عنوان مقاله:

Models for estimating phytoplankton population densities under different environmental conditions with emphasis on climatic factors

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خلاصه مقاله:

The aim of this study is to determine the effect of environmental conditions with emphasis on the main meteorological factors (air temperature variables, sunshine hour, and humidity), on phytoplankton communities. As important primary producers in aquatic ecosystems, phytoplankton communities could be affected by several factors. Environmental factors play the major role in occurrence and diversity of these photosynthetic microorganisms. In the present study, the relationship between phytoplankton occurrence and meteorological variables was assessed in several artificial ponds and lakes in the National Botanical Garden of Iran. For this purpose, surface water samples of the selected sites were monthly studied over a year. A total of ۱۲۲ taxa of phytoplanktons were identified in the mentioned sites out of which, five taxa were new records for Iran. Among several taxa, six dominant genera, including Chroococcus (Cyanophyta), Nitzschia (Bacillariophyta), Glenodinium (Pyrrhophyta), Scenedesmus, Cosmarium, and Tetraedron (Chlorophyta), were selected for further investigation. The meteorological factors were considered with emphasis on air temperature variables (maximum and minimum temperatures, average air temperature, wet and dry temperatures, and dew point temperature), sunshine hour, and humidity. Results showed that, climatic conditions can be considered as effective factors on phytoplankton communities. The results of regression analysis between algal density and meteorological variables showed that, phytoplankton's density has a significant correlation with the sunshine hour and air temperature variables. It seems that, the regression equation and environmental sensitivity vary from one taxon to another.

کلمات کلیدی:

Algal flora, freshwater ecosystem, Light intensity, meteorology, population density

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