Abstract

This work is focused on the polyploid group of Galium palustre. The process of polyploidization has significantly influenced the evolution of angiosperms and in the studied group led to the emergence of 4 cytotypes known so far. Two of the cytotypes are found in the Czech Republic, diploid and octoploid, distinguished as species Galium palustre and Galium elongatum, respectively. Both taxa are mostly considered as species, which differ in quantitative characteristics, but these show considerable phenotypic plasticity. Therefore, the exact extent of morphological variation, precise distribution and ecology of the species are still unknown. The flow cytometry was used to distinguish cytotypes; it also showed variation in genome size and revealed a new dodecaploid cytotype in the Czech Republic. Subsequent morphometric analysis identified characteristics suitable for distinguishing the individual cytotypes. The most reliable are the length and width of a stem, the length of the leaf, the length of the longest branch, the number of leaves in whorls, the length of the inflorescence and the length of the mericarp. Based on these results, herbarium specimens from several herbaria were examined. The results also showed slightly different ecological preferences of cytotypes and their distribution in the territory of the Czech Republic.