Effects of red tide on physico-chemical properties of water and phytoplankton assemblage in Sepanggar Bay, Sabah, Malaysia

Abstract

Harmful algal bloom (HAB) produced by Cochlodinium sp. is a serious concern in the west coast of Sabah in Malaysia. Recently frequent occurrence of red tide has been reported in Sepanggar Bay, south of Kota Kinabalu. This paper presents a comparative study of physico-chemical properties of water and phytoplankton assemblage during red tide and non-red tide period in Sepanggar Bay. Measured parameters were significantly different ($p<0.05$) between the red tide and non-red tide periods. The mean abundances of phytoplankton was 0.388x106 cells L and 1.628x106 cells during red tide and non-red tide period respectively. The global R value, obtained through analysis of similarity test, in non-red tide period (0.03) were higher than in the red tide period (0.01) which indicates more diverse phytoplankton assemblage during non-red tide period. Cochlodinium sp. was the most discriminating species (31.39%) during red tide period and Coscinodiscuss sp. (18.25%) during the non-red tide period. Through cluster analysis three species groups were found during red tide period while six groups were found during non-red tide period, which implies less diverse phytoplankton assemblage in the presence of red tide.