Investigation of diatoms in Anbaran Chay River of Ardabil province in relation to water quality as bio indicators

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Abstract
In spite various uses of river water, it has always been exposed to pollution due to the development of human societies and the expansion of industries. Different indices, is used for estimation of water quality. Nowadays, aquatic organisms have efficient uses in water quality estimation. In this study, diatoms of Anbaran river, located in Namin city, east of Ardabil province, were investigated in 2017. Four sampling stations were selected to study diatoms of Anbaran River. At each station, algae samples were collected from stony substrates. Along with algae samples, water samples were also taken in one-liter containers and transferred to the laboratory for analysis of nitrate, ammonium, sulfate, phosphate, silica, chlorine, calcium and BOD and COD. The amount of dissolved oxygen, temperature, electrical conductivity, salinity, pH and TDS were also measured using a portable in-situ device. Sequencing method using CANOCO 5 software was used to investigate the relationship between diatom species and environmental factors. In total 45 species belong to 27 genera and 13 families, were identified. *Nitzschia* with 5 sp. was the largest genus. *Planothidium lanceolatum, Cocconeis placentula, Cymbella affinis,* and *Planothidium frequentissimum* were the dominant species in the river stations which are indictors of eutrophic waters. According to the ordination analysis, pH, Phosphate, BOD, COD, Temperature, Nitrate and ammonium were the parameters most affected diatom distribution. According to the results of species diversity indices this river had moderate contamination.

Keywords: Quality assessment, Bio indicator, Diatoms, Anbaran chay River.