Phytotaxa 704 (2): 203–207
https://www.mapress.com/pt/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.704.2.8

Pilosella riloensis (Asteraceae), a new hybridogenous species and nomenclatural notes on *P. pseudopilosella* in Bulgaria

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Abstract

Pilosella riloensis is a new, triploid species from the subalpine zone in the Rila Mountains, Bulgaria. It combines the morphological features of *P. kalinensis* which belongs to the *P. alpicola* agg., and *Hieracium pseudopilosella* subsp. *sericochrotum* which has been raised to species level as *Pilosella sericochrota* and typified. The new species was analyzed karyologically using the flow cytometry, and is illustrated with photos of the holotype and details of capitulum in the wild.

Key words: Balkan Peninsula, Compositae, hybridization, *Pilosella*, ploidy level, taxonomy

Introduction

In 2018, in the Rila Mountains in Bulgaria we found plants showing characters intermediate between *Pilosella sericochrota* (Zahn) Szeląg & Vladimirov (see below) and a taxon of the *P. alpicola* agg. which was represented then in Bulgaria only by *P. rhodopea* (Grisebach) Szeląg (2008: 302). They were growing in grassy places amongst thickets of *Pinus mugo* along a tourist road from Yastrebets hut (хижа Ястребец) to Musala hut (хижа Мусала), 3 km north of Mt. Musala (2925 m a.s.l.) In 2019, we also found the same plants in the Ribnite ezera (Рибните езера) glacial lakes valley, five kilometers from first locality.

They were initially considered to be hybrids between these two *Pilosella* taxa, but the dark grey trichomes on involucral bracts of the hybrid did not fit as in *P. sericochrota* the capitula are covered with pale trichomes and they are almost white in *P. rhodopea*. It was not until the discovery of *P. kalinensis* Szeląg & Vladimirov (2025: 201) in the Rila Mountains, with its blackish-grey, long straight hairs on the involucres that we considered it could be one of the parental species of the new hybrid.

As a result of capitulum excision experiments in cultivation which determined the hybrid is apomictic and the ploidy level was triploid, we decided to describe it as a separate species.

Material and methods

Living plants collected in the field and cultivated in the experimental garden of the Institute of Biodiversity and Ecosystem Research in Sofia were checked for mode of reproduction and ploidy level (using flow cytometry) following the method described in Szeląg & Vladimirov (2019). The herbarium specimens are deposited in SOM, KRAM and in herbarium of Z. Szeląg.

Accepted by Alexander Sennikov: 20 May 2025; published: 6 Jun. 2025

Results

Pilosella riloensis Szeląg & Vladimirov, ***sp. nov.*** (Figs. 1–2)

Type:—BULGARIA. Rila Mountains, Ribnite ezera glacial valley, grassy places between loose *Pinus mugo* thickets, ca 150 m west of the hut, 2250 m a.s.l., 13 August 2019, *Z. Szeląg* (holotype KRAM; isotypes SOM, Herb. Hierac. Z. Szeląg).

Paratypes:—BULGARIA. Rila Mountains, along a tourist road from Yastrebets hut to Musala hut, grassy places amongst thickets of *Pinus mugo*, 2330 m a.s.l., 3 August 2018, *V. Vladimirov* & *Z. Szeląg* (SOM, Herb. Hierac. Z. Szeląg).

FIGURE 1. Holotype of *Pilosella riloensis*.

Description:—Phyllopodous. Monocephalous, or with two capitula on erect peduncles up to 15 cm long. Stolons absent. Stem up to 20–25 cm high, in the lower third with dense stellate hairs, and sparse, pale trichomes up to 10 mm long; in middle part with dense stellate hairs, scattered, black in the lower half trichomes up to 5 mm long, and few black glandular hairs 0.2–0.4 mm long; in the upper third with dense stellate hairs, numerous black (with grey apex) simple trichomes up to 8 mm long, and scattered black glandular hairs 0.3–0.5 mm long. Peduncles with dense stellate

hairs, numerous, dark grey, simple trichomes up to 8 mm long, and numerous to dense black glandular hairs 0.3–0.5 mm long. Rosette leaves 5–10, up to 12 cm long and up to 1.5 cm wide, lanceolate, entire, subacute at apex (the outer leaves shorter and rounded at apex); on upper surface pale green with numerous pale, simple trichomes 4–5 mm long, and sparse to scattered stellate hairs; on lower surface with protruding pale midrib, and with dense stellate hairs, only on margins and occasionally on midrib with sparse pale, simple trichomes 2–3 mm long. Cauline leaves usually two, up to 4 cm long and up to 0.5 cm wide, lanceolate, sessile, acute at apex, with an indumentum like the rosette leaves. Involucres 10–11 mm long and 10–12 mm wide, globose at base, with very dense indumentum. Involucral bracts acute at apex, up to 1.8 mm wide at base, with dense, dark grey, black-based simple trichomes 5–7 mm long, dense stellate hairs, and scattered dark glandular hairs 0.3 mm long. Ligules yellow, with or without pale red stripes, flat, glabrous at apex. Styles pure yellow. Achenes light brown, 1.8–2.2 mm long. Pappus white. Pollen absent. Flowering: August.

