

Abstract

Aero-terrestrial algae form distinct biofilms on different natural and man-made surfaces. Their taxonomic diversity is considerable, but not yet fully studied, even though recent attention has been paid to it. The study of the diversity of these algae is made more difficult by the morphological convergence of representatives of the most common class of Trebouxiophyceae, who most often form coccoid thalli. That is why molecular genetic methods are very often applied to study these algae. In addition to species diversity, the ecology of these algae communities, their spatial diversity, seasonality are also studied. In my work I focused on two aspects of microbial biofilms growing on the needles of the common yew. In the first study, I evaluated the amount of algae in biofilms on needles within the Prague urban ecosystem in relation to the air quality. This is the first study of this type on a small scale, showing that these biofilms could serve as bioindicators of air quality in urban areas, reflecting different concentrations of nitrogen oxides and particulate matter. In my second study I studied the taxonomic diversity of these biofilms in two European regions. So far no taxonomic study has been made from this specific habitat. We have recorded a relatively large amount of algal taxa despite the unfavorable environment for the algal growth on the surface of yew needles. This rigorous work aims to increase the awareness of algal communities growing in such a specific environment such as surface of the common yew needles. To show how these communities are affected by anthropogenic activity and also how they are relatively rich and diverse in different European regions.