

## Four new *Hieracium* taxa (Compositae) from the Balkans (North Macedonia, Montenegro) and Greece and one new *Hieracium* record for Europe

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### Abstract

*Hieracium* specimens (Compositae) collected by F.X. Krendl (1926–2020) in North Macedonia, Montenegro and Greece are revised. As a result, *Hieracium strumicanum*, *H. krendlii*, *H. belavodae* and *H. racemosum* subsp. *chaetissimum* are described as new to science. *H. praelongipes*, hitherto only known from Turkey, is documented as new for Europe (North Macedonia).

**Keywords:** Compositae, *Hieracium*, taxonomy, new species, new subspecies, new record

### Zusammenfassung

Die von F.X. Krendl (1926–2020) in Nordmazedonien, Montenegro und Griechenland gesammelten Hieracien-Belege (Compositae) wurden revidiert. Als Ergebnis werden *Hieracium strumicanum*, *H. krendlii*, *H. belavodae* und *H. racemosum* subsp. *chaetissimum* als neu für die Wissenschaft beschrieben. *H. praelongipes*, bisher nur aus der Türkei bekannt, wird erstmalig für Europa (Nordmazedonien) nachgewiesen.

### Introduction

Franz Xaver Krendl (1926–2020), one of the former curators of the Botanical Department of the Natural History Museum, Vienna, specialist of the genus *Galium*, undertook various botanical excursions throughout Europe. During these collection trips he did not only pay attention to *Galium* species but collected intensively herbarium specimens from other genera, too.

The *Hieracium* collections (Compositae) have been examined and determined by the author. As result three new species and one new subspecies from the Balkans and Greece are described, and one new record for Europe is presented.

The formulas, added to the new taxa, follow the traditional concept in hieraciology. They indicate morphological affinities. They do not indicate a recent hybridisation.

### Descriptions

***Hieracium strumicanum* GOTTSCHL., sp.n. (*schmidtii* – *transylvanicum*)** (Fig. 1)

**Typus.** North Macedonia, ca. 4–5 km NW of Strumica, towards Ostrec mountain, [ca. 41°27' N, 22°34' E, taken from Google Earth], ca. 400–500 m, mixed deciduous forest, silicate, 7 July 1977, leg. E. & F. Krendl [holotype: W].

