Pilosella lactocantabrica (Asteraceae, Cichorieae), a new species from the Cantabrian Mountains (N Spain), and two new related species

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Source: Willdenowia, 42(2) : 181-189

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.42.42203

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Abstract

Mateo Sanz G. & Egido Mazuelas F. del: *Pilosella lactocantabrica (Asteraceae, Cichorieae)*, a new species from the Cantabrian Mountains (N Spain), and two new related species. – Willdenowia 42: 181–189. December 2012. – Online ISSN 1868-6397; © 2012 BGBM Berlin-Dahlem.
Stable URL: http://dx.doi.org/10.3372/wi.42.42203

Pilosella lactocantabrica of *P.* sect. *Auriculina,* found in the Cantabrian Mountains in northern Spain, is described as a species new to science and its affinities are discussed. Two intermediate species related to *P. lactocantabrica,* viz. *P. pseudopanticosae* and *P. adenocantabrica,* are also described as new to science and their origins are discussed. Images of the holotypes of the names of the three new species and an identification key to these three and seven similar species discussed are provided.

Additional key words: *Compositae*, *Pilosella* sect. *Auriculina, Pilosella* sect. *Pilosellina,* taxonomy, chorology, Iberian Peninsula

Introduction

This work is a continuation of our study of the *Cichorieae* genus *Pilosella* Hill in the Cantabrian Mountains in recent years (Mateo & Egido 2007, 2010, 2011; Egido & Mateo 2012). At the same time it is to be seen in the context of the monographic revision of *Pilosella* in the Iberian Peninsula, which the first author started years ago (Mateo 1988). This monographic revision reached a relatively mature synthesis more recently (Mateo 2006) and its results are incorporated in the large second volume of the Med-Checklist (Greuter & Raabe-Straube 2008).

In the course of our exhaustive tours through the Cantabrian Mountains in search of representatives of *Pilosella,* we have detected a new basic species of *P.* sect. *Auriculina* (Fr.) F. W. Schultz & Sch. Bip., which is probably endemic to the Cantabrian Mountains and very similar to *P. lactucella* (Wallr.) P. D. Sell & C. West.

In the environment of this species we also have detected two new intermediate species, which presumably

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result from hybridisation of that new species and two species of the *P.* sect. *Pilosellina* (Fr.) F. W. Schultz & Sch. Bip.

The taxonomic treatment of the genus follows Bräutigam & Greuter (2007, 2008). As usual in *Pilosella* taxonomy, we indicate (in parentheses) behind the names of intermediate taxa the epithets of the species presumably responsible for their origin.

Results and Discussion

Pilosella lactocantabrica Mateo & Egido, **sp. nov.**
Holotype: Spain, León, Murias de Paredes, Fasgar, Laguna de los Llaos, 29TQH261416, 1870 m, siliceous peaty grounds, 20.7.2010, *F. del Egido* (LEB 103827; isotype: VAL 204773) – Fig. 1, 4A–B.

Stolones graciles (circa 0.5 mm diametro) et longes (circa 3–8 cm), glabrescentes et rubescentes, foliis parvis laxis obsitis. *Caulis* (5–)10–25 cm altus, 1–1.5 mm diametro, monocephalus, ad basim pilosus et floccosus, ad apicem floccosus et glandulosus. *Folia* viridia, 2–8 cm longa, 0.5–1.3 cm lata, membranacea, integra, elliptica vel oblanceolata, ad basim attenuata, ad apicem rotundato-obtusa et mucronata, laxe pilosa, eglandulosa et efloccosa. *Involucrum* 8–10(–11) × (5–)6–8(–9) mm, hemisphaerica vel cylindracea; involucri phylla lineato-lanceolata acuta, ± 1 mm lata, atro-viridia, albido-marginata, dense pilosa (pilis ad 1.5–2.5 mm longis griseis vel atris), ad basim floccosa. *Ligulae* luteae extus rubrostriatae. *Achaenia* 1.5–2 mm atrofusca.

