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FAUNAL DIVERSITY OF MACROINVERTEBRATES BENTHOSE IN BALSAMUDRA LAKE IN PAUNI DIST.BHANDARA (M.S.)

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ABSTRACT:
Lake and river bottoms are inhabited by benthic macro-invertebrates , These have the ability to control the abundance of algae through grazing, and are an important food source to organisms in higher tropic levels such as fish and other predatory invertebrates. The Balsamudra,lake is principal freshwater body ,located in Pauni Bhandara district of Maharashtra State . Pauni is a tahsil place nearly 87 Km. South-East from Nagpur and 41 Km. .South from Bhandara . The benthic macro-invertebrates samples were collected for quantitative estimation, at each site with Ekman Dredge i.e. Aug 2017 to Mar 2018. In the present investigation 22 macro-invertebrate species were recorded in Balsamudra lake. In class Nematoda *Diplogaster factor* and *Rhabdolaimus minor* and Annelids like *Pherentims* and *Hirudinaria* . Larvae of Mosquito and *Chironomous* are considered as pollution indicator by several authors. Their dominant presence in Balsamudra indicates its polluted nature.

Keywords: - Benthic, Balsamudra Lake, Pollution.

INTRODUCTION :

Aquatic invertebrates are consumers that feed primarily, on bacteria, algae, and detritus matter that is both produced within and enters from the surrounding catchment. Invertebrates assemblages are good indicators of localized conditions because many have limited migration patterns or are sessile (non-motile) and thus, are useful for examining site-specific impacts. Benthic macro-invertebrates of freshwaters represent a highly discriminatory variable as these animals are confined to micro-habitats, continuously receiving organic matter produced in or flushed into an ecosystem. The benthic organisms can survive in polluted environment and a wide assemblage of organisms belonging to different classes and orders constitute the zoo-benthos. The benthic communities are usually dominated by different species of oligochaete worms, gastropodes, pelecypodes and various minor insect larvae. They play an important role in the mineralization and recycling of organic matter and are an important tool for improving and preserving water quality. (Bilgrami and Dutta Munshi, 1985; Venkates warlu, 1986). S.B. Zade and S.R. Sitre (2012) observed 13 macro benthic species belonging to three phylum in a polluted urban Naik lake of Nagpur city. S.S. Lonkar and G.T. Kedar (2014) recorded 30 species of macro benthic invertebrates belonging to four phylum from three Urban lakes of Nagpur, in the Ambazari lake

In foreign countries the works were mainly done by Barbour, Gerritsen, Snyder et al.(1999) studied on Benthic macro-invertebrates at Streams and Rivers USA .while in India , Khajuria A.(1992) . S.Sharma, Joshi et al. (2007), Sarang et al. (2007) Kabir (2012) had investigate Benthic Biodiversity in the Lakes of Aligarh (U.P). Telkhade , Zade and Dahegaonkar (2012) have studied Water Quality status in

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Tadoba lake Chandrapur , Maharashtra . But no literature was found in Bhandara district (M.S.) as well hence this site is chosen to study the pollution level and varity of benthos in the area .

MATERIAL AND METHODS :

Balsamudra Lake is located at the South-East side of Pauni, is at about 803 feet above mean sea level and is at $20^{0}47^{I}31^{II}$ N. latitude and $79^{0}38^{I}7^{II}$ E. longitude. It receives water from the surrounding catchment area during the monsoon period as well as from municipal drainage. The area is spread over 4.92 hector. The water is primary used for bathing , the site receiving the sewage, dirt form washed clothes, vehicles cleaning, idol immersion and animal washing activities, fishing activities and other activities in huge manner.

The sample collection was made during the morning hours between 8.30 to 10.30 am. The samples were collected every month for the period of a year i.e. Aug 2017 to Mar 2018. The benthic macro-invertebrates samples were collected for qualitative estimation. The collection were made at each site with Ekman Dredge of scooping capacity 15.2 x 15.2 sq. cm. of the lake substrate and screened through metallic sieve no. 40 of mesh size 0.545 mm. sieved material was transferred to white enamel tray partially filled with water. The benthic macro-invertebrates were sorted out by forceps and classified them species wise. The identification up to species by following the keys from Edmondson, (1959); K. Vanamala Naideu, (2005); Pennack, (1989); Tonapi, (1980); Subba Rao, (1989).

During the study period 20 benthic forms of 6 groups of class/phylum were recorded in the lake. The data of Benthic fauna is tabulated in Table1.

RESULT AND DISCUSSION :

Benthic communities are especially useful in detecting and evaluating the impacts of low dissolved oxygen events and aquatic contamination because exposure to anoxia/hypoxia is greatest in near bottom waters and hydrophobic anthropogenic contaminants typically accumulate in sediments. Benthic organisms with limited mobility cannot avoid adverse conditions and better reflect local environmental conditions compared to most pelagic fauna (Gray, 1979). In the present investigation 20 macroinvertebrate species were recorded in Balsamudra, lake. In class Nematoda , *Diplogaster factor* and *Rhabdolaimus minor* and Annelids like *Pherentims* and *Hirudinaria* showed their presence in a lake. Their dominant presence in Balsamudra indicates its polluted nature. Telkhede et al., (2008), also recorded the species of *Rhabdolaimus* and *Diplogaster factor* from Masala lake at Durgapur, District Chandrapur, Maharashtra. Larvae of Mosquito and *Chironomous* are considered as pollution indicator by several authors (Anitha et. al.2004). S.S. Lonkar and G.T. Kedar (2014showed high species diversity with 28 species while 26 species were recorded from Futala lake while 24 species were recorded from Gandhisagar lake.

CONCLUSIONS :

As the pollution of Balsamudra Lake is concerned, it is very necessary to take some steps in order to minimize the contamination of water. To minimize the pollution of water and for improvement of the water quality, the following measures are suggested, which may reduce the stress of pollutants in the lake water and subsequently controls the effect of pollution on human beings. In Pauni town some motivations to social institutions from Government and municipal authorities, on the awareness of pollution of lake, is necessary. Some boards with instructions and hording about the importance of water and lake should be placed at appropriate sites.

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Table 1 : Benthic forms of Balsamudra lake.

Sr. No.	Class / Phylum	Name of forms
1	Nematoda	*Diplogaster fictor*
2	Nematoda	*Rhabdolaimus minor*
3	Nematoda	*Paradox orhabitis* sp.
4	Annelida	*Dugesia tigrina*
5	Annelida	*Pheretims posthauma*
6	Annelida	*Hirudinaria granulosa*
7	Oligocheta	*Aeolostoma hemprinchi*
8	Oligocheta	*Tubifex* sp.
9	Celeoptera	*Dinecutus* sp.
10	Celeoptera	*Peltodytes* sp.
11	Diptera/ Arthopoda	Mosquito larva
12	Odonata/ Arthopoda	Dragon-fly
13	Hydrachnidia/ Arthopoda	Water mite
14	Diptera/ Arthopoda	*Chironomous* larva
15	Hemiptera/ Arthopoda	*Belostoma* sp.
16	Hemiptera/ Arthopoda	*Nepa* sp.
17	Mollusca	*Lymnaea* sp.
18	Mollusca	*Pila globosa*
19	Mollusca	*Vivipera bungalensis*
20	Mollusca	*Corbicula regularis*

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