



A new species and a new range extension in *Hieracium* sect. *Cernua* (Asteraceae) from Romania

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Abstract

Hieracium joannei, a new, apomictic species in *H.* sect. *Cernua* is described from the Șureanu Mountains, Southern Carpathians, Romania, and illustrated with photos of the holotype and living plants in the locus classicus. *Hieracium zanogae* (= *H. tubulare*), previously considered to be endemic to the Retezat Mountains, has been found in the Parâng Mountains. This is the easternmost occurrence of the species, disjoined ca 50 km from the nearest localities in the Retezat Mountains. A key for the species of *H.* sect. *Cernua* in Romania is provided.

Key words: Carpathians, Compositae, *Hieracium*, taxonomy

Introduction

Hieracium sect. *Cernua* Uechtritz (1875: 215) comprises two diploid, sexual species, *H. sparsum* Frivaldszky (1836: 436) and *H. cernuum* Frivaldszky (1840: 204) (Ilnicki & Szelağ 2011, Szelağ & Ilnicki 2011, Szelağ *et al.* 2007), and ca 40 agamospermous species of hybrid origin between both diploids and taxa belonging to other sections (Zahn 1938). In Romania *H.* sect. *Cernua* is represented by 15 endemic species (Szelağ 2006). The present occurrence of *H.* sect. *Cernua* in Romania is what has been left of the original range of *H. sparsum* and *H. cernuum* (both currently limited to the Balkan Peninsula), and is a relict. Of particular significance in Romania are the Retezat Mountains in western part of the Southern Carpathians which support 13 species. This relatively small area is an important centre of diversity of *H.* sect. *Cernua* in Europe, the second largest after the Balkan Peninsula. The diversity in the Retezat Mountains is interesting as *H.* sect. *Cernua* species do not occur in the central and eastern parts of the Southern Carpathians. Especially surprising was that they have been not known from the neighbouring Parâng Mountains, whose elevation, geology, orography and vegetation are strikingly similar to those of the Retezat Mountains.

In July 2014, during a botanical excursion to the Parâng Mountains and Șureanu Mountains, Southern Carpathians, I found new localities of two species belonging to *H.* sect. *Cernua*. First of them was *H. zanogae* Pax (1908: 98), recently considered conspecific with *H. tubulare* Nyárády in Zahn (1929: 144) (Szelağ 2016) and hitherto known from the Retezat Mountains at the distance of ca 50 km.

The second one, however, was different from any previously described species. Detailed study of collected herbarium specimens and living plants cultivated in the garden indicated that these plants belong to a new species. An emasculation experiment in the garden-cultivated plants shows that these plants reproduce apomictically.

Based on morphological differences, and considering its apomictic mode of reproduction, I decided to describe these plants as a new species.

New species

Hieracium joannei Szelağ, **sp. nov.** (Figs. 1–3)

Type:—ROMANIA. Southern Carpathians, Șureanu Mountains, SE slope of Muntele Pravăț ridge, Obârșia Lotrului tourist area, 250 m south of a road junction No. DN7A and No. DN67C, grassy slope and siliceous rocks on *Picea abies* forest margin along a road, 1370 m a.s.l., 17 July 2014, Z. Szelağ (holotype KRAM; isotypes CL, KRA, Herb. Hierac. Z. Szelağ).



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



FIGURE 2. Holotype of *Hieracium joannei*: involucre.

Paratypes:—Specimens from the living plants collected in the type locality on 17 July 2014 and cultivated in the author's garden, herbarized on 20 June 2016, Z. Szeląg (Herb. Hierac. Z. Szeląg).