Ploidy level and mode of reproduction:—2n ~ 3x ~ 27, agamospermous.

Distribution and habitats:—Endemic to the Rila Mountains, currently known from two localities in the core of the mountains but additional localities are to be expected. In 2019, its population in the type locality comprised more than two hundred flowering plants growing in a few clusters, on grassy places amongst the loose thickets of *Pinus mugo*, at 2250–2270 m a.s.l. (Fig. 3). In 2018, the second population of *Pilosella riloensis* along a tourist road from Yastrebets hut to Musala hut seemed to be slightly smaller.

Affinity:—*Pilosella riloensis* is triploid whereas its supposed parental species *P. kalinensis* and *P. sericochrota* are diploids (Pavlova 1999; Vladimirov & Szeląg 2001; Szeląg & Vladimirov 2025). The intermediate morphological position of *P. riloensis* is summarized as follows:

	P. kalinensis	*P. riloensis*	*P. sericochrota*
Height of stem	12–18 cm	20–25 cm	20–35 cm
Number of capitula	1–2	1–2	1
Length of involucres	8.0–9.5 mm	10–11 mm	11–12 mm
Indumentum of capitula: -simple hairs	-very dense, black with grey apex 7.5–10 mm long	-dense, dark grey black-based 5–7 mm long	-dense, pale grey 3–4 mm long
-glandular hairs	-few 0.2 mm long	-scattered 0.3 mm long	-numerous 0.4 mm long
-stellate hairs	-scattered	-dense	-dense
Indumentum of peduncles: -simple hairs	-dense, black with grey apex up to 11 mm long	-numerous, dark grey up to 8 mm long	-sparse, dark grey dark-based up to 4 mm long
-glandular hairs	-scattered to numerous 0.2–0.3 mm long	-numerous to dense 0.3–0.5 mm long	-dense 0.4–0.6 mm long
-stellate hairs	-dense	-dense	-dense
Ligules	flat or semi-tubular, warm-yellow without red stripes	flat, light yellow with (or without) pale red stripes	flat, light yellow with red stripes
Stolons	absent	absent	up to 15 cm long
Ploidy level	2x	3x	2x

Nomenclatural changes:—*Pilosella pseudopilosella* (Tenore) Soják (1971: 217), originally described as *Hieracium pseudopilosella* (Tenore 1811–1815 [suppl. 2]: 71), is the collective species which comprises 8 subspecies in the Mediterranean area (Zahn 1923). The nominal taxon occurs in Italy. In Bulgaria, it is represented by *H. pseudopilosella* subsp. *sericochrotum* Zahn in Ascherson & Graebner (1922: 60), characterized by long, thin stolons and dense glandular hairs on peduncles. As this name is unavailable in the genus *Pilosella* Hill (1756: 441), following the accepted taxonomic concept to recognize *Hieracium* Linnaeus (1753: 799) and *Pilosella* as separate genera (Schultz & Schultz-Bipontinus 1862; Schou 2001; Tyler 2001; Sennikov 2003), we propose a new generic combination, also elevating *Hieracium pseudopilosella* subsp. *sericochrotum* to species rank within *Pilosella*. The name is lectotypified from specimens collected by Johan Wagner in the Rila Mountains and examined by Zahn (1922).

FIGURE 2. Indumentum of the capitula: *P. kalinensis* (left), *P. riloensis* (middle) and *P. sericochrota* (right).

Pilosella sericochrota (Zahn) Szeląg & Vladimirov, ***stat. et comb. nov.***

Basionym:—*Hieracium pseudopilosella* subsp. *sericochrotum* Zahn in Ascherson & Graebner (1922: 60).

Type:—BULGARIA. Plantae Rumeliae orientalis, exssicatae curante Dre de Degen. In graminosis regionis alpinis vallis Maritzae superioris sub monte Musala, Rhodopes centralis, 30.07.1892, *J. Wagner* (lectotype BRNM 10983/36, designated here).

Distribution and habitats:—*Pilosella sericochrota* is a high-mountain species and prefers habitats on siliceous (mainly granite) bedrock, above 2000 m a.s.l., and is frequent in the Pirin Mountains and Rila Mountains. It is likely that *P. sericochrota* is endemic to Bulgaria because its occurrence in thermophilous vegetation on Mt. Chortiatis (Χορτιάτης) (only 1201 m a.s.l.) near Thessaloniki in Greece as reported by Zahn (1923) seems very unlikely. Furthermore, this locality is attributed to Imre Friváldszky, an eminent Hungarian entomologist, who organized the expeditions to the Balkan Peninsula but did not participate in these expeditions himself (cf. Szeląg & Somlyay 2009).

