

DOI: <http://doi.org/10.21698/simi.2022.ab33>

THE DIATOMS PRESENT IN THE FLORA OF THE TIMIS-BEGA HYDROGRAPHIC BASINS

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Keywords: *Bega river, diatoms, Timis river*

Introduction

Diatoms are single-celled, very small organisms that are part of the Protista kingdom, the Bacillariophyta phylum. They are photosynthetic organisms, but there are some species that can survive in the dark, if the environment contains sufficient amounts of organic carbon. The size of these microorganisms is relatively small, starting at 5 µm and reaching up to about 0.5 mm. Diatoms are important components in aquatic ecosystems and can be found on various substrates such as rocks, wood or fine sediments, making up the trophic substrate of invertebrates and fish. Diatoms are a major group of algae and are one of the most common types of phytoplankton. They are a widespread group and are found in oceans, freshwaters, soils and on wet surfaces. They are particularly important in the oceans, where they are estimated to contribute up to 45% of total primary ocean production. The aim of this study was to determine the diatom species present in the Timis-Bega watershed.

Materials and methods

Sampling area

Six sampling points were selected along the Bega river and four sampling points along the Timis river, from the springs to the border with Serbia. The investigated areas being diversified in terms of pollution sources, among which we mention: sewage treatment plants, factories, agricultural farms, slaughterhouses.

Sampling and preservation of diatom samples

Diatom samples were taken by brushing and washing the stones with water, then placed in Falcon tubes and treated with 3 ml of formaldehyde for preservation.

The processing of the samples in the laboratory consisted of several stages specific to diatoms in order to finally obtain the microscopic preparation.

Results and conclusions

The following graphical representations show the composition of diatoms in the Timis-Bega river basins in terms of the number of species for each given genus.

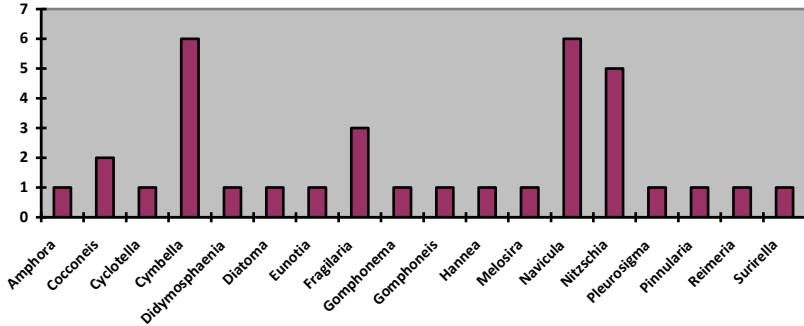


Fig. 1. The number of species corresponding to each genus of diatoms present in the Timis river

Analysing the graph above, it is observed that in the Timis river the best represented genera of diatoms are *Navicula* and *Cymbella* with 6 species, *Nitzschia* with 5 species, followed by the genera *Fragilaria* and *Cocconeis* with 3 and 2 species, respectively. The rest of the present genera are assigned a single species.

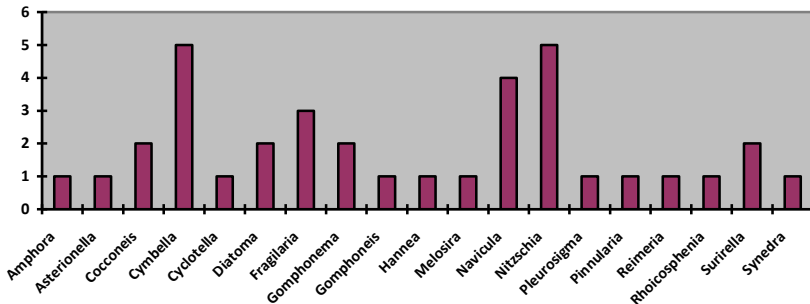


Fig. 2. The number of species corresponding to each genus of diatoms present in the Bega river

Analysing the graph above, it is observed that in the Bega river the best represented genera of diatoms are *Cymbella* and *Nitzschia* with 5 species each, followed by the genus *Navicula* with 4 species and the genus *Fragilaria* with 3 species. The genera *Achnanthes*, *Cocconeis*, *Diatoma*, *Gomphonema* and *Surirella* have 2 representatives each, and the rest of the present genera have only one.

There are no notable differences in the diversity of diatom species in the two rivers, the floristic list of diatoms being similar in both. In both rivers, the genera with the largest number of species in their composition are: *Cymbella*, *Navicula* and *Nitzschia*. As a general conclusion we can say that both rivers have a relatively large abundance and diversity of diatom taxa, and the determined genera are present natively in the floristic list of diatoms in Romania.