Description — Perennial herb, phyllopodous. *Stolons* very thin (c. 0.5 mm in diameter) and usually long [(1–)3–8(–15) cm in studied specimens], glabrescent and normally reddish brown, with generally distant leaves smaller than those of the rosette. *Flowering stems* leafless, thin (1–1.5 mm in diameter) and (5–)10–25 cm tall; with stellate and simple eglandular trichomes at base, towards apex with abundant stellate and glandular trichomes and scarce simple eglandular trichomes; each with a single capitulum. *Rosette leaves* 2–8 × 0.5–1.3 cm, membranaceous, entire, elliptical, oblanceolate or linear-oblanceolate, rounded-obtuse and slightly mucronate at apex, gradually narrowing towards base; on both faces green and with some thin and long simple eglandular trichomes (the ones on the abaxial surface thinner than those on the adaxial surface and margins) and without stellate and glandular trichomes. *Involucre* 8–10(–11) × (5–)6–8(–9) mm, hemispherical to slightly cylindric; *involucral bracts* linear-lanceolate, acute, ± 1 mm wide, light green and scarious on the margin, dark green in the centre, very densely covered with (1–)1.5–2.5(–3) mm long, blackish or greyish (black at base) simple eglandular trichomes and at the base generally with some stellate trichomes (occasionally also with glandular trichomes). *Ligules* yellow, the outer with a dark red stripe on outer face. *Achenes* 1.5–2 mm, dark brown.

Etymology — The specific epithet refers to the clear relationship to *Pilosella lactucella* and its distribution in the Cantabrian Mountains.

Distribution and habitat — *Pilosella lactocantabrica* is so far known from the western Cantabrian Mountains, in NW Spain, growing on siliceous peaty grounds at altitudes of c. 1400–1900 m.

Affinities — *Pilosella lactocantabrica* clearly belongs to *P.* sect. *Auriculina.* In the Cantabrian Mountains only one other species of this section is present, the very localised and rare endemic of the NW Iberian Peninsula, *P. galiciana* (Pau) M. Laínz. However, *P. galiciana* has no stolons (or if present, these are scarce, short and stout), it has subcoriaceous leaves with rigid, long simple eglandular trichomes, flowering stems with (1–)2–4(–6) capitula, and involucral bracts with a subdense indumentum of glandular, stellate and simple eglandular trichomes in similar proportions (although the glandular trichomes are usually the most abundant). Moreover, the two species have different habitats: *P. galiciana* grows on dry and not very well developed siliceous soils.

Pilosella lactocantabrica is very similar to *P. lactucella,* both, in particular, having membranaceous leaves with only thin, long simple eglandular trichomes and thin and long stolons. Nevertheless, *P. lactucella* has usually pluricephalous flowering stems, more glabrescent leaves and involucral bracts with a subdense indumentum of less simple eglandular trichomes and more glandular trichomes. The populations known as *P. lactucella* subsp. *nana* (Scheele) M. Laínz (≡ *Hieracium nanun* Scheele) are often monocephalous but the plants are very small and have no, or at most short, stolons. *P. lactucella,* especially *P. lactucella* subsp. *nana*, has been reported erroneously for the Cantabrian Mountains, due to confusion with *P. galiciana.* In the Iberian Peninsula, *P. lactucella* (including *P. lactucella* subsp. *nana*) occurs only in the Pyrenees and the adjacent Basque Mountains.

It seems that the involucre indumentum of *Pilosella lactocantabrica* shows an influence of *P.* sect. *Pilosellina,* particularly of *P. pseudopilosella* (Ten.) Soják. There is, however, no parallel influence on the leaves (total absence of stellate trichomes on the abaxial surface), stolons (very thin) or capitula (very small). This prevents us from attributing our plants to *P. panticosae* Mateo (*lactucella* <> *pseudopilosella*), which mostly also has monocephalic flowering stems but is clearly different by having stellate trichomes on the abaxial surface of leaves, thicker stolons or larger capitula.

Additional specimens examined (paratypes) — Spain: León: Murias de Paredes, Fasgar, Peña Cefera, 29TQH263418, 1766 m, siliceous peaty grounds,

Fig. 1. *Pilosella lactocantabrica* – holotype at LEB.

20.7.2010, *F. del Egido* (LEB 104957); Murias de Paredes, Montrondo, base of Tambarón peak, 29TQH228477, 1800 m, siliceous peaty grounds 29.7.2010, *F. del Egido* (LEB 104949); Murias de Paredes, Montrondo, Laguna Pozo Hollado, 29TQH236467, 1765 m, siliceous peaty grounds 29.7.2010, *F. del Egido* (LEB 104952); Murias de Paredes, Vegapujín, El Chanón, 29TQH288418, 1465 m, siliceous peaty grounds 29.7.2010, *F. del Egido* (LEB 103839); San Emiliano, Riolago de Babia, near Peña Negra peak, 29TQH360544, 1800 m, siliceous peaty grounds 28.7.2009, *F. del Egido & E. Puente* (LEB 103211); Palacios del Sil, Tejedo del Sil, Campo Sagrado, 29TQH088568, 1515 m, siliceous peaty grounds 17.7.2011, *F. del Egido* (LEB 107321).

