REVIEW OF RESEARCH

ZOOPLANKTON DIVERSITY OF TAKALI (PADMAWATI) LAKE IN PANDHARPUR,DIST: SOLAPUR (M.S.)

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ABSTRACT:

The Zooplanktons are highly diverse, free floating microscopic animals. They are useful to assess the health of aquatic ecosystem. During present investigation zooplankton diversity of Takali (Padmawati) Lake is studied. During the present study zooplankton samples were collected and analyzed monthly from June 2013 to May 2014. Total 20 species of zooplankton were observed. Out of 20 species 11 species were belonging to rotifera, 3 species were belonging to cladocera, 4 species were belonging to copepoda and 2 species were belonging to ostracoda. Among the observed groups of zooplankton the rotifers were abundant. It indicates the eutrophic nature of the lake.

KEYWORDS: *Zooplankton, Takali Lake, Pandharpur.*

INTRODUCTION

Zooplanktons are short lived, highly sensitive, free floating microscopic animals. They are useful to understand the effect of anthropogenic activity on aquatic systems (Richardson, 2008). Zooplanktons are at a central position in pelagic food web because they transfer energy from primary producers to higher trophic levels (Havens, 2002). Zooplankton formulates the base of food chains as well as food webs in all aquatic ecosystems. They play a key role in recycling nutrients as well as cycling energy within their respective environment. Thus the presence and dominance of zooplankton species play a significant role in the functioning of freshwater ecosystem (Solanki *et al.,* 2015). Being a good bioindicator, various aspects of zooplanktons are studied by several researchers across the world. Some of them are John *et al.* (1980), Garcia *et al.* (2002), Ferdous and Muktadir (2009), Manickam *et al.* (2014) etc. However there exists a lacuna in the field of zooplankton diversity of Takali (Padmawati) Lake. Therefore the present investigation attempts to focus on zooplankton diversity of Takali (Padmawati) Lake.

MATERIALS AND METHODS:

The Takali (Padmavati) Lake is situated on the South-West of the Pandharpur city. Geographically the lake is located between 17^0 40' North latitude and 75^0 23' East longitude and 465.12 m above mean sea level. It is the perennial lake. The average depth of annual rainfall for the study area is 657 mm. The climate of the area is dry. In summer temperature ranges from 26 ^{0} C to 42^0 C while in winter it ranges from 17^0 C to 31^0 C.

The zooplankton samples were collected monthly from June 2013 to May 2014. The samples were collected in the morning by filtering 200 liters of water through a bolting silk cloth, plankton net No.25. The zooplankton samples were preserved in 4% formalin. The zooplanktons were observed under research binocular microscope by using Sedgwick-Rafter cell. The zooplanktons

were identified by using standard literature and keys of Edmondson (1918), Pennak (1978), Tonapi (1980) and Battish (1992).

RESULTS AND DISCUSSION:

During the present investigation 20 species of zooplanktons were identified. The zooplankton population of Takali Lake had shown the presence of group rotifera, copepoda, cladocera and ostracoda. Out of 20 species 11 species were belonging to rotifera, 3 species were belonging to cladocera, 4 species were belonging to copepoda and 2 species were belonging to ostracoda.

High population density of rotifer indicates eutrophic nature of waterbody (Shivashankar and Venkataramana, 2013). During the present investigation it is observed that rotifers are dominant among all the observed groups in the Takali (Padmawati) Lake. It is observed that among rotifers *Brachionus* species is most frequent. Total 5 species of genus *Brachionus* are observed during the present investigation. It indicates the eutrophic nature of Takali Lake. Similar observations were reported by Parveen and Mola (2013), Shivashankar and Venkataramana (2013).

The nature and pattern of fluctuation in population density of zooplanktons depends upon temperature, light, pH, dissolved oxygen, and various other factors of waterbody (Shaikh *et al.,* 2014). During the present investigation it is found that zooplankton population was maximum in summer. According to Salve and Hiware (2010) the summer maxima of zooplankton population is due to higher temperature and lower transparency. It is also interrelated with greater availability of food due to high standing crop of primary producers. A similar trend of maximum population in summer is observed by Salve and Hiware (2010), Shaikh *et al.* (2014). Our results are in conformity with the results of Salve and Hiware (2010), Parveen and Mola (2013), Shivashankar and Venkataramana (2013) and Shaikh *et al.* (2014).

Table No. 1 Zooplanktons observed at Takali Lake

Sr. No	Zooplankton
ROTIFERA	
1	*Brachionus bidentata*
2	*Brachionus havanaensis*
3	*Brachionus falcatus*
4	*Brachionus forficula*
5	*Brachionus calyciflorus*
6	*Keratella crassa*
7	*Anuraeopsis fissa*
8	*Asplanchna herricki*
9	*Lecane elongata*
10	*Platyias patulus*
11	*Notholca squamula*
CLADOCERA	
1	*Bosmina longirostris*
2	*Daphnia parvula*
3	*Chydorus sphaericus*
COPEPODA	
1	*Diacyclops thomasi*
2	*Acanthocyclops robustus*
3	*Mesocyclops leuckarti*
4	*Undinula valgaris*
Ostracoda	
1	*Cyprinotus sp.*
2	*Cypris subglobosa*

CONCLUSION:

During the present investigation 20 species of zooplanktons were observed. The zooplankton population had shown the presence of group rotifera, copepoda, cladocera and ostracoda. Among the observed groups of zooplanktons, rotifers are abundant. In rotifer occurrence of genus *Brachionus* was most frequent. Total 5 species of *Brachionus* were observed at Takali Lake. It indicates eutrophic nature of lake. Zooplankton population is found to be maximum in summer. It may be because of availability of plenty food and high temperature.

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