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Authors: Gristina, Emilio Di, Gottschlich, Günter, and Raimondo, Francesco Maria

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***Pilosella hoppeana* subsp. *sicula* Di Grist., Gottschl. & Raimondo (Asteraceae), a new endemic subspecies from Sicily (Italy)**

Emilio Di Gristina, Günter Gottschlich & Francesco Maria Raimondo

Abstract

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Pilosella hoppeana subsp. *sicula* Di Grist., Gottschl. & Raimondo (Asteraceae), a new endemic subspecies from the Madonie and Nebrodi Mountains (Sicily, Italy), is described and illustrated. It is morphologically close to *Pilosella hoppeana* subsp. *macrantha* (Ten.) S. Bräut. & Greuter, but the two subspecies can be distinguished by the indument on the bracts. Its morphology, distribution, ecology, taxonomic relationships are commented and a key to the *Pilosella hoppeana* (Schult.) F.W. Schultz & Sch. Bip. aggregate is provided.

Keywords

ASTERACEAE – *Pilosella* – Sicily – Madonie – Nebrodi Mountains – Taxonomy

Addresses of the authors:

EDG: Dipartimento STEBICEF, Sezione di Botanica ed Ecologia Vegetale, Università degli Studi di Palermo, via Archirafi 38, 90123 Palermo, Italy.
E-mail: emilio.digristina@unipa.it

GG: Hermann-Kurz-Straße 35, 72074 Tübingen, Germany.

FMR: Dipartimento STEBICEF, Sezione di Botanica ed Ecologia Vegetale, Università degli Studi di Palermo, via Archirafi 38, 90123 Palermo, Italy.

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Introduction

According to ZAHN (1923), *Pilosella* Vaill. [under *Hieracium* L.] comprises 181 “basic” species or species aggregates distributed from Eurasia to north-western Africa (see also SELL & WEST, 1975). The *Pilosella hoppeana* (Schult.) F.W. Schultz & Sch. Bip. aggr. corresponding to *Hieracium* sect. *Pilosellina* Zahn, is very polymorphic. ZAHN (1923) recognised 25 subspecies, distributed from central and southern Europe to the Caucasus. These taxa are hemicryptophyte rosulate, flowering between May and early August, and they differ in size, shape, color and indumentum of bracts (GOTTSCHLICH, 2009). According to GREUTER (2008) this group consist only of three subspecies: *P. hoppeana* subsp. *hoppeana*, subsp. *macrantha* (Ten.) S. Bräut. & Greuter and subsp. *cilicica* (Nägeli & Peter) P.D. Sell & C. West. *Pilosella hoppeana* subsp. *hoppeana*, described by SCHULTES (1814) from the Alps as *Hieracium hoppeanum* Schult., is a very variable species. It occurs mainly in the Alps, but also some records from Abruzzo are given. *Pilosella hoppeana* subsp. *macrantha* was described in *Hieracium* as *H. pilosella* var. *macranthum* Ten. by TENORE (1830) and later recognized at the species level by TENORE (1835–1838) as *H. macranthum* (Ten.) Ten. The type material was collected on Mt. Velino and Mt. Majella (Abruzzo, in central Italy). It is an Italian endemic taxon probably restricted to the central-southern Apennines and Sicily (DI GRISTINA et al., 2013).

Unlike the narrow treatment in EURO+MED (2015), we consider *Pilosella hoppeana* subsp. *macrantha* as a separate taxon from *P. hoppeana* subsp. *hoppeana*, because the two subspecies show clear differences in phytogeographical, morphological and ecological features. Also, as pointed out by GOTTSCHLICH (2009, 2011), the epithet *macranthum* was often misapplied for other taxa of the *P. hoppeana* aggregate, especially those occurring in south-eastern Europe that must be named *P. leucopsilon* (Arv.-Touv.) Gottschl. (= *Hieracium leucopsilon* Arv.-Touv., *Pilosella hoppeana* subsp. *testimonialis* (Peter) P.D. Sell & C. West, *P. hoppeana* subsp. *troica* (Zahn) P.D. Sell & C. West, *P. pilisquama* (Nägeli & Peter) Dostál).