Pilosella pseudopanticosae Mateo & Egido, **sp. nov.**
(*lactocantabrica* <> *pseudopilosella*)
Holotype: Spain, León, Palacios del Sil, Tejedo del Sil, Braña de Campo Sagrado, 29TQH095570, 1500 m, siliceous peaty grounds, 17.7.2011, *F. del Egido* (LEB 107319) – Fig. 2, 4C–D.

Stolones graciles (c. 0.5–1 mm diametro) et longes (c. 4–9 cm), foliis parvis laxis obsitis. *Caulis* 12–25 cm altus, 1–1.5 mm diametro, monocephalus, ad basim modice pilosus et floccosus, ad apicem dense floccosus et glandulosus laxe pilosus. *Folia* (2–)4–7(–10) cm longa, 0.5–1.6 cm lata, membranacea, integra, elliptica vel oblanceolata, ad basim attenuata, ad apicem rotundato-obtusa et mucronata, supra viridia, longe et laxe pilosa, subtus viridia, griseo-viridia vel cinerea, laxe vel dense floccosa, laxe tenuiter pilosa, eglandulosa. *Involucrum* (8–)9–11 × 8–11 mm; involucri phylla lineato-lanceolata acuta, ± 1 mm lata, atro-viridia, albido-marginata, densissime pilosa (pilis ad 2–3 mm longis griseis) ad basim laxe floccosa. *Ligulae* luteae extus rubeostriatae. *Achaenia* 1.5–2 mm atro-fusca.

Description — Perennial herb, phyllopodous. *Stolons* thin or very thin (c. 0.5–1 mm in diameter) and usually long [(2)4–9(12) cm in studied specimens], with generally distant leaves smaller than those of the rosette. *Flowering stems* leafless, thin (1–1.5 mm in diameter) and 12–25 cm tall; with ± abundant stellate trichomes and simple eglandular trichomes at base and abundant stellate and glandular trichomes but less abundant simple eglandular trichomes at apex; each with a single capitulum. *Rosette leaves* (2–)4–7(–10) × 0.5–1.6 cm, membranaceous, entire, elliptical, oblanceolate or linear-oblanceolate, rounded-obtuse and slightly mucronate at apex, gradually narrowing towards base; adaxial surface green, with some long simple eglandular trichomes; abaxial surface green to greyish green or whitish, with few (or, in some leaves, none) to numerous (variable from one leaf to another) stellate trichomes and some long simple eglandular trichomes thinner than those on the adaxial surface; without glandular trichomes. *Involucre* (8–)9–11 × 8–11 mm; *involucral bracts* linear-lanceolate, acute, ± 1 mm wide, light green and scarious on the margin, dark green in the centre, with very dense long (2–3 mm) greyish (black at base) simple eglandular trichomes and at the base generally with some stellate trichomes (occasionally also with some glandular trichomes). *Ligules* yellow, the outer with a dark red stripe on the outer face. *Achenes* 1.5–2 mm, dark brown.

Etymology — The specific epithet refers to the resemblance of the taxon to *Pilosella panticosae* (*lactucella* <> *pseudopilosella*).

Distribution and habitat — *Pilosella pseudopanticosae* is so far known from the western Cantabrian Mountains, NW Spain, growing on siliceous peaty grounds at altitudes of c. 1400–1800 m.

Affinities — *Pilosella pseudopanticosae* is very similar to *P. lactocantabrica*. It differs from the latter in its stellate trichomes on the abaxial surface of at least some leaves, and the generally thicker stolons and slightly larger capitula. It is evident that *P. pseudopanticosae* has resulted from hybridisation of *P. lactocantabrica* and a species of *P.* sect. *Pilosellina,* from which it has inherited the stellate trichomes on the abaxial surface of the leaves, the thicker stolons and larger capitula. That species is certainly *P. pseudopilosella,* as can be presumed from the involucral bracts of *P. pseudopanticosae* with only or almost only very dense long (2–3 mm), greyish (black at base) simple eglandular trichomes. *P. pseudopanticosae* differs from *P. pseudopilosella* because in the latter species all leaves have a whitish abaxial surface with abundant stellate trichomes, the stolons are generally thicker, the flowering stem apex has more simple eglandular trichomes and the capitula are slightly larger.

