

Limnology of Kandy Lake before the outbreak of a cyanobacteria bloom in May 1999. III. Phytoplankton composition and succession

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Abstract

Composition and succession of the phytoplankton community in Kandy lake were examined from September 1996 to August 1998, with a view to understand the community structure and its seasonal and spatial distribution patterns. Thirty-seven species of phytoplankton belonging to eight taxonomic groups were identified. The number of species per sampling occasion ranged from 15 to 25 with an average of 20. There were 15 Chlorophyceae species but only seven species were important in the community structure. *Pediastrum simplex* appeared as either dominant or sub-dominant species. Cyanophyceae, the second most important group was represented by nine species with moderate densities of *Microcystis aeruginosa* and *Merismopedia punctata*. The diatom, *Aulacoseira granulata*, was also found as either a dominant or a sub-dominant species with three other diatom species of minor importance.

The occurrence of *A. granulata* and *P. simplex* showed a rhythmic oscillation under wet and dry weather conditions until the latter was curtailed by other species from April 1998 onwards. The phytoplankton density was low during the peak rainy season. Four functional species of phytoplankton were identified. These were a) large chain forming centric diatom, *A. granulata* dominating during the wet weather (K-strategist); b) a colony forming Chlorophyceae, i.e., *P. simplex* common during the dry weather (K-strategist); c) Colony forming Cyanobacteria namely scum forming *M. aeruginosa* (r-strategist); and d) *M. punctata*, a small colony forming non-heterocystous cyanobacteria, appearing in moderate numbers throughout the year (K-strategist).