

## Distribution, Abundance and biodiversity of phytoplankton in Elimalat Lake, Mazandaran Province

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### Abstract

Phytoplankton plays an important role in the material cycle and energy flow of the ecosystem, therefore in this study, the distribution, frequency, and biodiversity of phytoplankton in Elimalat Lake were investigated. Sampling was performed in Elimalat Lake sessionally, located in Nur City, Mazandaran province, in 2019. In this study, 70 species of phytoplankton were classified into 5 phylum and 45 genera. Chlorophyta with 33 species, Bacillariophyta with 22 species, Euglenophyta with 7 species, Pyrrophyta with 5 species, and Cyanophyta with 3 species had the highest to lowest species diversity, respectively. Pyrrophyta with a density of 1915.9 ( $10^6$  cells/m<sup>3</sup>) and a frequency of 37.28% and Cyanophyta with a density of 147.7 ( $10^6$  cells/m<sup>3</sup>) and a frequency of 2.87%, respectively, showed the highest and lowest annual density and abundance of phytoplankton in the sampling seasons in Lake Elimalat. Comparison of Shannon-Wiener and Simpson index of diversity showed that averages of 2.82 and 0.91 in summer and in averages of 1.66 and 0.63 in autumn, they had the highest and lowest values, respectively. Margalef diversity index in summer and autumn with an average of 1.16 and 0.68 had the highest and lowest species richness, respectively. Elimalat Lake has been very rich in phytoplankton due to the presence of large amounts of water throughout the year and its non-use for agricultural purposes.

**Keywords:** Abundance, Biodiversity, Phytoplankton, Elimalate Lake.