

Abstract

The present MSc. thesis deals with cytotaxonomic and morphometric evaluation of *Dryopteris dilatata* alliance. This group consists of two allotetraploids ($2n=164$) – *D. dilatata* (Hoffm.) A. Gray, *D. carthusiana* (Vill.) H.P. Fuchs and one diploid – *D. expansa* (C. Presl) Fraser-Jenkins et Jermy ($2n=82$) in the Czech Republic. Particular taxa have mostly been determined on the basis of morphological characters only, which is, however, not reliable and may lead to species misidentification, due to phenotype similarity and potential interspecific hybridization.

Relative genome size, determined by DAPI flow cytometry, was used as a taxon-specific marker, which allowed unbiased species/hybrid determination. Along with three parental taxa, two hybrid combinations (i.e. *D. dilatata* × *expansa*, *D. carthusiana* × *dilatata*) were revealed. Multivariate morphometric (PCA, cluster and discriminant analysis) was performed on cytometrically-confirmed individuals, providing unbiased insight into the level of intra- and interspecific variation. Novel determination key is proposed based on results of discriminant analysis.

Distribution map of the neglected *D. expansa* in the České středohoří Mts. is also presented as well as are maps of both nothotaxa. While *D. dilatata* × *expansa* occurs quite often in the area studied, *D. carthusiana* × *dilatata* counterpart is very rare (disproving thus former hypotheses). Because of the lack of reliable data in the whole Czech Republic, the new distribution of *D. expansa* in the České středohoří Mts. was found out. Two hitherto known localities were confirmed and some new places were discovered.

Key words: *Dryopteris*, *carthusiana*, *dilatata*, *expansa*, × *ambroseae*, × *deweeveri*, hybrids, flow cytometry, ploidy, cytotaxonomy, morphometric analysis, České středohoří Mts.