

Callitriche (water-starwort) belongs among difficult and insufficiently known genera of the Czech flora. The presented work provides the first critical taxonomic revision of the genus in the Czech Republic, with information relevant also to the broader region of Central Europe.

Morphological and cytometric investigation resulted in identification of six Callitriche species in the Czech Republic. The genome size of all six Czech representatives of the genus was estimated using flow cytometry. The hybrid *C. × vicens* Martinsson (*C. cophocarpa* × *C. platycarpa*) was found for the first time in the Czech Republic. An individual related to *C. hamulata* was found in the Tichá Orlice river, which has aberrant genome size and aborted flowers; further study of this taxon is necessary. Multivariate morphometric analyses of fruits and cultivation were used to check and define reliable distinctive features and an impact of phenotypic plasticity. Key to the identification of species (including the first key for sterile plants), its detailed descriptions and ecological demands were provided. Each species differ significantly from the others in genome size, morphological features as well as in ecology. The reproductive strategy has the main importance for ecology and morphology of the studied species.

The distribution of Callitriche species were identified, based of thorough revision of the herbarium material (>3300 specimens) and extensive field studies. Callitriche platycarpa has markedly subatlantic distribution and it is partially vicariant with *C. cophocarpa*, which has rather continental tendency. The species *C. hermaphroditica* is close to extinction in the Czech Republic.