
- Battish SK (1992) Fresh water zooplankton of India. Oxford and IBH Publishing company, 1-233.
- Belkode PP and Shrikant Sitre (2016) Phytoplankton diversity of Dham River in Wardha District of Maharashtra State. *Indian Journal of Fundamental and applied life sciences*, 6(1); 10-13.
- Dekate HM and Baviskar RN (2016) Diversity and Ecology of Zooplankton in Mumbri creek of South Konkan, Maharashtra, India *International J. of Life Sciences*, 4 (2): 310-313.
- Halbach U, Siebart M, Wastmayear M and Wissel C (1983) Population ecology of rotifers as a bioassay tool for ecotoxicological testes in aquatic environment. *Ecotoxicol. Environmental Safety*, 7: 484-513.
- Kadam SU, Kadam S and Babar M (2014) Phytoplankton diversity of reservoirs in Parbhani District Maharashtra India. *Int. J. curr. Microbio.Apl-Sci.* vol. 3(8): 459-466.
- Khare PK (2005) Physico-chemical characteristics in relation to Abundance of plankton of Jagat Sagar Pond, Chattapur, India. *Advances in Limnology* Edited by. S.R. Mishra, (Daya Publishing House), New Delhi, pp 162-174.
- Kiran BR, puttaiah ET and Kamath D (2007) Diversity and seasonal fluctuation of zooplankton in fish pond of Bhadra fish farm, Karnataka, *Journal of Zoological Print*, 22: 2935-2936.
- Manoj Kumar and Khare PK (2015) Diversity of plankton and their seasonal variation of diversity in the Yamuna river at Kalpi district Jalaun India. *J. of Global biosciences*, 4(7): 2720-2729.
- Sabita Kumari P Gayatri and Ramachandra Mohan M (2018) Phytoplankton diversity in Begalore Lakes. Importance of climate change and nature's Benefits to People. *Journal of Ecology and Natural Resouce*, (2). 1:118
- Salve B and Hiware C (2010) Zooplankton diversity of wan reservoir, Nagpaur (MS) India. *Trends Research in Science and Technology*, 2(1): 39-48.
- Sharma Rekha and Diwan AP (1993) Limnological studies of Yeshwant Sagar Reservoir Plankton population dynamics. *Recent Advances in freshwater Biology*, Ed. K.S. Rao, 1:199-211.

- Sheikh Praveen R and Bhosle Arjun B (2012) Plankton biodiversity of siddheshwar Dam in Hingoli Maharashtra India. *J. of Env. Research and Development*, 7 (2): 905-916.
- Pawar SK (2019) Quantitative analysis of Zooplankton of Ghagardara dam, District Nanded, Maharashtra, India, *Int. J. of Life Sciences*, Volume 7(3): 577-579.
- Pawar SK (2018c) Assessment of Zooplankton of Karadkhed Dam, District Nanded, Maharashtra, India, *Int. J. of Life Sciences*, Volume 6(3): 825-828.
- Water TP (1977): Secondary production in Inland waters. *Adv. In Eco. Res*, 10:11-164.
- Vasanth Kumar B, Roopa SV and Gangadhar BK (2013) A study on Zooplankton diversity and abundance in mangroves of Kali Estuary, Karwar, West coast of India, *Int. J. of Life Sciences*, 1(4): 297-302.
- Pradhan VP (2014) Zooplankton diversity in fresh water Wunna lake. *Int. J. of Life Sciences*, 2(3): 268-272.