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***Cynoglossum baeticum* (Boraginaceae), a new endemic species from SE Spain**

Abstract

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Cynoglossum baeticum from Sierra de Segura and neighbouring mountain ranges of SE Spain is described as a species new to science, illustrated and compared with its closest relative *C. dioscoridis*. Three further names, *C. valentinum*, *C. loreyi* and *C. elongatum* are discussed and considered synonymous with *C. dioscoridis* or dubious, respectively.

Key words: *Cynoglossum dioscoridis*, taxonomy, Sierra de Segura, Jaén.

Introduction

In the course of a study of the genus *Cynoglossum* in Spain, based on the material of numerous herbaria (listed in the Acknowledgements, herbarium abbreviations according to Holmgren & Holmgren 1998-), I discovered a morphologically and chorologically well differentiated taxon distinct from all known species. The most conspicuous and reliable distinguishing characters are provided by the ripe nutlets (Fig.1). These are depressed ovoid, suborbicular, (6.3-)7.5-8.1(-8.8) mm long and (4.4-)6.2-6.5(-7) mm wide, with a conspicuous margin, on the upper surface with regular but not too dense, dispersed, slender glochids and with many small tubercles. The nutlets resemble those of *C. columnae* Biv., distributed in Italy, the W Balkans, Greece and perhaps W Turkey, in which the margin is more conspicuous and the tendency to form round nutlets more pronounced.

***Cynoglossum baeticum* Sutorý, sp. nov.**

Holotypus: Hispania, provincia de Jaén, Sierra de Segura, in valle supra fontes fluminis Quadalquivir dictis, 1400 m, 1.6.1996, K. Sutorý (BRNM 694 870) – Fig. 1-3.

Planta *Cynoglossi dioscoridi* Vill. simillima, praecipue in fructibus distincta, nuculis suborbicularibus, (6.3-)7.5-8.1(-8.8) mm longis et (4.4-)6.2-6.5(-7) mm latis, cum marginibus distincte evolutis, facie exteriore plana glochidiis echinatis gracilibus non densis et tuberculis multis parvis evolutis obsita.

