

Taraxacum penyalarensense (Asteraceae), a new species from the Central Mountains of Spain

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Received 12 Jan. 2011, final version received 5 Sep. 2011, accepted 22 Sep. 2011

Galán de Mera, A., Linares Perea, E. & Vicente Orellana J. A. 2012: *Taraxacum penyalarensense* (Asteraceae), a new species from the Central Mountains of Spain. — *Ann. Bot. Fennici* 49: 91–94.

Taraxacum penyalarensense A. Galán, E. Linares & Vicente Orell. is described and illustrated as a new species. It was found in the Iberian Central Mountains, on the Peñalara mountain, Madrid, Spain. It resembles some species of sect. *Naevosa*, but differs in its rough leaves, horned exterior phyllaries with a scarious border, and pale green achenes.

Continuing the study of *Taraxacum* (Asteraceae) from the Iberian Peninsula (Galán de Mera & Vicente Orellana 2008, 2009, 2010), a remarkable unknown species was found on sandy soils in a *Pinus sylvestris* forest in the Spanish Central Mountains. This species was discovered after comparing material from our field work with specimens from several herbaria (JACA, MA, VAL, USP), related to the Iberian *T. catodontum*, *T. columnare*, *T. mimuloides* and *T. navaceradense* (Handel-Mazzetti 1923, Lindberg 1932, Sahlén 1984, Richards 1992), and the North European *T. naevosiforme*, *T. naevosum* and *T. stictophyllum* (H, ICEL, S).

***Taraxacum penyalarensense* A. Galán, E. Linares & Vicente Orell., sp. nova**
(Figs. 1–3)

TYPE: Spain. Madrid, Los Cotos, camino del puerto de Cotos hacia Peñalara, suelos removidos bajo pinar, área de acumu-

lación de nieve, 30T 0418994-4519811, 1830 m, 19 June 2010, A. Galán 2478 & E. Linares (holotype MA; isotypes BC, H, JACA, PRA, USP). — PARATYPES: Spain. Madrid, Los Cotos, camino de subida a la laguna de Peñalara, suelo removido arenoso, 30TVL1920, 1850 m, 24 June 2006, A. Galán 1700, 2475 (USP); Spain. Madrid, Los Cotos, 30T 0418994-4519811, 1830 m, 8 May 2009, A. Galán 2476, 2477 (USP).

Robust plant, to 40 cm. Leaves 4–16 × 1.2–5 cm, spatulate to lanceolate, toothed to pinnatifid, sometimes dissected, rough, moderately thick; midrib green to purple; lateral lobes 2–6, 4.6–23.8 × 3.7–16.9 mm, deltoid, with distal margin entire to toothed, straight to convex, and proximal one entire or with little teeth, straight to concave; terminal lobe 6.4–32.7 × 8.6–36.6 mm, triangular to hastate and sometimes with margins lightly convex; petiole green to purple, unwinged or slightly winged. Scapes green to purple, erect, longer than leaves at flowering. Capitulum ca. 30 mm in diameter; involucre 9.9–19.3 × 7.7–11.7 mm; exterior phyllaries 4–7 × 1.6–4.2 mm,



Fig. 1. Holotype of *Taraxacum penyalarens*.

recurved, ovate to ovate-lanceolate, pale green, purplish and ciliolate to the margins and the tip, sometimes lightly horned, and a scarious border 0.2–0.4 mm; ligules ca. 15 mm long, yellow, the outer striped violet, and the inner ones with reddish tips; pollen abundant and with irregular size; stigma branches discoloured, purple to greenish. Achenes pale green; body 2.5–3.2 mm long, with bi-tricuspidate scales and numerous robust spikelets to the tip, and the rest somewhat wrinkled; pyramid 0.7–1.1 mm, subcylindric; rostrum 7.8–9.7 mm long, pale green and pappus 4.4–6.4 mm long, white.



Fig. 2. Achenes. — **A:** *Taraxacum catodontum* (from Saint-Gaudens, Pyrénées Atlantiques, France, *P. Montserrat*, JACA 26678-1, holotype). — **B:** *T. penyalarens* (from Los Cotos, Madrid, Spain, A. Galán 2478 & E. Linares, USP, holotype). — **C:** *T. columnare* (from Monegrillo, Zaragoza, Spain, A. Galán 2379 & E. Linares, USP). Bar = 1 mm.