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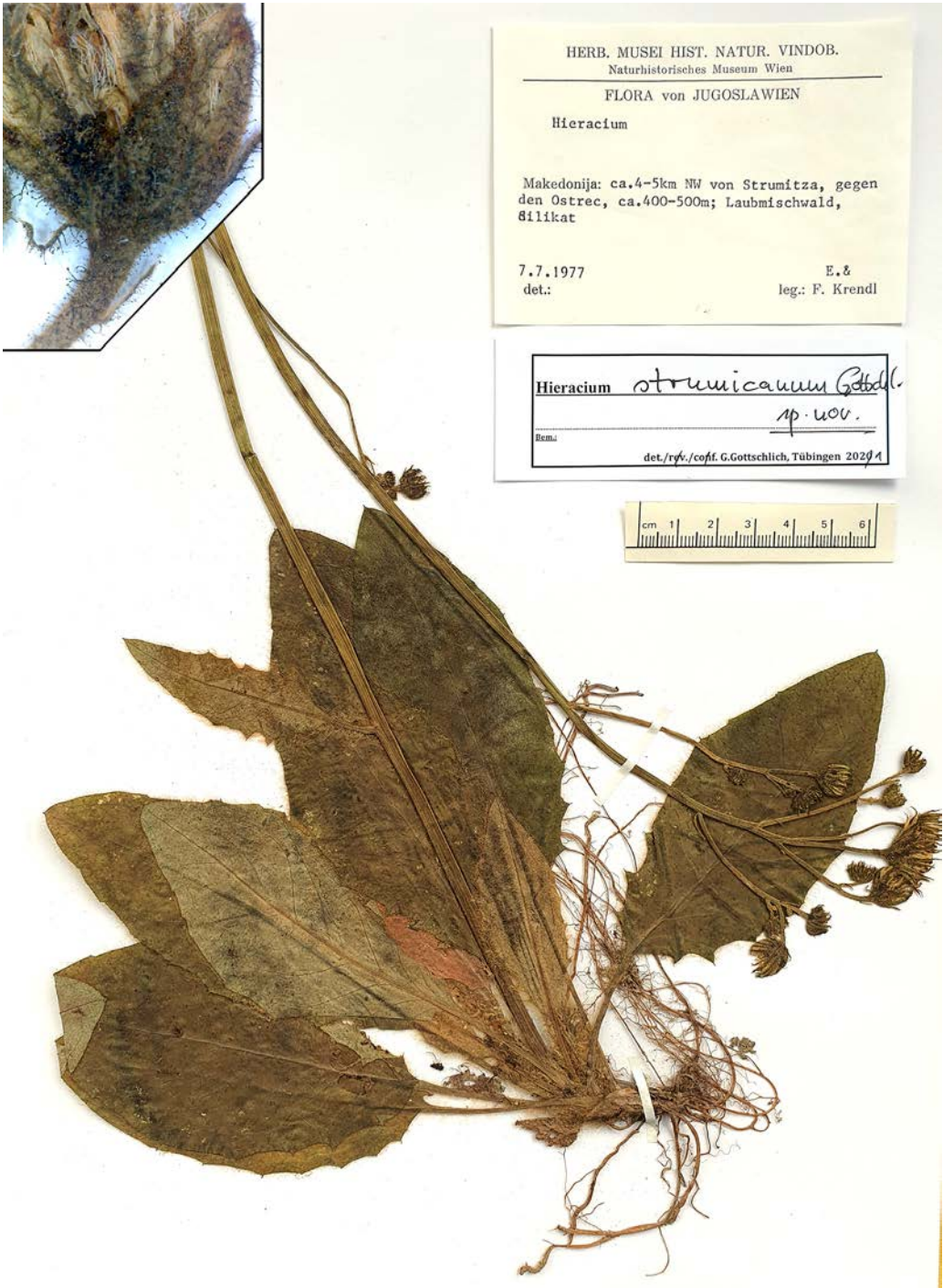


Fig. 1: *Hieracium strumicanum* GOTTSCHL.

Perennial plant. Rhizome thin, horizontal or oblique. Stem erect, stout ( $\varnothing$  2–3 mm), 50–60 cm tall, green, finely striate, phyllopodous, in the lower part with moderate, above sparsely covered with 2–3 mm long, white, dentate simple hairs, above with few stellate hairs and sparsely covered with 0.3 mm long glandular hairs. Basal leaves 7–9, slender, at anthesis besides the fully developed leaves still 1–2 withered leaves of the previous vegetation period present, as well as some young, just developing leaves, all petiolate; petiole short, 2–3 cm long, with subdense, 3–4 (–5) mm long, white, soft simples hairs; blade broadly elliptical, 8–10  $\times$  5–6 cm, upper surface indistinctly glaucous-green, the lower surface whitish-green, remotely denticulate, towards the base dentate, attenuate at the base, obtuse at the apex, the upper surface sparsely to moderately covered with 4 mm long, white, subrigid simple hairs, at the margins with 4–5 mm long, subrigid, curved simple hairs, on the lower surface densely covered with simple hairs along the leaf vein, and few stellate hairs. One cauline leaf, inserted in the lower part of the stem, 5–7  $\times$  1.5–2 cm, densely covered with 4–5 mm long simple hairs. Synflorescence paniculate; branches 5–6, straight, (3–) 5–7 (–10) cm long, each with 1–3 capitula; capitula 10–15 (–17); acladium 2 cm long. Peduncles 0.5–1 cm long, densely to moderately covered with 0.3 mm long glandular hairs and dense stellate hairs, simple hairs absent. Involucre 10 mm long, subglobose. Involucral phyllaries dark green, in few series, lanceolate, 1 mm large, long acuminate, moderately covered with 0.4–0.6 mm long, blackish glandular and stellate hairs, simple hairs absent. Ligules yellow, glabrous. Style yellow. Achenes not available. Flowering in July.