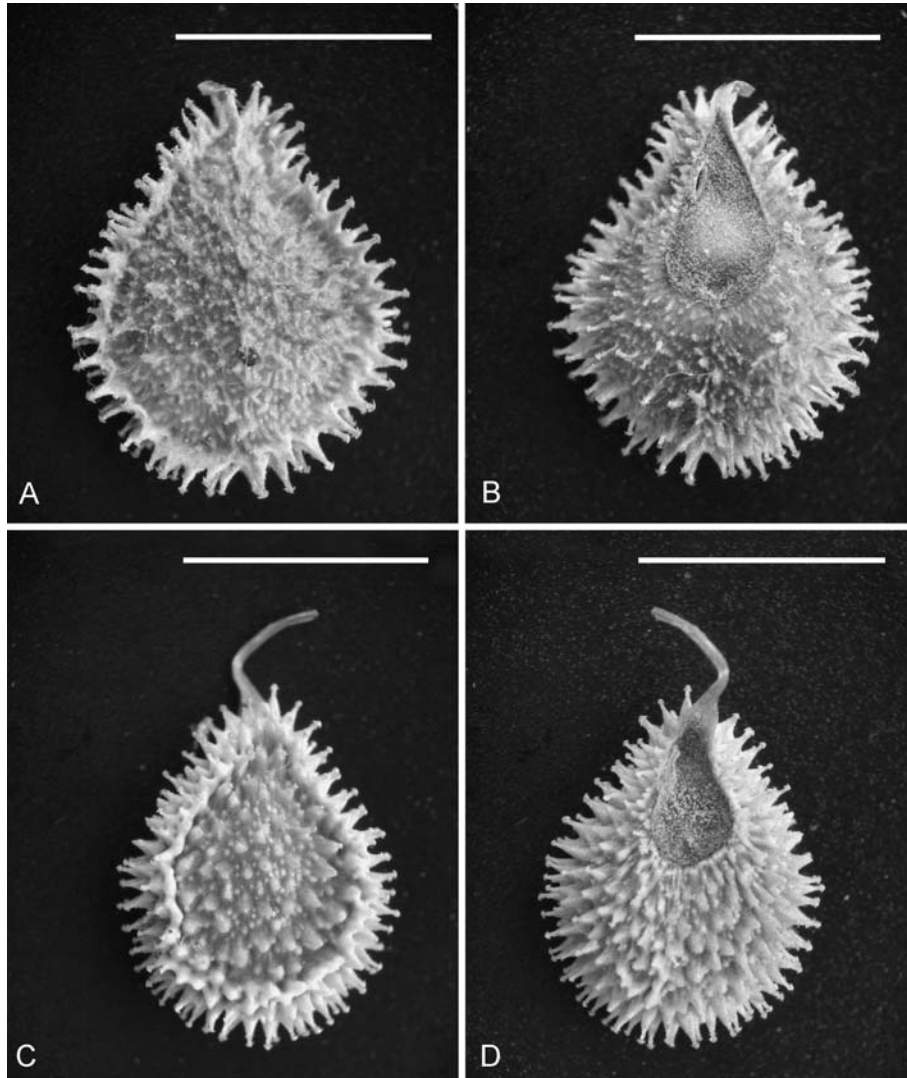


Fig. 1. Nutlets of *Cynoglossum baeticum* and *C. dioscoridis*, dorsal and ventral view. – Scale bars = 5 mm.

Biennial herbs, about 40-50 cm tall. *Rosette leaves* oblong, up to 20 × 2.2 cm, petiolate; *cauline leaves* sessile, narrowly oblanceolate, acute, mostly c. 8 × 0.7 cm, basal ones up to 16 cm long; all leaves with trichomes c. 0.5-1 mm long, thin, but at least in lower part stout, straight or saggy, in upper part softly undulate, looking ordered, well-arranged (Fig. 6). *Inflorescence* with up to 8 branches, lowest with bracteoles. *Calyx lobes* inside on the top sparsely hairy to glabrous with dispersed, solitary trichomes in the median part. *Corolla* 6 mm long (limb 4 mm, corolla tube 2 mm), deep crimson, brown when dry. *Filaments* inserted in upper third of corolla tube. *Anthers* 1 mm long, hidden under throat scales. *Nutlets* depressed ovoid, suborbicular, (6.3-)7.5-8.1(-8.8) mm long and (4.4-)6.2-6.5(-7.0) mm wide, with distinct margin, on upper surface with regularly but not very densely dispersed, slender glochids and many small tubercles; attachment scar narrowly ovate, ending in thin awn.



Fig. 2. *Cynoglossum baeticum* – holotype at BRNM.



Fig. 3. *Cynoglossum baeticum* – a first year rosette of leaves from the type locality.

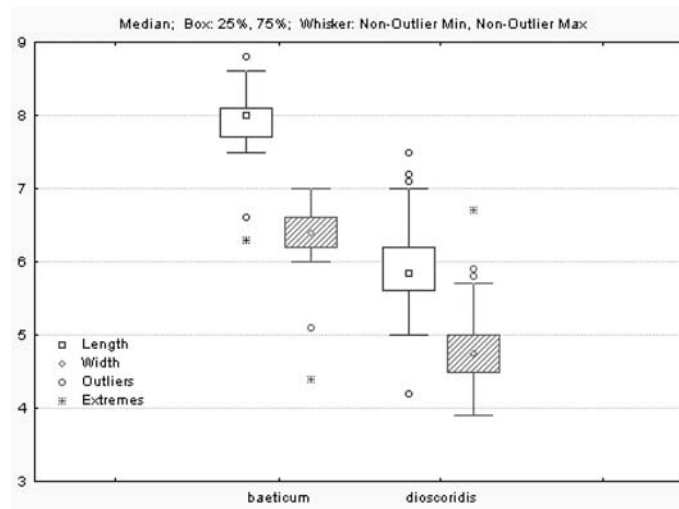


Fig. 4. *Cynoglossum baeticum* and *C. dioscoridis* – length and width of nutlets in mm.