Since *Pilosella lactocantabrica* and *P. lactucella* are very similar, the most similar species to *P. pseudopanticosae* is *P. panticosae (lactucella* <> *pseudopilosella)*, from which it differs because the latter has involucral bracts with more stellate trichomes and glandular trichomes, usually slightly thicker stolons and sometimes more than one capitulum.

Additional specimens examined (paratypes) — Spain: Asturias: Cangas del Narcea, Leitariegos, near Laguna de Arbás, 29TQH102635, 1675 m, siliceous peaty grounds, 28.7.2007, *F. del Egido* (LEB 107295); Cangas del Narcea, Leitariegos, Laguna de Arbás, 29TQH101633, 1683 m, siliceous peaty grounds, 28.7.2007, *F. del Egido* (LEB 107305). — León: Murias de Paredes, Fasgar, Peña Cefera, 29TQH263418, 1766 m, siliceous peaty grounds, 20.7.2010, *F. del Egido* (LEB 104956); Murias de Paredes, Montrondo, base of Tambarón peak, 29TQH228477, 1800 m, siliceous peaty grounds 29.7.2010, *F. del Egido* (LEB 104950); Murias de Paredes, Montrondo, Laguna

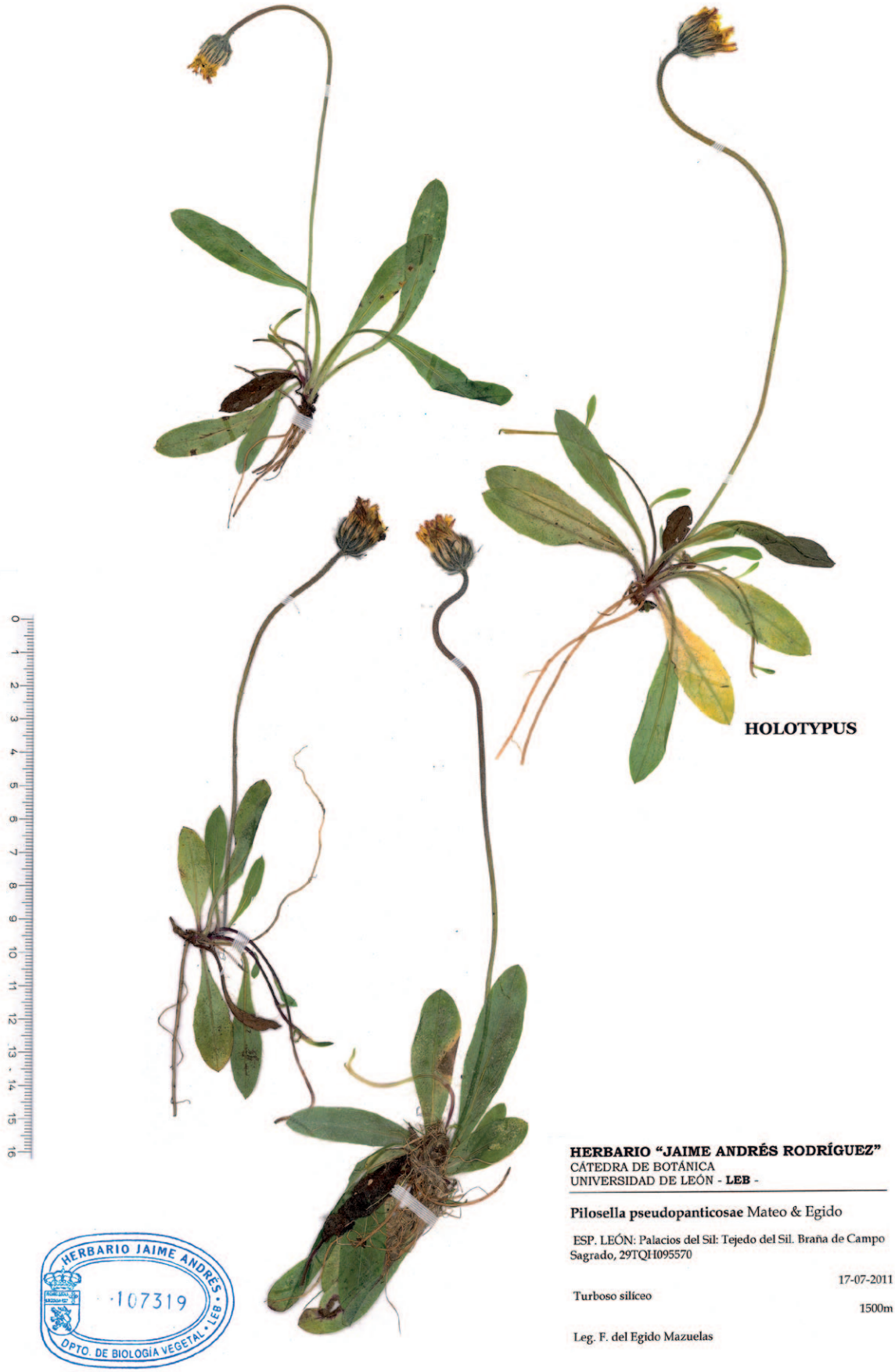

Fig. 2. *Pilosella pseudopanticosae* – holotype of LEB.

Fig 3. *Pilosella adenocantabrica* – holotype at LEB.