**Etymology.** The epitheton refers to the village Strumica.

**Affinities.** The indumentum of long, subrigid and numerous simple hairs along the leaf margin indicates an introgression of *Hieracium schmidtii*. This species is present, but not common in North Macedonia. It prefers silicate grounds, often restricted to rocks. The rosette with its numerous leaves in different states of development, the deep inserted stem leaf, and the absence of simple hairs on the involucral bracts show affinities to *H. transylvanicum*, a common endemic species of the Balkans. Hence, *H. strumicanum* can be characterised as an intermediate, probably fixed species.

***Hieracium krendlii* GOTTSCHL., sp.n. (*gymnocephalum* – *bifidum* – *naegelianum*)** (Fig. 2)

**Typus.** Montenegro, Prokletije Mountains, NE of Čakor Pass, SE of the top [42°40' N, 20°00' E, taken from Google Earth], ca. 1900 m, rocky drifts, calcareous, 23 July 1975, leg. E. & F. Krendl [holotype: W, isotypes: B, TGU, Hb. Gottschlich-15808]

Perennial plant. Rhizome thin, horizontal or oblique. Stem erect, stout ( $\varnothing$  1.5–2 mm), 50–60 cm tall, light green, at the base often reddish green, finely striate, phyllopodous, glabrous or with sparse, 2 mm long, soft, white simple hairs, glandular and stellate hairs absent. Basal leaves (3–) 4–5, petiolate; petiole (2–) 5–7 cm long, narrowly winged, moderately covered with 1.5–2.5 mm long, white, soft, simples hairs; blade broadly (the outer) to narrowly (the inner) elliptical, (2–) 5–8 (–10)  $\times$  (1–) 3 cm, the upper surface indistinctly glaucous-green, the lower surface greyish-green, remotely and sharply serrate, teeth in the basal part of the blade often curved, up to 0.5 cm long and with filiform apex, towards the apex of the blade diminishing in size, blade glabrous or on the margins sparsely covered with 2 mm long, soft, white simple hairs. Cauline leaves 1–2, narrowly

