

Different Nutrients level assessment and Zooplankton Community of Kondeshwar lake, Dist. Amravati (M.S.)

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Abstract-

Kondeshwar lake is an important, fresh water lake of badnera City. It is situated near Kondeshwar temple. The lake is filled to maximum capacity in the rainy season. It is mainly used for drinking fishing and agriculture purpose. The samples were collected in the morning time during July-2017 to December-2017 to assess the various nutrient levels, Zooplankton diversity and parameters such as pH, nitrates, sulphates, phosphates, etc. variation in parameters were noted and it is concluded that water of the kondeshwar lake is portable and is unique ecosystem.

Key words- Chemical analysis, Zooplankton, Kondeshwar lake.

Introduction-

Water pollution is one of the major problem in many parts of country. The contamination of water bodies might lead to a change in their trophic status and render them unsuitable for various purpose. Hence regular monitoring of the physicochemical parameters is essential to determine status of lake.

Water along with its contained substance and energies, constitute an immediate environment for aquatic organism. Most of the physical and chemical features invariably have significant influences on the aquatic life.

These features contribute to the sum total circumstances which make possible the existence of various phenomenon of biological activities some physicochemical parameters like temperature, dissolved oxygen and organic matter control the growth of zooplankton (Hanazato and Yasuno;1985, Bhati and rana;1987)

Materials and Methods-

In order to study the limnological aspects (i.e. nutrient level) of kondeshwar lake five sample spots were chosen to represent the whole water body the water samples were collected from five different spots in the morning time in clean iodine treated poly vinyl chloride container & in BOD bottles to analyse the nutrient level & physio-chemical parameters as prescribed in APHA(1995).

The study of zooplankton community the sample collected in 1000 ml bottle and preserved 5% formaldehyde and then centrifused at for 15-20 minutes. The zooplankton settled at bottom were diluted to a desired concentration in such a way that they could be easily counted individually under binocular microscope and zooplankton were APHA (2005) species diversity richness were calculated.

Result & Discussion-

Pond constitute an integral part of purposes urban community in respect of providing drinking water source, agriculture and fish culture purposes. However, due to unplanned urbanization, population expansion and increase in density and over exploitation for various purposes, these important aquatic resources are under severe stress leading to deterioration of water quality and depletion of aquatic biodiversity. A definite seasonal variation was evident among the various physico-chemical characteristics. In the present investigation analysis of water samples from kondeshwar lake was carried out during period from July 2017 to December 2017.

Temperature-

The average air temperature was varied in the range of 27.00⁰ c to 32.00⁰ c. The minimum value was recorded in the month of July 2017 while maximum value in December 2017.

Transparency-

The transparency water body is mainly affected by suspended particle & indirected in influence the physio-chemical parameters. Low value of transparency were recorded during July to December.

Nitrate-

Nitrate is an important plant nutrient and when present in maximum quantity is responsible for eutrophication. Higher value of nitrates were recorded July 2017 and lower values were recorded in December 2017.

pH-

The determination of pH of water is important as it plays a limiting role in the growth of aquatic flora the average range of pH was between 07.99 to 08.46. The minimum value was found in December 2017

Sulphates-

Sulphates are generally present in sufficient concentration and increase the hardness of water. The average sulphate values were recorded in the range of 02.01-03.55 mg/lit. during the period of study, minimum value 01.26 mg/lit. & maximum value 03.89 mg/lit. was recorded.

Total Phosphorus-

The present average total phosphorus oscillated between 00.24-00.66 mg/lit. The minimum value 00.03 mg/lit. & maximum value 00.60 mg/lit. was recorded in July 2017 & December 2017 respectively.

Inorganic Phosphorus-

The most significant form of inorganic phosphorus is orthophosphate is the only directly utilized form of soluble inorganic phosphorus. The average value fluctuated between 00.72-00.96 mg/lit. The lowest value was 00.08 mg/lit. & highest value was 00.87 mg/lit. in July 2017 to December 2017.

Organic Phosphorus-

The average value was recorded in range of 00.69-00.77 mg/lit. The minimum & maximum values were recorded 00.85m g/lit. & 00.99 mg/lit. in July 2017 to December 2017.

The present investigation was carried out to evaluate the population of zooplankton and phytoplankton of the lake July 2017-December 2017, the diversity revealed the presence different species. In the present study total zooplankton comprises of four groups. They are Rotifer, Protozoans, Cladocera and Copepoda, Pathak (1979).

| Name of group | July | August | September | October | November | December |
|---------------|------|--------|-----------|---------|----------|----------|
| Rotifer | + | + | - | + | + | + |
| Protozoa | + | - | + | + | + | - |
| Cladocera | - | + | - | - | + | - |
| Copepoda | - | + | + | - | + | + |

Conclusion-

Further it is concluded that the levels of various nutrients of kondeshwar lake suggest its suitable for fish culture, agriculture purpose practiced which can be enhanced by introducing fingerlings of major carps and exotic carps. The Cladocera and Protozoans are the commonly occurrence in almost all water bodies they represent an important link in the aquatic food chain. The high density in summer seasons may be due to reduced water volume and their by increased concentration of nutrients. The Copepods are major link in the aquatic ecosystem they are dominance during present study. This group showed major peak in January and May.

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