Description:—Phyllopodous. Stem 40–60 cm high, pale green, purplish at the base, within synflorescence with sparse stellate hairs and pale, dark-based, simple hairs 1–3 mm long mixed with dark glandular hairs 0.1–0.2 mm long, in the middle with few, pale, 2–3 mm long simple hairs, at the base with sparse, pale simple hairs up to 2 mm long. Basal leaves 6–12, green, lanceolate to oblanceolate; the outer leaves remotely denticulate to ±entire; the inner leaves dentate; 9–15 cm long and 2–4 cm wide, acute at apex, gradually tapered to a long, purplish at the base, winged petiole,



FIGURE 3. *Hieracium joannei*: flowering plants in the locus classicus.

covered by numerous, pale simple hairs 2 mm long; on the upper surface glabrous or nearly so; on the lower surface with sparse, pale simple hairs 0.5–1.5 mm long, along the midrib with scattered to numerous pale simple hairs 3–5 mm long, on the margins with scattered pale simple hairs up to 1 mm long, mixed with microglands. Cauline leaves 1–3, rapidly reduced upwards, sessile, narrowed at the base; the lower leaves 6–12 cm long, lanceolate, denticulate to dentate with 1–2 teeth on each side, on both surfaces glabrous, only on the margins and along the midrib with sparse, pale simple hairs 1–2 mm long; the middle leaves 4–8 cm long, narrowly lanceolate, entire, only on the margins with few simple hairs; the uppermost leaf bract-like and ±glabrous. Synflorescence with 15–30(–40) capitula (and usually some capitula aborted). Synflorescence branches 2–4, confined to the middle and upper halves of stem, with 3–10 capitula. Acladium up to 4 cm long. Peduncles green, erect, with numerous stellate hairs, scattered, black glandular hairs 0.2–0.4 mm long and scattered, grey, dark-based simple hairs 1–1.5 mm long. Bracteoles 2–3, lanceolate, dark green, covered by numerous simple hairs mixed with glandular hairs, and a tuft at the apex. Involucres subglobose

at the base, 10–11 mm long, covered by moderately dense indumentum. Involucral bracts in two rows, 1.2–1.4 mm wide at the base, lanceolate, subacute and with a tuft at the apex; the outer bracts dark green, with numerous, pale, dark-based simple hairs 1.7–2.2 mm long and scattered, black glandular hairs 0.5–0.8 mm long (ratio of simple hairs to glandular hairs 2 : 1), and with sparse stellate hairs at the base; the inner bracts with wide, pale margins and far less dense indumentum. Ligules yellow, glabrous at the apex. Styles dark. Achenes brown, 3.3–3.5 mm long. Pappus straw-grey. Pollen in anthers absent. Flowering: July.

Affinity:—New species is similar to *H. mirekii* Szelağ (2006: 118), from which it differs in its dark styles, longer involucre, green (not glaucous) leaves, narrowly lanceolate cauline leaves, and brown achenes. The morphological differences between both species are stable in the garden-cultivated plants. For the differences between the species of *H. sect. Cernua* in Romania see the key below.

Distribution and habitats:—Endemic to the Şureanu Mountains, Southern Carpathians, known only from the type gathering; nevertheless its occurrence in the adjacent Parâng Mountains has been expected. The population of *Hieracium joannei* was composed of a few hundred flowering plants growing on a south-facing slope covered by grassy vegetation and *Brucenthalia spiculifolia*, and on siliceous rocks and crevices along the *Picea abies* forest margin.

Mode of reproduction:—Agamospermous.

Etymology:—The new species is named in honour of Dr. hab. Jan (Latin: Joannes) Bodziarczyk, University of Agriculture in Cracow, who accompanied me on a field trip to Romania in July 2014.

New locality of *Hieracium zanogae*

Specimens examined:—ROMANIA. Southern Carpathians, Parâng Mountains, W slope of Mt. Coricia, 150 m south of the Mănăstirea Jieţ, slates along a road No. DN7A, 1360 m a.s.l., 17 July 2014, Z. Szelağ (Herb. Hierac. Z. Szelağ).

Notes:—*Hieracium zanogae* is the most frequent representative of *H. sect. Cernua* in the Retezat Mountains. It grows in the subalpine belt and in open, rocky places in the montane forest zone, and shows propensity to migrate along river valleys. Its lowest localities in the Retezat Mountains are situated at ca 1400 m a.s.l. *Hieracium zanogae* is easily distinguished from all other species of *H. sect. Cernua* in the Carpathians by its tubular florets and ±cylindrical involucre. An updated morphological description of *H. zanogae* is given in Szelağ (2006: 143, as *H. tubulare*). The population discovered in the Parâng Mountains consisted of about 40–50 flowering plants.

