

Composition and diversity of phytoplankton from mangrove estuaries in Sarawak, Malaysia

Abstract

The composition and diversity of phytoplankton were studied along with physico-chemical parameters of water of two mangrove-dominated estuaries i.e., Kuala Sibuti (KS) and Kuala Nyalau (KN), Sarawak, Malaysia. A total of 46 species of phytoplankton with the mean density of 147000 cells L⁻¹ were recorded from KS estuary i.e., 3 species of Cyanophyceae; 22 species of Bacillariophyceae; 20 species of Dinophyceae and 1 species of Chlorophyceae. The recorded mean density of phytoplankton was 113000 cells L⁻¹ with 33 species from 19 genera from KN estuary, in which 19 species were from Bacillariophyceae; 12 species were from Dinophyceae; 1 species was from Cyanophyceae and 1 species was from Chlorophyceae. In both the estuaries, the species composition was found to be in an order of Diatom>Dinoflagellate>Cyanophyceae>Chlorophyceae. Canonical Correspondence Analysis (CCA) revealed that the abundance of Bacillariophyceae and Dinoflagellates was influenced by salinity and conductivity along with ammonium and phosphate while the abundance of Chlorophyceae was influenced by temperature, TDS, DO and pH in KS. The influence of salinity and conductivity along with PO₄ and NH₄ on the abundance of Bacillariophyceae, Dinoflagellates and Chlorophyceae were observed in KN.

Keyword: Phytoplankton; Composition; Diversity; Mangrove estuaries; Sarawak