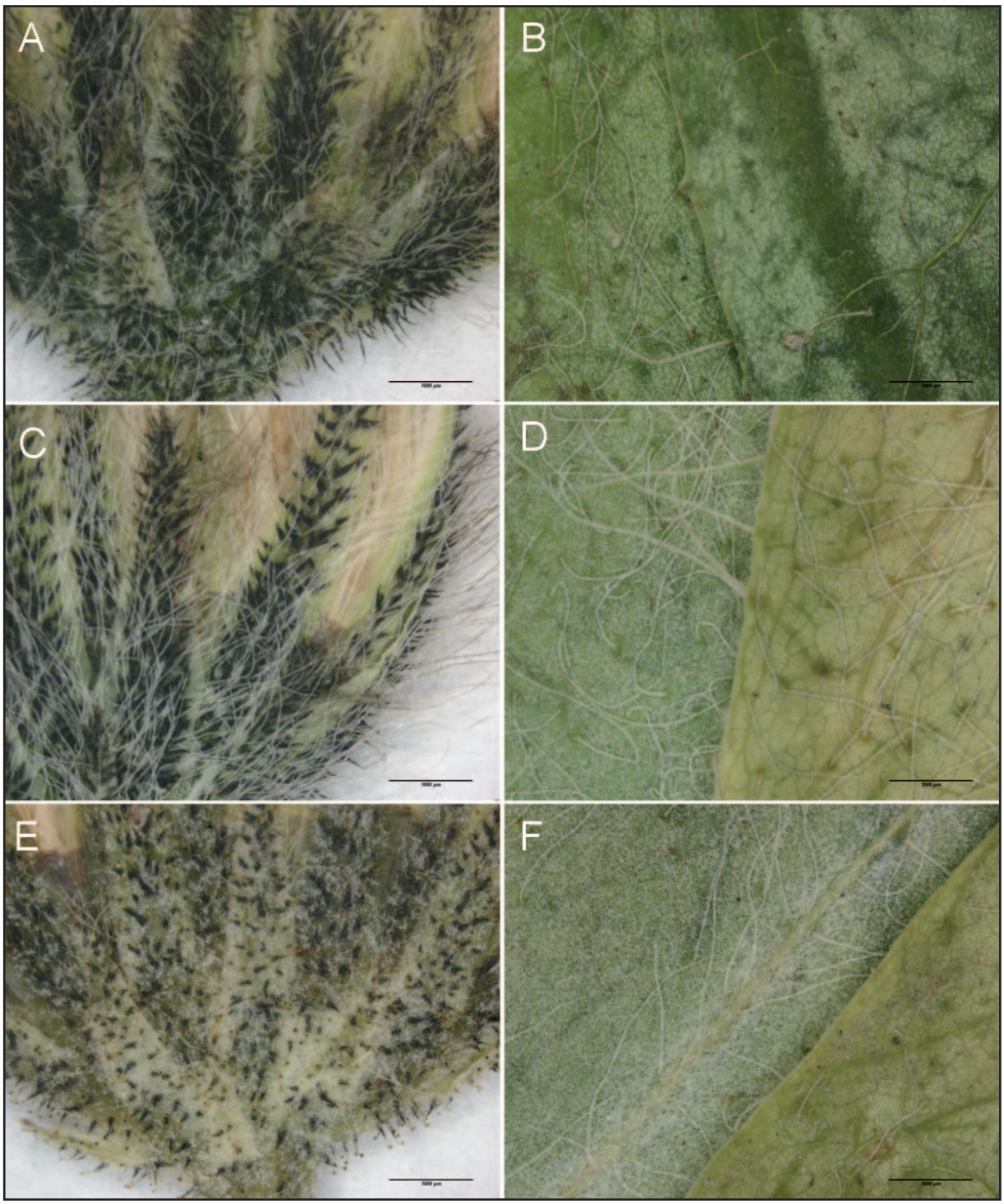

Fig. 4. Details of involucral bracts (A, C, E) and abaxial leaf surfaces (B, D, F) – A–B: *Pilosella lactocantabrica;* C–D: *P. pseudopanticosae;* E–F: *P. adenocantabrica*. – Scale bars = 1 mm.

Pozo Hollado, 29TQH236467, 1765 m, siliceous peaty grounds, 29.7.2010, *F. del Egido* (LEB 104951); Palacios del Sil, Tejedo del Sil, Campo Sagrado, 29TQH088568, 1515 m, siliceous peaty grounds 17.7.2011, *F. del Egido* (LEB 107323); Palacios del Sil, Tejedo del Sil, Reguera Roscabal, 29TQH011568, 1460 m, siliceous peaty grounds, 17.7.2011, *F. del Egido* (LEB 107328).

Pilosella adenocantabrica Mateo & Egido, **sp. nov.**
(*lactocantabrica* <> *officinarum* <> *saussureoides*)
Holotype: Spain, León: Cármenes, Gete, near Collado de Gete, 30TTN872563, 1560 m, siliceous peaty grounds, 21.7.2009, *F. del Egido* (LEB 91451; isotype: VAL) – Fig. 3, 4E–4F.

Stolones graciles (circa 0.5–1 mm diametro) et longes (circa 4–8 cm), foliis parvis laxis obsitis. *Caulis* 6–16 cm altus, 1–1.5 mm diametro, monocephalus, ad basim laxe pilosus et modice floccosus, ad apicem dense floccosus et glandulosus. *Folia* (1.5–)3–6.5 cm longa, 0.5–1.5 cm lata, membranacea, integra, elliptica vel oblanceolata, ad basim attenuata, ad apicem rotundato-obtusa et mucronata, supra viridia, longe et laxe pilosa, subtus viridia, griseo-viridia vel cinerea, laxe vel dense floccosa, laxe tenuiter pilosa, eglandulosa. *Involucrum* 8–10 × 6–8 mm; involucri phylla lineato-lanceolata, acuta, ± 1 mm lata, atro-viridia, dense glandulosa, modice floccosa, laxe pilosa. *Ligulae* luteae extus rubeostriatae.

