

VARIATION OF HETEROTROPHIC BACTERIAL DISTRIBUTION IN KANDY LAKE

F.F.Sharaff¹, E.I.L.Silva¹ and S.I. Abeygunawardane²

¹*Institute of Fundamental Studies, Hantana Rd, Kandy, Sri Lanka.*

²*Department of Microbiology, University of Kelaniya, Kelaniya, Sri Lanka.*

Kandy Lake, a man-made water body, located in the heart of Kandy adjoining a world famous Buddhist Temple in Sri Lanka was affected by a sudden outbreak of cyanobacteria bloom (*Microcystis aeruginosa*) in May 1999 with the onset of the southwest monsoonal winds. Many aspects of limnology of this water body have been examined since mid 1990's. A study based on bacteriology was carried out from July 2001- 2002 July with an objective to understand the distribution pattern of heterotrophic bacteria and their role in eutrophication and pollution. The samples were collected monthly from different depths in the deep and shallow basins. Physicochemical and nutrient analyses of the samples were also carried out simultaneously. Some heterotrophic bacteria were isolated, enumerated and identified up to their generic and species levels using their morphological and biochemical characteristics.

The heterotrophic bacteria identified belonged to the genera *Bacillus*, *Pseudomonas* and *Actinomyces*. Their plate counts were in the range of 10^6 cfu ml⁻¹. Planktonic bacteria were mainly Gram negative (75%) bacteria. There was no significant ($p>0.05$) intersite differences with respect to bacterial counts and physicochemical characteristics. However, there was a prominent gradient in the plate counts from top to bottom in the deep basin due to oxygen depletion in the hypolimnion. High coliform counts (1200+/100ml) and faecal coliform counts (550/100ml) were also recorded indicating a high degree of faecal contamination. The results also indicate that the heterotrophic bacteria in Kandy Lake did not show a spatial variation but showed seasonal variation with a marked diversity. Their role in eutrophication is probably through cycling of nutrients such as nitrogen and phosphorus.