Key to the species of *Hieracium sect. Cernua* in Romania

- | | | |
|------|---|--------------------------------------|
| 1. | Cauline leaves purple-spotted | <i>H. telekianum</i> Boros & Lengyel |
| 1*. | Cauline leaves unspotted | 2 |
| 2. | Florets tubular; involucre ± cylindrical | <i>H. zanogae</i> Pax |
| 2*. | Florets ligulate or semi-tubular (joined at apex); involucre campanulate or subglobose | 3 |
| 3. | Florets semi-tubular | <i>H. coldei</i> Szelağ |
| 3*. | Florets ligulate | 4 |
| 4. | Involucre glabrous | <i>H. magocsyanum</i> Jáv. |
| 4*. | Involucre with indumentum | 5 |
| 5. | Involucre campanulate with scattered simple hairs | 6 |
| 5*. | Involucre subglobose with moderately dense to dense, simple hairs | 11 |
| 6. | Cauline leaves (5–)8–15; at least the upper ones semiamplexicaul and broadest at the base | 7 |
| 6*. | Cauline leaves 3–7, sessile, attenuate at the base | 9 |
| 7. | Peduncles with sparse stellate hairs; involucral bracts 1.3–1.5 mm wide at the base | <i>H. nigrilacus</i> Nyár. |
| 7*. | Peduncles with numerous to dense stellate hairs; involucral bracts 1.5–2.0 mm wide at the base | 8 |
| 8. | Involucre 10–12 mm long; involucral bracts in two rows | <i>H. borbasii</i> R. Uechtr. |
| 8*. | Involucre 12–13 mm long; involucral bracts in three rows | <i>H. kotschyanum</i> Heuff. |
| 9. | Involucre campanulate; involucral bracts 1.5–2.0 mm wide at the base, obtuse at the apex; basal leaves oblanceolate | <i>H. porphyriticum</i> A. Kern. |
| 9*. | Involucre narrowly campanulate; involucral bracts 1.0–1.2 mm wide at the base, (sub)acute at apex; basal leaves lanceolate to narrowly elliptic | 10 |
| 10. | Basal leaves on both surfaces glabrous, lanceolate to elliptic, denticulate to remotely dentate; achenes black | <i>H. ostii-bucurae</i> Szelağ |
| 10*. | Basal leaves on the upper surface hairy narrowly elliptic to lanceolate, finely denticulate or ±entire; achenes brown | <i>H. lubricicaule</i> (Nyár.) Borza |
| 11. | Involucre 9.0 mm long, with simple hairs 1–2 mm long; styles yellow | <i>H. mirekii</i> Szelağ |
| 11*. | Involucre 10–13 mm long, with (2–)3–5 mm long simple hairs; styles dark | 12 |
| 12. | Middle and upper cauline leaves entire | 13 |
| 12*. | All cauline leaves denticulate to dentate | 15 |

- 13 Involucres with pale, dark-based simple hairs 1.5–2.5 mm long *H. joannei* Szeląg
- 13* Involucres with dark simple hairs (2–)3–5 mm long..... 14
14. Involucres with simple hairs (2–)3 mm long; cauline leaves 1–2 cm long, rapidly reduced in size upwards; synflorescence branches 1–4 cm long, with 1–2 capitula; acladium up to 1 cm long *H. tomasae* (Nyár. & Zahn) Nyár.
- 14*. Involucres with simple hairs 4–5 mm long; cauline leaves longer, gradually reduced in size upwards; synflorescence branches up to 10 cm long; acladium 1.5–3.0 cm long *H. pawlowskianum* Nyár.
15. Cauline leaves 2–3; synflorescence with 3–10 capitula *H. polyphyllobasis* (Nyár. & Zahn) Szeląg
- 15*. Cauline leaves 4–6; synflorescence with 20–30 capitula *H. mitkai* Szeląg

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