Phytoplankton Diversity and Abundance in Burullus Lagoon, Southern Mediterranean Coast, Egypt

Authors : Shymaa S. Zaher, Hesham M. Abd El-Fatah, Dina M. Ali

Abstract : Burullus Lagoon is the second largest lake, along the Mediterranean seashore. It exposed to over nutrient enrichment from fish farming and agricultural drainage wastes. This study assesses the present status phytoplankton response to different flow events, including domestic, agricultural, industrial, and fish farms discharge in the three main sectors of Burullus Lagoon, to focus on the influence of environmental variables on phytoplankton species composition inhabiting the Lagoon. Twelve sites representing the eastern, central, and western basin were selected during winter and summer 2018. Among the most abundant group, Chlorophyceae came in the first rank by 37.9% of the total phytoplankton densities, Bacillariophyceae (29.31%), Cyanophyceae (20.7%), Euglenophyceae (8.63%) and Dinophyceae (3.4%). Cyclotella menenghiana was the most abundant diatoms, while Scenedesmus quadricauda, S. acuminatus, and S. bijuga were highly recorded nearby the drains (in the middle sector). Phytoplankton in Burullus Lagoon attained the lowest values during the winter season and the highest ones during the summer season. The total count of phytoplankton in the middle and western basin of the lake was higher than that of the eastern part. Excessive use of chemical fertilizers, pesticides, and washing out of nutrients loaded to the drainage water, leading to a significant pronounced decrease in community composition and standing crop of phytoplankton in Burullus Lake from year to year, hold the danger of shifting the lagoon ecosystem.

Keywords : Burullus Lagoon, environmental variables, phytoplankton, water pollution
Conference Title : ICABBB 2020 : International Conference on Algal Biomass Biofuels and Bioproducts
Conference Location : Tokyo, Japan
Conference Dates : December 03-04, 2020