In Italy the group is represented by *P. hoppeana* subsp. *hoppeana* and *P. hoppeana* subsp. *macrantha* (PIGNATTI, 1982; GREUTER, 2008). According to PIGNATTI (1982) and GREUTER (2008), only *P. hoppeana* subsp. *macrantha* occurs in Sicily where the taxon is limited to the Madonie (North-Central Sicily) (GUSSONE, 1844; STROBL, 1878; LOJACONO POJERO, 1903) and Nebrodi Mountains (North-East Sicily) (GUSSONE, 1844; LOJACONO POJERO, 1903). The plants of the Madonie grow on calcareous and quartzarenitic stony pastures and slopes of the main mountains (Monte dei Cervi, Monte Quacella, Monte Scalone, Monte Cavallo, Monte San Salvatore, etc...), between 1400 and 1850 m, whereas in the Nebrodi mountains, the taxon occurs only on the quartzarenitic slopes of Monte Campanito, between 1390 and 1430 m. The Sicilian populations are very

variable, especially with respect to the proportion of simple and glandular hairs on the involucre bracts. Indeed, individuals with dense simple hairs and sparse or absent glandular hairs on the bracts are often found, in the same place and apparently without intermediate forms, growing together with others that have dense glandular hairs and sparse or absent simple hairs. LOJACONO POJERO (1903) referred the individuals with dense simple hairs to *Hieracium macranthum* (= *Pilosella hoppeana* subsp. *macrantha*) and those with dense glandular hairs to *Hieracium hoppeanum* (= *Pilosella hoppeana* subsp. *hoppeana*). More recent floras (PIGNATTI, 1982; GREUTER, 2008) following ZAHN (1923) however consider that a single taxon is present in Sicily, corresponding to *P. hoppeana* subsp. *macrantha*.

In order to underline the level of morphological and genetic variability within and among Italian populations of the *P. hoppeana* aggr., an integrated morphological, karyological and isoenzyme approach was used (DI GRISTINA et al., 2013). Ten populations from the Alps, Abruzzo, Calabria and Sicily were studied. The combined analyses confirmed the presence in Italy of *P. hoppeana* subsp. *hoppeana* (Alps) and *P. hoppeana* subsp. *macrantha* (Peninsula and Sicily). Calabrian populations were included in *P. leucopsilon*. The Sicilian populations with mainly simple hairs on the bracts were referred to *P. hoppeana* subsp. *macrantha* s.str., whereas those characterised by mainly glandular hairs on the bracts showed genetic dissimilarities with the mainly simple-haired Sicilian populations and the other Italian *P. hoppeana* aggr. taxa investigated (DI GRISTINA et al., 2013).

Based on the above studies, we describe the Sicilian populations characterised by mainly glandular hairs on the bracts as a new subspecies belonging to the *P. hoppeana* aggr.

Pilosella hoppeana* subsp. *sicula Di Grist., Gottschl. & Raimondo, **subspec. nova** (Fig. 1, 2, 3A).

Typus: ITALY. **Sicily:** Monti Madonie, Monte Scalone, Polizzi Generosa (Palermo), 37°50'28"N, 14°01'06"E, 1510 m, 15.VI.2011, *Di Gristina 101238* (holo-: PAL!; iso-: PAL-Gr!, FI!, Hb. Gottschlich-60238!).

A Pilosella hoppeana subsp. *macrantha* (Ten.) S. Bräut. & Greuter *squamis pilis glanduliferis, 0.2–1.1(–1.4) mm longis, modice densis vel subdensis, et pilis simplicibus, 0.4–1.5 mm longis, sparsis vel nullis differt.*

Plant perennial, rosulate. *Rhizome* slender, cylindrical, fibrous, horizontal or oblique. *Stolons* 1–3, epigeal, short or slightly elongated, 3–7 cm long; axis stout or slender (1.3–2.1 mm in diam.), with dense stellate hairs; internodes short, 0.4–1 cm long; stolons leaves green, obovate or lanceolate-obovate, 1.5–3.5 × 0.5–1 cm, with dense stellate hairs beneath, with moderately to rather dense, 3–5 mm long, simple hairs on both leaf surfaces. *Stem* erect or ascending, simple, (5)–8–20

