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

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Taraxacum penyalarense 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. navacer-radense (Handel-Mazzetti 1923, Lindberg 1932, Sahlin 1984, Richards 1992), and the North European T. naevosiforme, T. naevosum and T. stictophyllum (H, ICEL, S).

Taraxacum penyalarense 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 acumulación 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,
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.

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

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

*Taraxacum penyalarense* has rough leaves and achenes 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. penyalarense* which are sometimes horned or corniculated with a well-defined scarious border, and the colour of the achenes, 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. penyalarense*, 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. penyalarense* 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. penyalarense* (Table 1). The tips of the inner ligules of *T. columnare*, *T. penyalarense* 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. penyalarense* 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*).

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References


