1-Effect of treated sewage on the water quality and phytoplankton populations of Lake Manzala (Egypt) with emphasis on biological assessment of water quality.

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Abstract

The effect of treated sewage on the quality of water and phytoplankton populations of Lake Manzala was studied with emphasis on use of algae to monitor water pollution as part of a search for a biological assessment of water quality. Lake Manzala is situated at the northern part of the Nile-delta, Egypt. Disposal of treated sewage into Lake Manzala appeared to have differential effects on water quality and phytoplankton populations. Marked seasonal and local variations were observed for the physical and chemical characteristics of water. 157 species of algae were identified, 59 Chlorophyta, 37 Bacillariophyta, 30 Cyanophyta (Cyanobacteria), 28 Euglenophyta, one Pyrrhophyta and 2 Cryptophyta. Distribution and abundance of these algal divisions were found to differ at different sampling stations. Qualitative and quantitative growth of each algal division displayed great seasonal variations. The phytoplankton standing crop was mainly due to the contribution of Bacillariophyta whereas the species composition is dependent mainly on Chlorophyta. A great parallelism was noted between the quality of water samples based upon the chemical and physical investigations and their quality based upon the biological indices. Compound eutrophication index indicated that the nature of the investigated water ranged between eutrophic and hypereutrophic conditions. Diversity index values indicated that the water in the study area was of a moderate level of pollution. Saprobic index and saprobic quotient revealed the presence of beta- to alpha-mesosaprobic forms of algae.

Keywords: Sewage; phytoplankton; water quality; biological indices

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2- STUDIES ON THE FRESH-WATER ALGAE OF MAKKAH AREA, SAUDI-ARABIA

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Abstract

The composition and distribution of fresh-water algae in Makkah area of Saudi Arabia were investigated. Of a total number of 107 species recorded, 37 belong to Cyanophyta, 34 to Bacillariophyta, 29 to Chlorophyta, 6 to Euglenophyta and 1 to Pyrrhophyta. The most common genera were Oscillatoria (14 spp.), Spirogyra (8 spp.), Navicula (7 spp.), Nitzschia (7 spp.), Gloeocapsa and Euglena (each with 4 spp.) where Merismopedia elegans, Oscillatoria amphibia and O. tenuis were most widely distributed. Al-Taif locality had 64 algal species. Among the dominant algae in Makkah area, the green alga Oedogonium gracilis was chemically investigated and was characterized by having high amount of ash and protein, 17 amino acids where glutamic acid, alanine, aspartic acid and leucine were predominant.

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