Theme 7: Lakes, rivers, estuaries: water quality, biotic resources, sustainable management

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ASSESSMENT OF WATER QUALITY AND PHYTOPLANKTON DENSITY IN THE MAHAMAHAM TANK AT KUMBAKONAM, THANJAVUR DISTRICT, TAMIL NADU INDIA

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The effect of environmental factors affecting the population dynamic of phytoplankton population was studied seasonally for one year from May 2009 to April 2010 in an ancient freshwater Mahamaham tank with an inlet from river. The predominant phytoplankton species in the pond were *Oscillatoria tenuis*, *Aphanocapsa sp Gloeocapsa sp Synedra ulna*, *Chlamydomonas sp* and *Cyclotella kutzingiana*, Cyclotella sp., Nitzschia amphibia Grun, The most important limiting factor for growth and dominance of the phytoplankton community was temperature. Availability of most nutrients had profound effects on the phytoplankton growth as non limiting factors. Based on our results, it is suggested that growth of the phytoplankton was also temporally regulated by a multiplicity of external factors such as temperature, nutrients, dissolved oxygen (DO) and pH. At high pH and high temperature, constant increase of population of some phytoplankton genera such as *Synedra*, *Cyclotella*, *Chlamydomonas* and *Melosira*. In addition, the population density of phytoplankton is differentially regulated in different phytoplankton species.

Keywords: Environmental factors; Phytoplankton; Freshwater environment;