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Cytotype structure of *Knauta avensis* agg. at various spatial scales

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Knautia arvensis agg. is an intricate polyploid complex in Central Europe represented by several taxa belonging to two cytotypes (diploid and tetraploid). Despite rather intensive research of this group during last decades both in Czech Republic and Austria (EHRENDORFER 1962, ŠTĚPÁNEK 1982, KAPLAN 1998), our approach employing powerful tools of flow cytometry revealed new interesting patterns of ploidy variation in this group.

In contrast with continuous area of tetraploid cytotype (known in Bohemia, W and NW Moravia, W Germany and N and NW Austria), two distinct groups of diploids with different nuclear DNA content (ca 5% difference) were revealed. The first diploid group consists of several isolated populations scattered in Bohemia and N Bavaria growing on relict habitats on serpentine outcrops *(K. a.* subsp. *serpentinicola)* and in glacial cirque *(K. a.* subsp. *pseudolongifolia).* The second group of diploids *(K. a.* subsp. *pannonica)* covers a continuos area of Pannonian lowland from where it reaches as far as Danube valley near Linz and NE Moravia.

Individuals with anortoploid (i. e. odd) DNA-ploidy levels are very rare. What is interesting, while only one single triploid (i. e. intraspecific hybrid) was found, pentaploid individuals (i. e. most probably interspecific hybrids between *K. arvensis* and hexaploid *K. dipsacifolia)* are more common and are documented from several localities.

In contact zones of the two cytotypes several mixed-ploidy populations were discovered and two of them were subjected to a detailed microspatial survey. Although the two populations inhabited strongly different habitat types (dry grassland and serpentine pine forest) rather similar spatial pattern was observed: in the scale of whole locality the cytotypes were partly isolated but in contact area were intermingled (less in the relict forest) and despite the sympatric growth and synchronous flowering of diploids and tetraploids no single triploid individual was found there (more than 500 plants were analyzed). The

cause of possible such a strong inter-ploidal barrier remains an object for further study.

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