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Hieracium umbellonigritum (Asteraceae), a new hybridogenous species from the Sudetes in Poland

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The field studies in the Karkonosze Mountains (Giant Mountains), the highest massive of the Sudetes, which I started a few years ago, led to some interesting *Hieracium* discoveries (Szeląg 2022). The present paper describes the discovery of another unknown plant combining morphological features of *H. umbellatum* Linnaeus (1753: 804) and *H. nigritum* Uechtritz (1873: 162). As no morphologically intermediate taxon between the supposed parental species is known, I describe this plant as a new species.

As when first found the plants had not yet flowered and the population was rather small, I took only two living plants into cultivation for further observations; these plants were used for description of the new species. Observation of living plants in cultivation allows separation of taxonomically significant features from the plasticity caused by habitat conditions. In the past, misinterpretation of environmentally-induced plasticity of plants in the natural environment was the cause of describing of hundreds of *de facto* non-existent *Hieracium* taxa.

Hieracium umbellonigritum Szeląg, ***sp. nov.*** (Figs. 1−2)

Type:—POLAND. Sudetes, Karkonosze Mts., NW of the Wielki Staw glacial lake, along a tourist path from the Polana glade to main ridge of the mountains, 1280 m a.s.l., originally found on July 16, 2020, specimens from plants transferred to the author's garden, pressed on June 5, 2022, *Z. Szeląg* (holotype KRAM; isotypes Herb. Hierac. Z. Szeląg).

Description:—Phyllopodous. Stem 60–80 cm high, robust, purplish at base, in lower third with numerous, pale, 2.5–3.0 mm long simple hairs and very few stellate hairs; in middle third with sparse pale, 2.0–2.5 mm long simple hairs and numerous stellate hairs; in upper third with very sparse, pale, dark-based, up to 1.5 mm long, simple hairs, numerous stellate hairs and few, blackish, 0.4–0.6 mm long glandular hairs. Main synflorescence more or less umbellate with 10–15 capitula. Acladium 1.0–2.5 cm. Other synflorescence branches in axis of middle and upper cauline leaves (the lower ones up to 25 cm long), with 4–7 capitula, covered by numerous stellate hairs, sparse, pale, up to 1.0 mm long, simple hairs and few, blackish, 0.4–0.6 mm long glandular hairs. Rosette leaves 8–10, present at anthesis, up to 13 cm long and up to 3.5 cm wide, oblanceolate, denticulate or subentire, rounded or subacute at apex, gradually tapered to a long, winged, purplish petiole covered by numerous, pale, 2.5–3.0 mm long simple hairs; on both surfaces with scattered, pale, up to 1 mm long simple hairs; on margins with numerous, pale, up to 1.5 mm long, simple hairs and a few glandular hairs. Cauline leaves 6–10, somewhat coriaceous, lanceolate, acute at apex, denticulate or sharply dentate, gradually reduced in size upwards, tapered to a short, winged petiole; the lover cauline leaves covered by the same indumentum as the rosette leaves; the upper cauline leaves on both surfaces with scattered and sparse stellate hairs, simple hairs, and few glandular hairs on the margins. The 2–4-uppermost cauline leaves sessile, aristate, 1–2 cm long, with numerous, pale, dark-based, up to 1.5 mm long, simple hairs, mixed with blackish glandular hairs and stellate hairs. Peduncles erect, up to 5 cm long, grey, covered by dense stellate hairs, numerous to dense, 0.4–0.7 mm long, blackish glandular hairs, and scattered, up to 1.2 mm long, dark-based simple hairs. Bracteoles 1–3, linear, up to 5 mm long, covered by the same indumentum as the involucral bracts. Involucres 10 mm long, subglobose at base, with moderately dense indumentum. Involucral bracts in three rows; outer bracts squarrose but not recurved at apices; dark green with pale margins, lanceolate, acute at apex, with subdense, blackish, 0.4–0.7 mm long, glandular hairs, numerous, dark-based, up to 1.2 mm long, simple hairs, and few, stellate hairs on margins. Ligules yellow, 1.7 cm long, sparsely ciliate at apex. Styles yellow. Achenes black, 3.2–3.4 mm long. Pappus pale-grey. Pollen numerous, spherical and of varying size. Flowering: August.

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FIGURE 1. Holotype of *Hieracium umbellonigritum* (KRAM).

Affinity:—*Hieracium umbellonigritum* may have originated as a result of hybridization between diploid, sexual *H. umbellatum* and tetraploid, apomictic *H. nigritum.* In general habit, *H. umbellonigritum* is remarkably similar to *H. mrazii* Szeląg (2016: 197) and *H. wierzbickii* Szeląg (2019: 279) recently described from Romania. It differs, however, in a specific features of *H. nigritum*, i.e. the presence of glandular hairs on leaf margins, dense glandular hairs on the peduncles and involucral bracts, and the ligules ciliate at the apex. Its relationship with *H. umbellatum* is evident from the umbellate synflorescence, and the 6–10, lanceolate and somewhat coriaceous cauline leaves.

FIGURE 2. Holotype of *Hieracium umbellonigritum*: involucres.

Distribution and habitat:—*Hieracium umbellonigritum* is endemic to the Karkonosze Mountains in the Sudetes. It grows together with *H. nigritum*, in a few clusters in grassy places on silicate bedrock, on the margins of *Pinus mugo* thickets, along a tourist path from the Polana glade to the main ridge of the mountains, above the Wielki Staw glacial lake, at 1280–1310 m a.s.l. In July 2020, the population of *H. umbellonigritum* comprised about twelve plants, however, the lack of flowering plants made precise counting difficult.

Notes:—*Hieracium nigritum* is a rare subalpine species described from the Sudetes and known also in the Carpathians (Zahn 1938). It is tetraploid and reproduce apomictically (Chrtek 1996; Musiał *et al.* 2015).

Hieracium umbellatum is a diploid, sexual species widely distributed in Europe, often participating in spontaneous hybridization with other *Hieracium* taxa (Szeląg 2016, 2019). Its hybridization potential as maternal plant has also been confirmed experimentally (Chrtek *et al.* 2006; Mráz & Paule 2006).

Hieracium umbellonigritum is the first example of hybridization between *H. umbellatum* and representative of *H*. sect. *Alpina* (Griseb.) Gremli (1881: 269) in the Sudetes. It is probably a young taxon which persists at the place of its creation. The hybridization may have happened when *H. umbellatum* had appeared in the neighborhood of the *H. nigritum* population. Accidental introduction of lowland species to the higher mountain locations is often observed during renovation of tourist routes, but most of these plants decease soon. I suppose the same fate befell *H. umbellatum* which was unable to survive in the subalpine zone. It would be interesting to see if *H. umbellonigritum* spreads in the Karkonosze Mountains.

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