

Distribution of mixed *Hieracium bauhini* – *H. pilosella* populations and hybridization within these populations

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Mixed plant populations of *Hieracium* subgenus *Pilosella*, composed of *H. pilosella*, *H. bauhini* / *H. piloselloides* and their hybrids *H. leptophyton* and *H. brachiatum* were investigated in an urban area (Prague city). The number and distribution of such localities, their respective species ratios, ecological and geographic conditions are described. Morphological comparison of the plants, determination of their ploidy level and reproduction experiments was performed in order to assess the species' variability. These localities and plant features, considered together, shall lead to a better understanding of the factors influencing the initiation of new hybrid localities and their population parameters.

In 2003, the whole Prague area was systematically screened for hybrid localities. Among the 34 sites found containing *Pilosella* species were seven with mixed *H. pilosella* – *H. bauhini* / *H. piloselloides* populations. Two localities involved hybridogenous populations with *H. leptophyton* or *H. brachiatum* (and both parental species present). During this study, surprisingly, two further hybrid species between *H. pilosella* and *H. bauhini*, namely *H. aridum* and *H. visianii*, were retrieved, which had not been reported before in the Czech Republic. Interestingly, a total of seven populations with *H. aridum* as the only *Pilosella* species were found. In contrast, *H. visianii* was detected at a single locality together with hexaploid ($2n=54$) *H. pilosella* and pentaploid ($2n=45$) *H. bauhini* / *H. piloselloides*. Both *H. aridum* and *H. visianii* seem to be strictly apomictic.

The following ploidy levels/chromosome numbers and reproduction modes were found for the plants studied: *H. pilosella* ($2n=36, 54$; both sexual), *H. bauhini* / *H. piloselloides* ($2n=45$, apomictic), *H. leptophyton* ($2n=45, 47/48$; both apomictic), *H. brachiatum* ($2n=36$; sexual), *H. aridum* ($2n=36$; apomictic) and *H.*

visianii ($2n=36$; apomictic). These preliminary results point out that hybrid species such as *H. leptophyton* and *H. brachiatum* probably originate *de novo* at individual localities, because they were never found in absence of their parental species. In contrast, the other hybrid species *H. aridum* seems to form fixed populations in our study area. This conclusion is supported by similarities in morphological features, ploidy level, apomictic reproduction mode and occurrence in the same kind of habitats (ruderal, synantropic places like the ramparts of highways or railways). Future investigations with molecular methods shall show whether all *H. aridum* plants are descendants of the same clone or whether they have multiple origin. Definite conclusions of *Hieracium visianii* are not interpreted because of any comparison with other localities.

Studies of ecological features of all localities showed a preference of sunny southern places with a slope gradient of about 30–47 degrees for all taxa investigated.

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