

Abstract

The processes of hybridization and introgression represent one of the most important tools of plant evolution. While these processes carry the risk of extinction for species with small populations or newly established hybrids, they also allow some species to acquire more variation than would normally be available to them, often leading to evolutionary novelty and adaptation to new living conditions. This work focuses on the allotetraploid genus *Dactylorhiza*, with a high capacity for interspecific hybridization and hybrid speciation. The genus is distributed from tropical regions to northern arctic regions. In addition to the widely distributed species, there are rare local taxa. The paper argues, besides some disadvantages of interspecific hybridization, the positive evolutionary impact of this process with the emergence of new resistant species. Therefore, the main attention was paid to the most common and widespread hybrid taxa *Dactylorhiza majalis* and *Dactylorhiza traunsteineri*, which by their stability and age represent fully separated, independent and evolutionarily successful new species. The nature of the functional adaptation of plants to external conditions and the rate of such adaptation is not only of relevance to the genus *Dactylorhiza*, but may also be of general relevance.

Keywords: Genus *Dactylorhiza*. Interspecific hybridization. Introgression. Hybrid speciation.