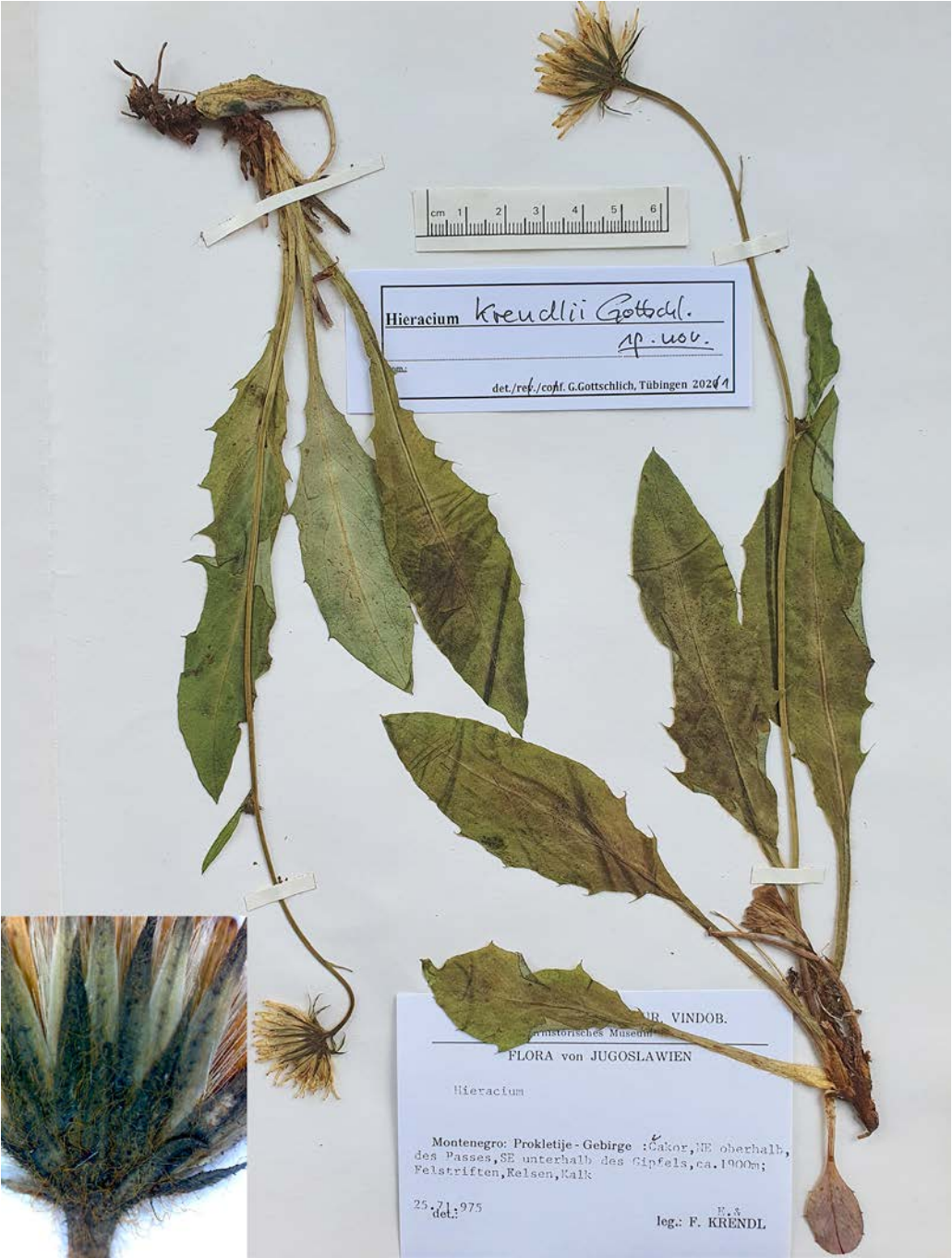


Fig. 2: *Hieracium krendlii* GOTTSCHL.

elliptical, constricted at the base into an indistinct, winged petiole, which inserts  $\pm$  semi-amplexicaul at the stem, perforation of the margins, colour and indumentum like in the basal leaves. Synflorescence usually scapose, rarely rudimentarily racemose (often the second capitulum not developed); branches 0 (–1), capitula 1 (–2). Peduncle sparsely covered with 1.5 mm long, white simple hairs, glandular and stellate hairs absent. Involucre 15 mm long, subglobose. Involucral phyllaries in few series, the outer ones blackish, without light margins, but margins with black papillae, the inner ones with large whitish-green margins, lanceolate, 2.2–2.5 mm large, acuminate, moderately covered with 1.5–2 mm long, white, soft and slightly curled, simple hairs, glandular and stellate hairs absent. Ligules yellow, glabrous. Style yellow. Achenes not available. Flowering in July.

**Etymology.** The epitheton is dedicated in memoriam to Franz Xaver Krendl (31.10.1926 – 10.9.2020), 1948–1967 teacher at primary and secondary schools, 1967–1972 assistant at the Botanical Institute of the University in Graz, 1972 till retirement curator at the Botanical Department of the Natural History Museum, Vienna (ANONYMUS 1976).

**Affinities.** Undoubtedly, *Hieracium krendlii* must be an intermediate species. However, at first sight, a set of probable parents cannot be attributed. Concerning the shape of the whole plant the most similar species are *H. incisiceps* ROHL. & ZAHN, *H. pallescentifrons* K.MALÝ & ZAHN and *H. simbruinum* GOTTSCHL. From all of them *H. krendlii* differs in sufficient characters (see Table 1).

Table 1: Diagnostic characters in *H. krendlii*, *H. incisiceps*, *H. pallescentifrons*, *H. simbruinum*

