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DIPLOID CHROMOSOME NUMBERS IN FIVE *HIERACIUM* SPECIES FROM SERBIA AND MONTENEGRO

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The genus *Hieracium* L. in Europe is dominated by polyploid, mostly tri- and tetraploid (2n = 3x = 27 and 2n = 4x = 36), hybridogenous taxa characterized by agamospermous reproduction (gametophytic apomixis) (Skawińska, 1963; Stace, 1989). Sexual diploids (2n = 2x = 18) are very rare and restricted mainly to refugial areas of southern Europe such as the Balkan and Iberian Peninsulas, whose *Hieracium* floras are largely endemic (Merxmüller, 1975). The share of diploid species reach up to 24% in the Iberian and up to 5% in the Balkan Peninsula (Schuhwerk and Lippert, 1998). Recently, other diploid *Hieracia* (new diploid species or new diploid cytotypes) were found in the Balkans (Vladimirov and Szeląg, 2001a,b; Vladimirov, 2003; Vladimirov and Szeląg, 2006). Knowledge of the ploidy level, which in the genus *Hieracium* indicates the mode of reproduction, is of particular interest in understanding taxonomic and phylogenetic relationships in the genus.

This report presents the first finding of diploid chromosome numbers (2n = 2x = 18) in *H. plumulosum* A. Kern. and in a Balkan representative of *H. alpicola* agg. Chromosome counts in *H. pavichii* Heuff., *H. sparsum* Friv. and *H. transylvanicum* Heuff. are reported for the first time from the region of Serbia and Montenegro.

Living plants were transplanted to an experimental garden and their chromosomes were counted. The root tips were incubated in a saturated water solution of α-bromonaphthalene overnight at 4°C and fixed in 1:3 acetic alcohol. The root tips were hydrolyzed with 1N HCl at 60°C and squashed in 45% acetic acid. The chromosomes were stained with 0.1% aqueous solution of toluidine blue. The preparations were analyzed under a Nikon Optiphot 2 microscope. Vouchers are deposited in KRAM.

Hieracium plumulosum A. Kern., Österr. Bot. Z. 24: 170. 1874.

2n = 2x = 18 (Fig. 1)

This is the first report of a diploid count for this Balkan endemic. An earlier triploid count (2n = 27) was reported from Serbia and Bosnia and Herzegovina (Schuhwerk and Lippert, 1998).

Locality: Montenegro, Sinjajevina Mts., Tara River Canyon, 2 km south of Đurđevića Tara village, on calcareous rocks with *Achnatherum calamagrostis, Carex kitaibeliana, Micromeria croatica* and *Hieracium heterogynum,* surrounded by *Ostrya carpinifoli*a communities, 580 m a.s.l., 43°07'41"N, 19°19'52"E, coll. Z. Szeląg & M. Niketić, 1 Aug. 2006.

Hieracium alpicola subsp. *glandulifolium* Nägeli & Peter, Hierac. Mitt.-Eur. 1: 284. 1885.

2n = 2x = 18 (Fig. 2)

This is the first chromosome number record for this taxon, and also the first known diploid in *H. alpicola* agg. from the Balkan Peninsula. In this species group a diploid count was given for *H. ullepitschii* Błocki from the Tatra Mts. in the Western Carpathians (Murín et al., 1999; Mráz, 2003), while *H. alpicola* Steud. & Hochst. in the Alps is tetraploid (Favarger, 1956).

