

Diploma thesis deals with genetic variability and evolutionary relationships among selected species of the group *Chenopodium album* and is especially focused on the origin of hexaploid species *C. album* in the Czech Republic. The main aim of the study was detection of putative recent emergence of hexaploid *C. album* s. str. in mixed populations of diploid (*C. ficifolium* and *C. suecicum*) and tetraploid (*C. strictum* and *C. striatiforme*) species. To assess phylogenetical relationships I performed an analysis of nuclear microsatellite loci, that are suitable for detection parental lines within polyploid species. As long as microsatellite primers have been developed for studied group, therefore they had to be cross-amplified from closely related species *C. quinoa*.

Three PCR multiplexes were assembled by cross-amplification of microsatellite primers. These PCR multiplexes were tested on representative sample sets to estimate genetic variability of individual microsatellite loci. A total of 911 individuals were analyzed from five localities from the Czech Republic. The results of analyses revealed (1) high interspecific differentiation, (2) gene flow among species of the same ploidy levels, (3) presence of hybrids among diploid species of *C. ficifolium* and *C. suecicum* as well as among tetraploid species *C. strictum* and *C. striatiforme*. Discovery of hybrids among tetraploid species was considered the most interesting since it is the first evidence hybridization among these species ever.

Previously presented hypothesis about allopolyploid origin of hexaploid species *C. album* from diploid and tetraploid species has been confirmed. The results of analyses have shown that *C. album* has arisen by hybridization between a diploid and a tetraploid species recently. Recent hybridization can occur very rarely as only eight recent hybrid individuals were detected. Exact diploid parental species could not be determined by analysis, but *C. striatiforme* has been detected as putative parental tetraploid species.