Description — Perennial herb, phyllopodous. *Stolons* thin or very thin (c. 0.5–1 mm in diameter) and usually long [(2.5–)4–8(–11) cm in studied specimens], with generally distant leaves smaller than those of the rosette. *Flowering stems* leafless, thin (1–1.5 mm in diameter) and 6–16 cm tall; with stellate trichomes along the whole length (more abundant at base and apex), with abundant glandular trichomes at apex and sometimes with some simple eglandular trichomes towards base; each with a single capitulum. *Rosette leaves* (1.5–)3–6.5 × 0.5–1.5 cm, membranaceous, entire, elliptical, oblanceolate or oblanceolate-elliptical, rounded-obtuse and slightly mucronate at apex, gradually narrowing towards base; adaxial surface green, with some long simple eglandular trichomes; abaxial surface green to greyish green or whitish, with few (or, in some leaves, none) to numerous (variable from one leaf to another) stellate trichomes and some long simple eglandular trichomes thinner than those on adaxial surface; without glandular trichomes. *Involucre* 8–10 × 6–8 mm; *involucral bracts* linear-lanceolate, acute, ± 1 mm wide, with abundant black glandular trichomes and stellate trichomes and scarce or no simple eglandular trichomes. *Ligules* yellow, the outer with a dark red stripe on the outer face.