	<i>H. krendlii</i>	<i>H. incisiceps</i>	<i>H. pallescentifrons</i>	<i>H. simbruinum</i>
“formulas”	<i>gymnocephalum</i> – <i>bifidum</i> – <i>naegelianum</i>	<i>pseudobifidum</i> > <i>villosum</i>	<i>rotundatum</i> – <i>pallens</i>	<i>dentatum</i> – <i>naegelianum</i>
shape of basal leaves	broadly to narrowly elliptical	narrowly elliptical	narrowly elliptical	lanceolate
leaf margins	remotely and sharply serrate, teeth often curved	remotely denticulate to entire	remotely and slightly serrate	remotely denticulate to entire
branches	0 (–1)	1–2 (–3)	2–5	0–1
capitula	1 (–2)	1–3 (–5)	3–10	1–2
simple hairs	sparse	moderate	sparse	sparse
glandular hairs	lacking	sparse	subdense	sparse
stellate hairs	lacking	dense	subdense	dense
involucre	15 mm	10–12 mm	9–10 mm	10–12 mm
simple hairs	moderate	subdense	lacking	moderate
glandular hairs	lacking	sparse	dense	sparse
stellate hairs	lacking	moderate to subdense	moderate at the base	moderate to subdense at the base
type localities	Prokletije Mountains Montenegro	Vojnik Mountain Montenegro; Golešnica North Macedonia	Treskavica Planina Bosnia-Herzegovina	Monte Simbruini, Abruzzo, Italia

