Variations in the Physicochemical Water Parameters and Phytoplankton Community in Coastal Water of Kudat, Sabah, Malaysia

ABSTRACT

This study was conducted to observe the abundance and distribution of phytoplankton and temporal and spatial variation physico-chemical water parameters in coastal water of Kudat, Sabah, Malaysia. Water samples and in-situ water quality parameters were taken from five selected locations from May 2019 to February 2020. The sampling location was selected based on human-induced activities such as Marina Resort's Jetty (ST1), Sabah Ports' Jetty (ST2), aquaculture cage/pent (ST3), river's mouth (ST4) and Landung Ayang's water village (ST5). Water parameters: pH, salinity (ppt), dissolved oxygen (mg/L) temperature (˚C) and depth (m) were recorded once every month from the selected station. Identification of phytoplanktonic species and cell density (cell/mL) were determined from collected water samples. Significant differences ($p < 0.05$) between physicochemical parameters to months were observed during the study period. However, in spatial variations, significant differences ($p < 0.05$) of pH, dissolved oxygen (mg/L) and temperature (˚C) observed. A total of 21 phytoplankton species were identified from the study area, where 4 species belonged to Dinophyceae (HABs blooming species) and 17 species belonged to Bacillariophyceae. The influences of physicochemical water parameters were not significant in phytoplankton diversity and abundance. In addition to these parameters, the nutrients in the water might have important roles in the blooming of phytoplankton, which are essential and vital to address in this type of research.