

SEASONAL VARIATIONS IN PHYSICOCHEMICAL PARAMETERS IN SELECTED LAKES OF NORTHERN HOSUR DT., TAMIL NADU, INDIA

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ABSTRACT

The earth is under tremendous threat due to undesired changes occurring in the physical, chemical and biological characteristics of air, water and soil. The increased human population, industrialization, excessive use of fertilizers and other anthropogenic activities cause the water bodies to get contaminated. The essentiality to study the changes occurring in these freshwater ecosystems is the need of the hour. Seasonal variations of physicochemical parameters were studied at Zuzuvadi Lake and Ballur Lake in the Northern region of Hosur District, Tamil Nadu, India for a period of 2 years from May 2017 to May 2019. Air and water temperatures varied from 27 - 32 °C respectively on an average throughout the year. During summer and winter seasons, the dissolved oxygen levels were in the range 6 ± 0.113 ($\pm 1.89\%$) to 9 ± 1.118 ($\pm 1.57\%$) ppm and 12.0 ± 0.127 ($\pm 1.05\%$) to 13.5 ± 0.445 ($\pm 3.51\%$) ppm respectively at each station. The conductivity range observed was between 300 ± 1.652 ($\pm 4.15\%$) to 329 ± 2.422 ($\pm 4.15\%$) $\mu\text{S}/\text{cm}$. Nitrate content of the Lake Zuzuvadi is in the range 8 ± 0.113 ($\pm 1.62\%$) to 10 ± 1.132 ($\pm 12.57\%$) ppm which signifies that the lake is oligotrophic in nature and can affect the aquatic life adversely. The Biological Oxygen Demand and Chemical Oxygen Demand remained at 5 ± 0.113 ($\pm 1.62\%$) and 200 ± 12.652 ($\pm 4.15\%$) in Lake Zuzuvadi whereas 9 ± 1.386 ($\pm 19.80\%$) ppm and 200 ± 12.652 ($\pm 4.15\%$) at Lake Ballur. Salinity in both the stations were lesser than 200 ± 1.497 ($\pm 0.50\%$) ppm. Algal blooms were identified in the Lake Zuzuvadi. The comparative physico-chemical parameter interpretations suggest that the Lake Zuzuvadi is oligotrophic in nature and the Lake Ballur is slightly polluted housing a large variety of aquatic organisms that survive dependent on the lakes.

Keywords: Physico-chemical parameters, Biological parameters, Lakes of Hosur, Seasonal changes, Temperature and pH