

RESEARCH PAPER:

Monthly variations on phytoplankton density in Samutharam Lake of Tiruvannamalai district, Tamil Nadu

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SUMMARY

In the present study surface water sample of Samutharam lake were collected in the second week of every month during April, 2008 to September, 2008 and phytoplankton density was studied in relation to physico-chemical variables. Phytoplankton were counted under Cyanophyceae, Chlorophyceae, Bacillariophyceae and Euglenophyceae. The results indicated that different ecological factors have influenced the plankton abundance.

Key words :
Monthly variation,
Phytoplankton,
Density

Water in its various forms is a major element of all the components of the biosphere and one of the most needed factors for the existence of living organisms. It is regarded as the solvent of life (universal solvent) having many chemicals dissolved in it. Utilizing these in their various metabolic activities, the aquatic plants and aquatic animals bring about changes in the chemical composition of water.

Temporal variability is the structure and function of a phytoplankton community and of fundamental importance to aquatic system. Aquatic environments are subjected to high temporal variation with frequent reorganization of relative abundance and species composition of phytoplankton, as a result of interaction between physical, chemical and biological variables (Reynolds, 2000).

MATERIALS AND METHODS

Study area:

Samutharam lake is located at 76° 22'N latitude and 14° 13' E longitude. The lake receives the water by rainfall only and the total area of this water body is about 1 hectare. The temperature of this region varied from a minimum of 16.6° C in winter months to a maximum of 41° C during summer months. The average rainfall is about 424 – 590 millimeter.

Surface water samples were collected from different spots of the lake in the second week of every month during April 2008 to September 2008 and were analyzed in the laboratory for important physico – chemical

parameters like temperature, pH, DO, total alkalinity, chloride, calcium, total hardness, BOD, EC, TDS, free CO₂, nitrate, phosphate. Analysis was done according to the methods described by APHA (1998) and Trivedy and Goel (1986). A liter of water sample was collected every month separately for the qualitative and quantitative estimation of phytoplankton study. Sedimentation of water was made in Lugol's iodine and phytoplankton was counted in 1 ml sample by Sedgewick-Rafter cell method and Identified according to Fritsch (1975).

RESULTS AND DISCUSSION

The physico – chemical analysis of Samutharam lake water has been shown in (Table 1). The density of phytoplankton communities of the present water body were represented mainly by 4 groups of algae viz., Cyanophyceae, Chlorophyceae, Bacillariophyceae and Euglenophyceae (Table 2).

Phytoplankton density on monthly variations from April 2008 to September 2008:

April 2008:

In the month of April 2008, Cyanophyceae community was recorded in higher density (28500 o/l) and Euglenophyceae community in low density (4750 o/l) – (Table 2 and Fig 1a).

May 2008:

In the month of May 2008, Bacillariophyceae community was recorded in

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