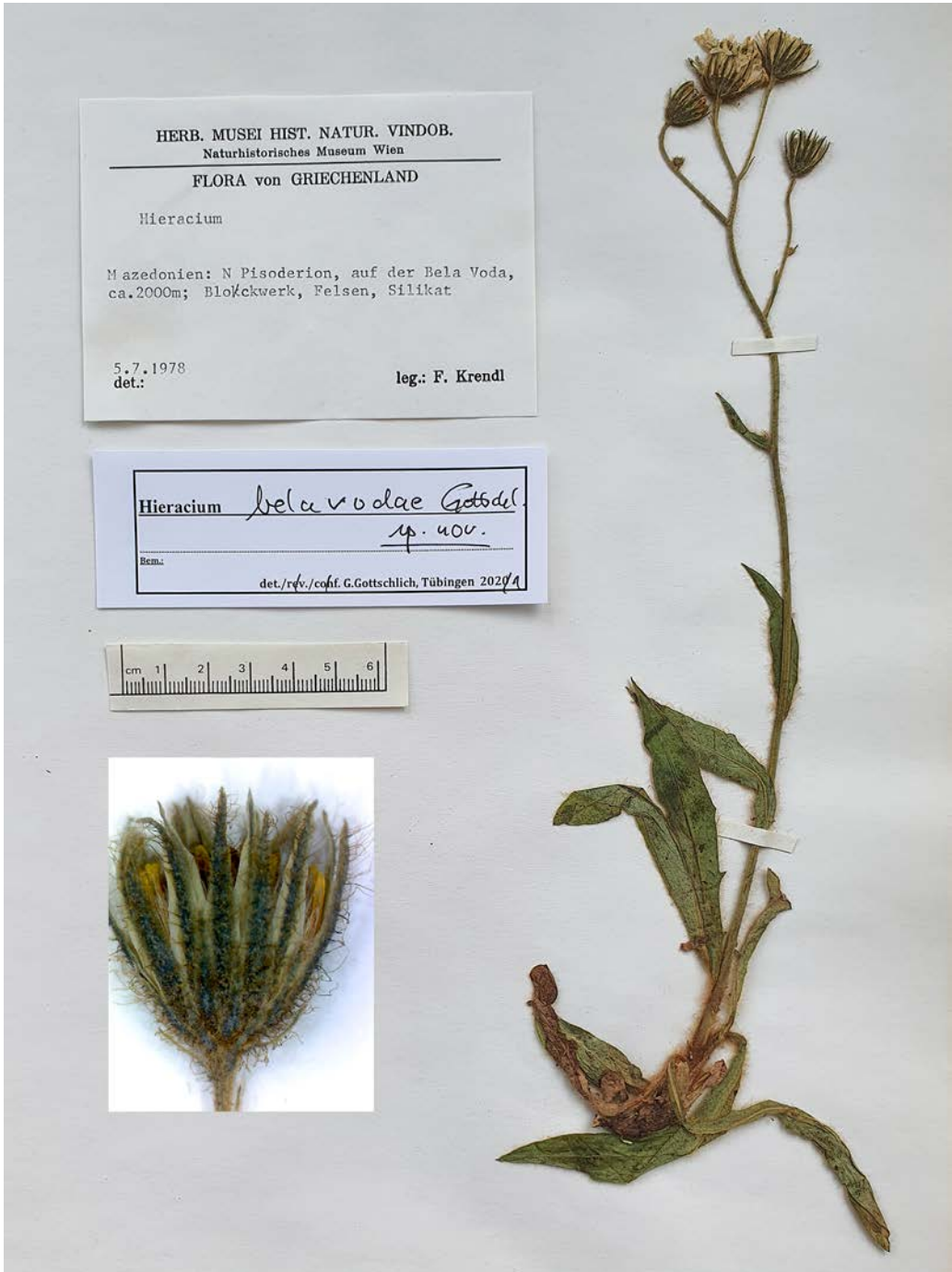


Fig. 3: *Hieracium belavodae* GOTTSCHL.

The outstanding size of the involucre (15 mm!) in connection with the absence of glandular and stellate hairs could perhaps point to an influence of *H. gymnocephalum*. However, plumose or subplumose hairs are lacking entirely. Concerning these characters an influence of *H. naegelianum* may be assumed, but of course with reservation. Finally, the kind of margins with its curved teeth may lead to *H. bifidum*. Hence, the morphological appearance may be expressed in the formula “*gymnocephalum-bifidum-naegelianum*”, but without postulating this as a real hybridisation.

***Hieracium belavodae* GOTTSCHL., sp.n. (*sparsum* > *pannosum*) (Fig. 3)**

**Typus.** Greece, Western Macedonia, Nom. Florina, N of Pisoderi, Bela Voda [ca. 40°48' N, 21°14' E, taken from Google Earth], ca. 2000 m, rocks, silicate, 5 July 1978, leg. F. Krendl [holotype: W, isotype: Hb. Gottschlich-15818].

Paratypes: Greece, Western Macedonia, Nom. Florina, Kalo Nero (Béla Vóda), Pisodéri, drive to Kalo Nero (Béla Vóda), 40°47'48" N, 21°15'45" E, rocky roadside, margins of beech forest, 1905 m, leg. F. G. Dunkel, 19 July 2016, Hb. Dunkel-33615; ibidem, leg. F.G. Dunkel, 30 June 2014, Hb. Dunkel-31548.

Perennial plant. Rhizome thin, horizontal or oblique. Stem erect, stout (Ø 2 mm), 20–25 (–30) cm tall, light green, finely striate, phyllopodous, lower part densely, upper part subdensely covered with 3 mm long, white, subplumose simple hairs, in the upper part additionally covered with stellate hairs, glandular hairs absent. Basal leaves 3–5, indistinctly bluish-green, spatulate to lanceolate, (3–) 6–8 × 1–1.5 cm, attenuate into a winged petiole, upper surface becoming glabrous, lower surface and base moderately to subdensely covered with 3 mm long, white, subplumose simple hairs, glandular and stellate hairs absent. Cauline leaves 3–5, lanceolate, gradually diminishing in size, sessile, indumentum like in the basal leaves. Synflorescence racemose, rarely racemose-paniculate; branches (1–) 2–3, curved, (2–) 4–5 (–6) cm long, each with 1 (–2) capitula; capitula 4–8; acladium 1.5–2 cm long. Peduncles 2 cm long, subapical with 1–2 linear, whitish-green, 1 mm long bracts, with few, 1.5–2 mm long, white (base black), dentate, simple hairs and subdensely covered with stellate hairs, glandular hairs absent. Involucre 9–10 mm long, campanulate. Involucral phyllaries blackish-green, margins whitish-green, in few series, lanceolate, 1–1.1 mm large, acute, moderately covered with 2 mm long, white (but with long black base), dentate simple hairs, sparse, 0.3–0.4 mm long, slender glandular hairs and sparse stellate hairs. Ligules yellow, glabrous. Style yellow with black papillae. Achenes not available. Flowering in July.

**Etymology.** The epithet refers to the type locality.

**Affinities.** *H. belavodae* has nearly the shape of *H. sparsum*, but differs from this species in the subdense to dense indument of subplumose hairs in the lower part of the plant. This points to an introgression from *H. pannosum*. From *H. jankae*, which is also interpreted as intermediate species between *H. sparsum* and *H. pannosum*, it differs in less influence of *H. pannosum*. Hence the latter can be shortly characterised as “*pannosum* > *sparsum*”, while *H. belavodae* is attributed here with the formula “*sparsum* > *pannosum*”.



