

Microalgal flora and physiochemical properties of Narthamalai, Pudukkottai district, Tamil Nadu, India

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SUMMARY

Fresh water ponds, pools and springs were studied with an objective to isolate and identify algal flora present in it. 11 genera of Chlorophyceae, 1 genus of Clostridiaceae, 1 genus of Trebouxiophyceae, 1 genus of Ulvophyceae, 17 genera of Zygnematophyceae, 9 genera of Bacillariophyceae, 5 genera of Cyanophyceae. Physicochemical parameters such as temperature in Celsius (26), EC $\mu\text{mohs/cm}$ (1330), pH (7.9), Alkalinity mg/l (10.2), total hardness mg/l (12.4), COD mg/l (0.03), BOD mg/l (0.06), iron mg/l (0.06), nitrite mg/l (0.10), nitrate mg/l (0.08), chloride mg/l (12.2), fluoride mg/l (0.95), sulphate mg/l (0.44), phosphate mg/l (0.12) and ammonia mg/l (0.11).

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Fresh water refers to naturally occurring water on the surface such as ponds, lakes, rivers and streams, and underground water. Fresh water is of low salt concentrations usually less than 1%. Plants and animals in fresh water regions are adjusted to the low salt content. Fresh water ecosystem is one of the main types of aquatic ecosystem (Alexander, 1995). Only 3% of the water on the Earth is fresh water and about 3 - 3 of these is frozen in glaciers and most of the rest is under ground and 0.3% is surface water. The atmosphere contains 0.04% water (Gleick, 1996). The quality of water is now the concern of the experts in all countries of the world. The decision of the WHO's 39th session (May-1976), emphasizes, that water delivered to the consumers should meet the high requirements of modern hygiene and should at least free from pathogenic organisms and toxic substances. Also, the quality of water depends on the location of the source and the state of environmental protection in a given area. Therefore, the quality and the nature of water are determined by physical and chemical analysis (Voznoya, 1983). A pond is a small, quiet, enclosed body of fresh

water. The sun light supports the growth of rooted plants from shore to shore. Ponds often support a large variety of animals and plant life. Microscopic organisms thrive in most ponds. The organisms inhabiting a pond include algae, fungi, microbes, plants and fishes. These organisms can be further classified as producers, consumers and decomposers, based on their feeding habit.

MATERIALS AND METHODS

Narthamalai situated at Kulathur talk in Pudukkottai district, Tamil Nadu, India, which lies on 10°-30' E latitude, and 78°-30' longitude. Narthamalai has one village and it is surrounded by nine small hills. In Narthamalai ponds and pools are temporary, only at the time of rainy season ponds and pools filled with rainwater. In this hills region artificial deep shallow ponds are made for drinking purposes only, in these ponds hold the water throughout year. Other water reservoirs are temporary one, most of the water reservoirs are found along the slopes of the rock.

In Narthamalai temperature is moderate, in winter season 24° C and 38° C in summer season. Heavy rainfall received only in October and November months. In these months 58 cm rainfall is received. Water reservoirs filled only in rainy seasons, in summer seasons most of the ponds and pools are dried. So, for the fresh water phytoplankton studies held in the month of February.

For this study, only freshwater phytoplanktons and physicochemical parameters were taken. Samples were collected in February month. Polythin bottles and 'blotting silk' net were used for the sample collection. Samples

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