

Variation of Phytoplankton in Relation to Some Environmental Factors in Kandy Lake, Sri Lanka

K.L.K. Shehani¹ and S.K. Yatigammana²

¹*Environmental Science, University of Peradeniya, Peradeniya, Sri Lanka*

²*Department of Zoology, University of Peradeniya, Peradeniya, Sri Lanka*

The Kandy Lake is a freshwater ornamental water body located in Kandy. Anthropogenic activities on surrounding catchments of the lake may result different physicochemical conditions leading to severe environmental issues. Physicochemical parameters play a main role in determining the distribution of phytoplankton resulting them as biological indicators in environmental studies. The current study was focused on investigating the phytoplankton diversity, abundance and their ecology in Kandy Lake. Both physicochemical and biological parameters were measured by monthly from February to July 2017. Biological samples were collected using 34µm plankton net and analyzed the diversity and abundance, according to the standard procedures. Environmental parameters such as temperature, pH, conductivity, total dissolved solids, dissolved oxygen, nutrients and some ions were obtained by field and laboratory analyses. Data were analyzed using Microsoft Excel (2007 version), CANOCO for windows (v.5) and SYSTAT. Results revealed that the highest species richness was represented by the class bacillariophyceae (66.65%). *Aulacoseira granulata* was the widely distributed species with highest relative abundance (66.24%). The dominance of *Aulacoseira granulata* is an indication of high organic pollution of the water body which in turn indicates the eutrophication. Among the toxigenic cyanobacteria, *Microcystis* sp. was the widely distributed species. Kandy Lake has developed into a victim of eutrophication recently, causing accelerated growth of *Microcystis* sp. leading to formation of blooms. According to Canonical Correspondence Analysis, nitrate and dissolved oxygen were the most important environmental factors in explaining the distribution of phytoplankton in the lake. Findings of the present study suggest that Kandy Lake may not be in a position to sustain the aquatic life in the future.

Keywords: Kandy lake, Phytoplankton, Environmental variables, Eutrophication