

Desmids are an important part of the phytobenthos in the wetland ecosystems. These ecosystems are often ephemeral and changes in the hydrological regime is a typical characteristic of this habitat type. Dessication is a significant stress factor that affects water organisms. Different species differ in their extent of tolerance to dessication stress and it can affect their community structure and also their phylogenetic diversity. Two sites, the nature reserve Borkovická Blata and the nature locality Na Plachtě, were selected for this work. Ephemeral (seasonally dessicating) and permanent pools differed in the structure of desmid communities but the difference was significant only for Borkovická blata. At both localities, the samples from the dessicating pools showed in average lower species richness and Shannon's diversity index than samples from non-dessicating pools, but the differences between these groups of samples were not statistically significant. Phylogenetic analysis showed that the desmids community were phylogenetically overdispersed; closely related species tended to not appear together on the same sites at both localities. The difference in the phylogenetic structure between ephemeral and permanent was detected only in the Borkovická blata site, where the ephemeral pools exhibited weaker phylogenetic overdispersion than the permanent pools.