Acknowledgements

We are grateful to Dr. Tim Rich (Cardiff) for improving the English text and helpful suggestions, and to an anonymous reviewer for nomenclatural advice.

References

Hill, J. (1756) *The British Herbal: an history of plants and trees, natives of Britain, cultivated for use, or raised for beauty*. T. Osborn & J. Shipton, London, [4] +536 pp. [https://www.biodiversitylibrary.org/bibliography/51133]

Linnaeus, C. (1753) *Species plantarum*. L. Salvius, Holmia, 1200 pp. https://doi.org/10.5962/bhl.title.669

Merxmüller, H. (1975) Diploide Hieracien. *Anales del Instituto Botánico A. J. Cavanilles* 32: 189–196. [https://www.rjb.csic.es/jardinbotanico/ficheros/documentos/pdf/anales/1975/Anales_32(2)_189_196.pdf]

Pavlova, D. (1999) Reports (1064–1065). *In*: Kamari, G., Felber, F. & Garbari, F. (Eds.) Mediterranean chromosome number reports 9. *Flora Mediterranea* 9: 356–359. Available from: [https://www.herbmedit.org/flora/9-323.pdf]

Schou, J.C. (2001) Denmarks Høgeurter (*Hieracium*, *Pilosell*a). *AAU Reports* 41: 1–244.

Schultz, F.W. & Schultz-Bipontinus, C.H. (1862) *Pilosella* als eigene Gattung. *Flora* 45: 417–432. [https://www.biodiversitylibrary.org/

item/959#page/1/mode/1up]

Sennikov, A.N. (2003) Taxonomic concept in *Hieracium* L. s.l. (Asteraceae). *Turczaninowia* 6 (2): 16–41. [https://www.elibrary.ru/item.asp?id=11158155]

Soják, J. (1971) Specierum generis *Pilosellae* Hill combinationes novae. *Folia Geobotanica et Phytotaxonomica.* 6 (2): 217–219. https://doi.org/10.1007/BF02851763

Szeląg, Z. (2008) Taxonomic and nomenclatural notes on *Pilosella alpicola* agg. (Asteraceae) in the Balkans and Carpathians. *Annales Botanici Fennici* 45: 301–306. https://doi.org/10.5735/085.045.0410

Szeląg, Z. & Somlyay, L. (2009) History of discovery and typification of *Haberlea rhodopensis* Friv. (Gesneriaceae). *Annales Botanici Fennici* 46: 555–558. https://doi.org/10.5735/085.046.0608

Szeląg, Z. & Vladimirov, V. (2019) The species intermediate between *Hieracium petrovae* and *H. olympicum* (Asteraceae): a treatment of *H. kritschimanum* and description of a new species from Greece. *Phytotaxa* 402: 107–113. https://doi.org/10.11646/phytotaxa.402.2.4

Szeląg, Z. & Vladimirov, V. (2025) *Pilosella kalinensis* (Asteraceae), a new diploid species in *P*. sect. *Alpicolinae* from the Rila Mountains in Bulgaria. *Phytotaxa* 694 (2): 201–204. https://doi.org/10.11646/phytotaxa.694.2.8

Tenore, M. (1811–1815) *Flora Napolitana, ossia Descrizione delle piante indigene del regno di Napoli, e delle piu rare specie di piante esotiche coltivate ne' giardini*. Nella Stamperia Reale, Napoli, vol. 1 (1): *Introduzione* (pp. I–IV) *Prodromo della Flora Napolitana* (pp. V–LVIII) *Supplimento primo* (pp. LVIII–LXIII) *Supplimento secondo* (pp. LXV–LXXII) + 324 pp. [https://www.ortobotaniconapoli.it/images/biblioteca-digitale/Tenore_Fl_Napol_Volume%20I_Parte_I.pdf]

Tyler, T. (2001) Förslag till ny taxonomisk indelning av stångfibblorna (*Pilosella*) i Norden. *Svensk Botanisk Tidskrift* 95: 39–67. [https://www.diva-portal.org/smash/get/diva2:1203067/FULLTEXT01.pdf]

Vladimirov, V. & Szeląg, Z. (2001) Chromosome numbers in selected species of *Hieracium*, subgenus *Pilosella* (Asteraceae) from Bulgaria. *Polish Botanical Journal* 46: 269–273.

Zahn, K.H. (1922) *Hieracium* L. *In*: Ascherson, P. & Graebner, P. (Eds.) *Synopsis der mitteleuropäischen Flora*, Lieferung 106. Borntraeger, Leipzig, pp. 1–80.

Zahn, K.H. (1923) *Hieracium* L. *In*: Engler, A. (Ed.) *Das Pflanzenreich*, Hf. 82. W. Engelmann, Leipzig, pp. 1147–1532.