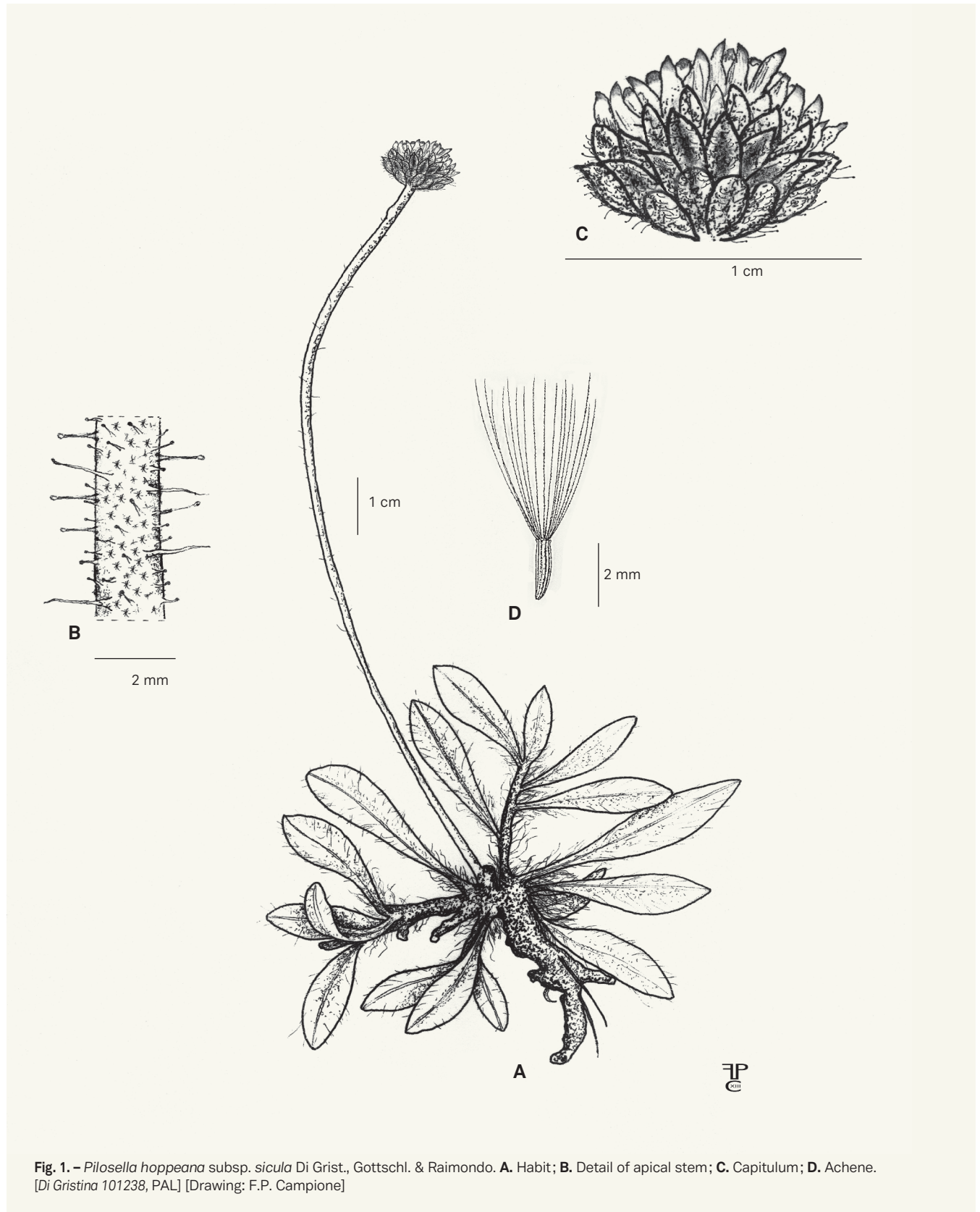




Fig. 2. – Blooming populations of *Pilosella hoppeana* subsp. *sicula* Di Grist., Gottschl. & Raimondo in Mt. Scalone (Madonie mountains). [Photos: E. Di Gristina]

(-25) cm high, green, beneath with sparse to moderately dense, 1-4(-6) mm long, simple hairs, sparse, 0.2-0.3 mm long, glandular hairs and moderately dense stellate hairs, above with sparse or no, 0.4-1.5 mm long, simple hairs, moderately to rather dense, 0.2-1.1(-1.4) mm long, glandular hairs and dense stellate hairs. *Rosette-leaves* 3-5(-7), green, petiolate; lamina oblanceolate-spathulate, 3.5-5.5 × 0.7-1.3 cm, entire, obtuse, rounded or acute, attenuate, above with moderately to rather dense, 3-5 mm long, simple hairs, beneath with dense stellate hairs and moderately to rather dense, 3-6 mm long, simple hairs, mostly along the midrib and the petiole. *Cauline-leaves* 0-1

(-2), like bracts. *Capitula* 1(-2). *Involucre* 9-13 mm long, subglobose. *Involucral bracts* in a few series, greenish-grey, clearer at the margin, 2-4 mm wide, the outer ovate, obtuse or rounded, the inner lanceolate, acute, with sparse or no, 0.4-1.5 mm long, simple hairs, blackish at the basis and whitish at the apex, with moderately to rather dense, 0.2-1.1(-1.4) mm long, glandular, blackish or yellowish glands, black peduncle, and stellate hairs. *Ligules* lingulate, yellow, the outer with a dark red stripe on outer face. *Styles* yellow. *Achenes* 1.9-2.5 mm long, blackish brown. *Pappus* 3-4 mm long, whitish.