Taraxacum penyalarens is endemic to the Spanish Central Mountains. It grows in sandy soils where snow accumulates, at 1830–1850 m, in a *Pinus sylvestris* forest. It flowers in May and June. It has only been found in the Peñalara Natural Park (from where it takes its specific name), in the province of Madrid.



Fig. 3. Flowerheads of *Taraxacum penyalarens* (left) and *T. columnare* (right).

Table 1. Principal morphological differences between *Taraxacum catodontum*, *T. penyalarens* and *T. columnare*.

Characters	<i>T. catodontum</i>	<i>T. penyalarens</i>	<i>T. columnare</i>
Leaf surface	rough, without purple dots	rough, without purple dots	rough, without purple dots
Exterior phyllaries	12–15 × 3–6 mm lanceolate, addressed, not horned, scarious border inconspicuous	4–7 × 1.6–4.2 mm ovate to ovate-lanceolate, recurved, sometimes horned, scarious border 0.2–0.4 mm	4.1–9.6 × 1.2–2.4 mm lanceolate, recurved, sometimes horned without scarious border
Inner ligules tips	purple	reddish	reddish
Achenes colour	stramineous	pale green	stramineous to olive green
Achene body	3.7–4.2 mm	2.5–3.2 mm	2.8–3.9 mm
Pyramid length	0.7–0.8 mm	0.7–1.1 mm	1–1.2 mm
Pappus length	7–9 mm	4.4–6.4 mm	5.1–7.1 mm
Habitat	wet grasslands on acid soils, in <i>Fagus sylvatica</i> forests	sandy acid soils, in <i>Pinus sylvestris</i> forests	disturbed dry grasslands on basic soils

Taraxacum penyalarens has rough leaves and achene bodies with numerous bi-tricuspidate scales, robust spikelets towards the tip, with the rest somewhat wrinkled to the base. These characters are found in some north European species traditionally included in the *Naevosa* section (Dudman *et al.* 2006), such as *T. naevosiforme*, *T. naevosum*, *T. stictophyllum*, or *T. catodontum*, the latter one described from the Pyrenees (Sahlin 1984). However, the exterior phyllaries in *T. penyalarens* which are sometimes horned or corniculated with a well-defined scarious border, and the colour of the achene, undoubtedly relate it to *T. columnare*, *T. mimuloides*, and *T. navacerradense* (Handel-Mazzetti 1923, Lindberg 1932, Sahlin 1984, Richards 1992), all of them recorded in the surrounding areas of the Spanish Central Mountains.

Taraxacum catodontum appears to be the closest species to *T. penyalarens*, from a geographical point of view. Both have rough leaves without purple dots, toothed or sometimes dissected lobes, an unwinged petiole, and abundant pollen with an irregular grain size; however, the exterior phyllaries of *T. penyalarens* are shorter, ovate to ovate-lanceolate and recurved, sometimes corniculated with a well-defined scarious border, the inner ligule tips are reddish, the achenes are pale green and in general smaller than in *T. catodontum* (Fig. 3 and Table 1).

Moreover, the inner leaves of *T. catodontum* have a big distal lobe.

Taraxacum columnare has longer exterior phyllaries that lack a scarious border in respect to *T. penyalarens* (Table 1). The tips of the inner ligules of *T. columnare*, *T. penyalarens* and *T. mimuloides* are reddish, while they are orange and yellow in *T. navacerradense*. The pale green colour of the achenes and the pyramid length of *T. penyalarens* and *T. columnare* differ from the other compared species, especially from *T. mimuloides* and *T. navacerradense*, which have rose and brown achenes respectively. The exterior phyllaries, sometimes corniculated in these two species, are very characteristic in the capitulum, as in *T. mimuloides* and *T. navacerradense* (sect. *Obovata*) or *T. pyroppapum* (sect. *Dioszegia*).

Acknowledgements

The loan of the material and the help of the curators of the consulted herbaria are gratefully acknowledged. Many thanks to the Director General del Medio Natural (Comunidad de Madrid, Spain) for the permission to collect specimens, and to Andrea Galán Salazar for the improved English. This study was supported by the “Flora iberica VIII” project (CGL2008-02982-C03-01/CLI, Ministerio de Ciencia e Innovación, Spain). We also thank Brian Crilly for his linguistic assistance, and Dr. Uhlemann for his comments to improve this paper.

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