

## Abstract

Temporal dynamics on short time scales is a very interesting area of research. Usually, temporal studies are done on a scale of months or years. However, microorganisms have a much shorter generation time and therefore changes can take place on a much smaller time scales. At the same time, almost none of the temporal studies go to the species level and mostly stay at the class level. That species dynamics change within days we know from observation, but this has never been properly verified.

The genera *Mallomonas* and *Synura* from the class Chrysophyceae were chosen to study short-term temporal changes. These two genera are characterized by the formation of siliceous scales on the surface of their cells, by which they are well morphologically identifiable to the species level. However, since species identification by microscopy is an old but traditional method, a new molecular method for species identification at the locality, i.e. metabarcoding, was also used.

These two methods have been shown similar results for describing the golden algae community. At the same time, it was confirmed that temporal dynamics occur at the species level, but also at the section level in the genus *Synura*. Subsequently, it was possible to relate the environmental factors that cause temporal changes in the community to the temporal changes in the community.

**Key words:** short-term temporal dynamics, *Chrysophyceae*, *Synura*, *Mallomonas*, transmission electron microscopy, metabarcoding, time-lag analysis, turnover, environmental conditions