Etymology — The specific epithet refers to the relationship with *Pilosella lactocantabrica* and to the black glandular trichomes on the involucral bracts.

Distribution and habitat — Pilosella adenocantabrica is so far known from two localities in the western Cantabrian Mountains, NW Spain, on siliceous peaty grounds in areas of c. 1500–1600 m altitude.

Affinities — It is evident that *Pilosella adenocantabrica* has resulted from hybridisation of a species of *P.* sect. *Auriculina* and a species of *P.* sect. *Pilosellina.* The plants have some leaves with very few stellate trichomes on the abaxial surface, apparently inherited from *P.* sect. *Auriculina,* which prevents us from attributing them to any species of *P.* sect. *Pilosellina*. The involved species from *P.* sect. *Auriculina* must have long, thin stolons and membranaceous leaves without glandular trichomes: in this area it can only be *P. lactocantabrica*. The involved species from *P.* sect. *Pilosellina* must have somewhat smaller capitula and thin involucral bracts with abundant stellate trichomes and black glandular trichomes: in this area it can only be *P. subtardans* (Nägeli & Peter) Soják *(officinarum <> saussureoides)*. *P. adenocantabrica* in fact occupies an intermediate morphological position between *P. lactocantabrica* and *P. subtardans*. It differs from *P. lactocantabrica* by the presence of a few stellate trichomes on the abaxial surface of at least some leaves, the involucral bracts with abundant black glandular trichomes and stellate trichomes and rare or none simple eglandular trichomes, and the slightly thicker stolons. It differs from *P. subtardans* basically because this latter species has a whitish abaxial leaf surface with abundant stellate trichomes on all leaves, and also generally slightly thicker stolons.

Additional specimen examined (paratype) — Spain: León: Palacios del Sil, Tejedo del Sil, Campo Sagrado, 29TQH088568, 1515 m, siliceous peaty grounds 17.7.2011, *F. del Egido* (LEB 107300).

Identification key to the discussed *Pilosella* species

1. All leaves without stellate trichomes 2
– At least some leaves with (sometimes only very few) stellate trichomes on the abaxial surface 4
2. Stolons usually absent or, if present, scarce, short and stout; leaves subcoriaceous with only rigid or subrigid long simple eglandular trichomes . . *P. galiciana*
– Stolons present, thin and usually long; leaves membranaceous with thin and long simple eglandular trichomes 3
3. Flowering stems always with 1 capitulum; involucral bracts with a very dense indumentum of simple eglandular trichomes and usually some stellate trichomes at base (occasionally also with scattered glandular trichomes) . . . . . *P. lactocantabrica*
– Flowering stems with 1–4(–6) capitula; involucral bracts with a subdense indumentum of glandular and simple eglandular trichomes in varying proportions and with usually scattered stellate trichomes . . . *P. lactucella*
4. Abaxial surface of all leaves whitish, with abundant stellate trichomes 5
– At least some leaves greyish green or green with very few stellate trichomes 8
5. Involucral bracts with abundant and dominant long simple eglandular trichomes and very few or none stellate trichomes and/or glandular trichomes . . . . . *P. pseudopilosella*
– Involucral bracts with few or none simple eglandular trichomes 6
6. Involucral bracts with abundant and dominant glandular trichomes and very few or none stellate trichomes and/or eglandular trichomes . . . . . *P. officinarum*

– Involucral bracts with abundant stellate trichomes 7
7. Involucral bracts with abundant and dominant stellate trichomes and very few or none glandular trichomes and/or eglandular trichomes .... *P. saussureoides*
– Involucral bracts with stellate trichomes and glandular trichomes in ± similar proportions ..... *P. subtardans*
8. Involucral bracts with stellate trichomes and glandular trichomes in ± similar proportions and scarce or none simple eglandular trichomes ..... *P. adenocantabrica*
– Involucral bracts with abundant simple eglandular trichomes 9
9. Involucral bracts with abundant and dominant simple eglandular trichomes and very few or none stellate trichomes and/or glandular trichomes; flowering stems always with 1 capitulum ..... *P. pseudopanticosae*
– Involucral bracts with abundant simple eglandular trichomes, some stellate trichomes and few to abundant glandular trichomes; lowering stems sometimes with more than 1 capitulum ..... *P. panticosae*

Acknowledgements

We thank two anonymous reviewers for their corrections and helpful suggestions to improve the manuscript.

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