Fig. 3. – Details of the indumentum of the bracts. **A.** *Pilosella hoppeana* subsp. *sicula* Di Grist., Gottschl. & Raimondo; **B.** *P. hoppeana* subsp. *macrantha* (Ten.) S. Bräut. & Greuter. [Photos: E. Di Gristina]

Etymology. – The epithet “*sicula*” refers to the Sicily region, where the subspecies grows.

Phenology. – Flowering time: end of May–first decade of July (Fig. 2). Fruiting time: June–July.

Distribution and ecology. – *Pilosella hoppeana* subsp. *sicula* is endemic to the Madonie (North Sicily) and Nebrodi mountains (North East Sicily) (Fig. 3). In the Madonie mountains, the new subspecies occurs on the quartzarenitic stony pastures and rocky slopes of Monte Scalone, Monte dei Pini, Monte Cavallo, Monte San Salvatore, between 1400 and 1850 m. It is also occasionally growing on the limestone rocky slopes of Monte dei Cervi, Monte Quacella and Cozzo del Filatore. In the Nebrodi mountains, the new taxon is represented by a small population consisting approximately of 50 individuals occurring only on the quartzarenitic slopes of Monte Campanito (Nicosia, Enna), at the border of *Fagus sylvatica* L. forest, between 1390 and 1430 m a.s.l. Regarding to phytosociological aspects, *Pilosella hoppeana* subsp. *sicula* belongs to the associations of the “*Plantaginion cupanii* and *Armerion nebrodensis* alliances” (BRULLO & GRILLO, 1978; BRULLO, 1984).

Conservation status. – The new taxon is known from eight locations within the Protected Areas of Madonie and Nebrodi. Despite its restricted range, *Pilosella hoppeana* subsp. *sicula* is not facing any threat in the wild and a preliminary conservation status assessment of “Least Concern” [LC] following IUCN (2012) is appropriate.

Notes. – *Pilosella hoppeana* subsp. *sicula* belongs to the *P. hoppeana* aggr., which includes perennial plants, with few, very short and stout stolons; oblanceolate to oblong leaves, entire, acute to obtuse, with simple hairs on both surfaces and the margin and dense stellate hairs beneath and rarely also above; stems with a single capitulum, 0–1 cauline leaves, with numerous simple hairs and numerous to dense glandular and stellate hairs; light or dark green bracts, the outer ovate, the inner lanceolate, rounded to obtuse or subacute, with 0 to numerous simple hairs, 0 to numerous glandular hairs and dense stellate hairs; yellow ligules, with a dark red stripe on outer face; blackish brown achenes.

Within this complex, the new subspecies is close to *P. hoppeana* subsp. *macrantha*, but the two subspecies can be morphologically distinguished by the indumentum on the

bracts, although sometimes occurring in sympatry. *Pilosella hoppeana* subsp. *sicula* shows moderately to rather dense, 0.2–1.1(–1.4) mm long, glandular hairs and few or no, 0.4–1.5 mm long, simple hairs on the bracts (Fig. 3A), while *P. hoppeana* subsp. *macrantha* presents bracts without or with few glandular hairs (0.1–0.5 mm long) and moderately to rather dense simple hairs (1–4 mm long) (Fig. 3B). The identification key below shows how the new subspecies can be distinguished from all the taxa of the *Pilosella hoppeana* aggr.

Key to the *Pilosella hoppeana* aggregate

1. Leaves with dense stellate hairs above *P. hoppeana* subsp. *cilicica*
- 1a. Leaves without stellate hairs above 2
2. Bracts 1.5–2 mm wide *P. leucopsilon*
- 2a. Bracts 2–4 mm wide. 3
3. Bracts blackish, pinkish–white at the margin *P. hoppeana* subsp. *hoppeana*
- 3a. Bracts greenish–grey to greenish–white, whitish at the margin 4
4. Bracts with moderately to rather dense, 0.2–1.1(–1.4) mm long, glandular hairs and 0 to few, 0.4–1.5 mm long, simple hairs *P. hoppeana* subsp. *sicula*
- 4a. Bracts with 0 to few, 0.1–0.5 mm long, glandular hairs and moderately to rather dense simple, 1–4 mm long, simple hairs *P. hoppeana* subsp. *macrantha*

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