Fig. 4: *Hieracium racemosum* subsp. *chaetissimum* GOTTSCHL.

***Hieracium racemosum* subsp. *chaetissimum* GOTTSCHL., subsp.n. (Fig. 4)**

**Typus.** North Macedonia, Belasica, S of Smolare [ca. 41°20' N, 22°54' E, taken from Google Earth], ca. 1300–1500 m, mixed deciduous forest, silicate, 13 July 1977, leg. F. Krendl [holotype: W, isotype: Hb. Gottschlich-16338].

Perennial plant. Rhizome thick, oblique. Stem erect, stout (Ø 4–5 mm), 70–80 (–90) cm tall, green, at the base often reddish-green, finely striate, hypophyllopodous or aphylllopodous, densely covered with 3.5–5 mm long, white simple hairs, in the upper part sparsely covered with stellate hairs, glandular hairs absent. Basal leaves usually lacking, if present, only 1–2, greyish-green, lanceolate, 13–15 × 3 cm, attenuate into an indistinct petiole, moderately, at the base subdensely covered 1.5–2 mm long, white simple hairs. Cauline leaves 15–20, the lower lanceolate like the basal leaves, 11–15 × 3–4 cm, indistinctly petiolate, the upper ovate-lanceolate to ovate, constricted or rounded at the base, usually sessile, 3–9 × 1.5–3 cm, indumentum like in the basal leaves. Synflorescence laxly paniculate; branches 15–20, often foliate with 1–2, 1 cm long, ovate leaves, slender, (3–) 5–10 (–15) cm long, each with (1–) 2–3 (–5) capitula; capitula (30–) 40–50 (–60); acladium 1 cm long. Peduncles 1 cm long, subapical with 2–3 linear, whitish-green, 1 mm long bracts, subdensely to densely covered with 2 mm long simple and subdense stellate hairs, glandular hairs absent. Involucre 11 mm long, subglobose. Involucral phyllaries dark olive-green, margins whitish-green, in few series, lanceolate, 1.4–1.6 mm large, subobtus, moderately covered with 1.5–2 mm long, white simple hairs, few, 0.3 mm long, slender glandular hairs and few stellate hairs only on the apex of the phyllaries. Ligules yellow, glabrous. Style black. Achenes not available. Flowering from July to August.

**Etymology.** The epithet refers to the remarkable indument.

**Affinities.** *H. racemosum* subsp. *chaetissimum* resembles *H. racemosum* subsp. *chaetotrichum*, known from Serbia (Typus: BRNM-08486/36), but differs in narrower lower stem leaves and a more densely indument of simple hairs on all parts of the plant.

**New record for Europe*****Hieracium praelongipes* ZAHN (pannosum < umbellatum) (Fig. 5)**

North Macedonia, N of Prilep, Markovi Kuli near Sv. Angl. [= St. Archangel Michael? 41°21' N, 21°32' E, taken from Google Earth], ca. 700–800 m, silicate blocks, 2 July 1977, leg. F. Krendl [W, Hb. Gottschlich-15737].

**Affinities.** Within the complex of intermediate species, evolved by hybridisation between *H. umbellatum* and *H. pannosum*, ZAHN (1921–1923) cited three species: *H. odontophylloides* ZAHN (nom. illeg., accepted name: *H. odontophyllum* FREYN & SINT.) with the “formula” *pannosum* > *umbellatum*, *H. lazicum* BOISS. & BALANSA ex BOISS. with the “formula” *pannosum* – *umbellatum*, and *H. praelongipes* ZAHN with the “formula” *pannosum* < *umbellatum*, all described from Central and Eastern Anatolia. Krendl’s record from Prilep matches exactly with the type, collected by Sintenis (BRNM-07287/36) near Tosya, and a recent collection; made by Max Nydegger on the Akdağ near Olur (Hb. Gottschlich-14725).

Fig. 5: *Hieracium praelongipes* ZAHN.

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