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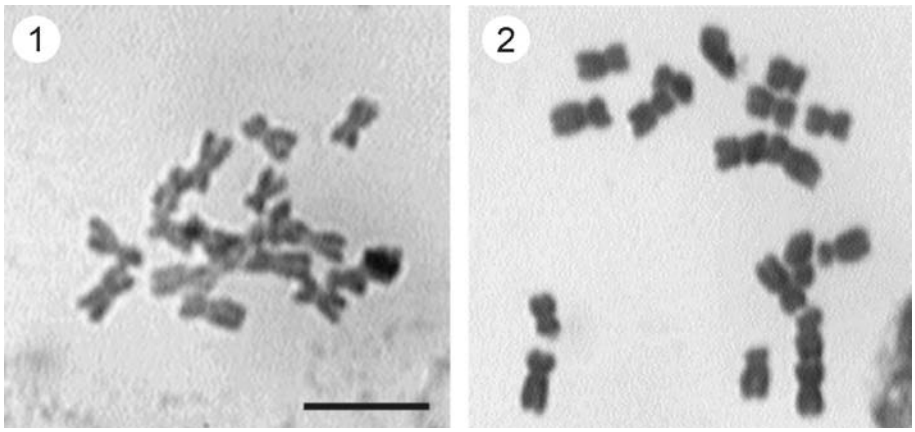

Figs. 1–2. Metaphase plates of *Hieracium*. **Fig. 1.** *H. plumulosum*, 2n = 18. **Fig. 2.** *Hieracium alpicola* subsp. *glandulifolium*, 2n = 18. Bar in Fig. 1 = 5 μm and corresponds to Fig. 2.

Locality: Serbia, Kopaonik Mts., Karaman Peak, Vučak, subalpine grassland with *Festuca halleri* subsp. *scardica* and *Vaccinium gaultherioides*, on granodiorite, 1930 m a.s.l., 43°17'49"N, 20°50'02"E, coll. Z. Szeląg & M. Niketić, 28 Jul. 2006.

Hieracium sparsum Friv., Flora 19: 436. 1836.

2n = 2x = 18

This is the first karyological data for this Balkan subendemic from Serbia. The same chromosome number was given from Bulgaria (Vladimirov, 2000; Vladimirov and Szeląg, 2001a).

Locality: Serbia, Mt. Besna Kobila, eroded slope along road on the summit, surrounded by pastures with *Festuca valida, Festuca nigrescens* and *Deschampsia caespitosa*, on schist, 1840 m a.s.l., 42°31'50"N, 22°14'04"E, coll. Z. Szeląg. & M. Niketić, 3 Aug. 2006.

Hieracium pavichii Heuff., Flora 36: 618. 1853.

2n = 2x = 18

This is the first karyological data for this Balkan subendemic from Serbia. Previously, diploid counts were reported from Bulgaria, Greece and Romania (Christov and Popov, 1933; Strid and Frazén, 1981; Vladimirov, 2000; Mráz and Szeląg, 2004).

Locality: Serbia, Kopaonik Mts., Mt. Željin, rocky vegetation on summit on granodiorite, 1770 m a.s.l., 43°28'43"N, 20°48'39"E, coll. Z. Szeląg. & M. Niketić, 28 Jul. 2006.

Hieracium transylvanicum Heuff., Österr. Bot. Z. 8: 27. 1858.

2n = 2x = 18

This is the first karyological data for this species from Montenegro and Serbia. Previously the same number was reported from Bulgaria, Romania and Ukraine (Chrtek, 1996; Vladimirov, 2000; Mráz and Szeląg, 2004).

Localities: Montenegro, Durmitor Mts., Crno jezero Lake, *Picea abies* forest on limestone, 1440 m a.s.l., 43°08'59"N, 19°05'40"E, coll. Z. Szeląg & M. Niketić, 1 Aug. 2006; Montenegro, Bjelasica Mts, Biogradsko jezero Lake, *Fagus sylvatica* forest on limestone, 1100 m a.s.l., 42°53'55"N, 19°36'26" E. coll. Z. Szeląg & M. Niketić, 4 Jul. 2007; Serbia, Tara Mts., Mitrovac, *Fagus sylvatica-Picea abies* forest on acid soil, 1050 m a.s.l., 43°54'50"N, 19°25'28"E, coll. Z. Szeląg. & M. Niketić, 31 Jul. 2006; Serbia, Veliki Jestrebac Mts, Lomnička reka valley, *Fagus sylvatica* forest on acid soil, 520 m a.s.l., 43°25'35"N, 21°22'32" E. coll. Z. Szeląg & M. Niketić, 4 Jul. 2007.

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