Distribution. – *Cynoglossum baeticum* is restricted to Sierra de Segura and neighbouring mountain ranges of SE Spain (Fig. 5). It occurs on basic substrate at altitudes of 1000-1800 m.

Additional specimens studied. — Sierra del Pinar, bois de pins, sur le calcaire, 1700 m, 1903, *Reverchon* (MA); La Hoderá de la Nevahondona, in pinetum (*P. laricio*), W slopes, 16.7.1951, *Heywood* (BM); Sierra del Castril, bois de pins, sur le calcaire, 1700 m [or 1400 m?], 1903, *Reverchon* (P); Sierra del Pozo, bois de pins, sur le calcaire, 1500 m, 6.1905, *Reverchon* (G, P); Valencia, Sierra de Jura, 4.1902, *Gandoger* (M); Albacete, in pascuis sylvaticis Sierrae de Alcaraz, sol. calc., 1200-1800 m, 21.6.1891, *Porta & Rigo 556* (BM, P, WU, W); Jaén, Orcera, 30S WH 3438, 1300 m, 15.5.1980, *Soriano* (MA); Sierra del Cuarto, bois de pins, sur le calcaire, 1700 m, 1902, *Reverchon* (P); Sierra de Cabrilla, bois de pins, sur le calcaire, 1700 m, 1905, *Reverchon* (MA); Barranco del Río Segura, bois de pins, sur le calcaire, 1500 m, 6.1906, *Reverchon* (P); El Almadén, decliv. NE mont. Cabezaprieta, 1300 m, 11.6.1926, *Cuatrecasas* (MAF); El Almadén, decl. NW Los Llanillos, in pratis, 1400 m, 11.6.1926, *Cuatrecasas* (BC) (published in Cuatrecasas 1929); El Almadén, in loc. rupestr., 19.7.1925, *Cuatrecasas* (BC) (published in Cuatrecasas 1929); Jaén, Cazorla: 30S WG0594, 1040 m, pinares de pinaster, 28.5.1976, *Soriano* (MA); Sierra de Cazorla, Vadillo, Fuente Acero, 19.5.1973, *Polatschek* (W); Sierra de Cazorla, Burunchel-Vadillo, 19.5.1973, *Polatschek* (W); Jaén, Cazorla, Nava de San Pedro, calizo pedregoso, 1350 m, 1972, *Segura Zubizarreta* (MA); Jaén, Cazorla, ladera oriental de la Loma de los Castellones, 30S WG0294, 1460 m, 22.6.1975, *Soriano* (MA); Jaén, Cazorla, barranco del río Guadalentín, 30S WG0294, 1300 m, 6.6.1975 *Soriano* (MA); Jaén, Barrancon de Valentina [= Barranco del Guadalentín], bois de pins, sur le calcaire, 1700 m, 1904, *Reverchon* (B, BM, BRNU, E, G, LD, LE, MA, MPU, P, PR, Z); Sierra de Cazorla, bois de pins, sur calcaire, 1700 m, 1901, *Reverchon 938* (E, GZU, M, MPU, P, Z); Sierra de Cazorla, in pineto prope scaturigines Quadalquivir, 1500 m, 31.5.1828, *Lacaita* (BM); in pascuis saxosis Sierrae de S. Maria, 5.1893, *Rigo* (MPU); ex seminibus in Hispania pasc. sax. Sierrae de S. Maria lectis, 1893, *Rigo* (B, BC, BP, M, MPU); steinige Weiden der Sierra de S. Maria aus Samen in Torre del Benaco gezogen, 1893, *Rigo* (Z); Jaén, Quesada, roquedos karstificados junto al nacimiento del río Quadalquivir, 30S WG0188, 29.5.1976, *Soriano* (MA); Segura de la Sierra, junto a la pista de Río Madera, 30S VH3329, 1110 m [?], 3.6.1983, *Soriano* (MA); Sierra de Segura, Majadal de los Robles, damp pasture at edge of Pinetum, 1400 m, 23.6.1955, *Heywood* (READ); Sierra de Villa Verde, 20.6.1850, *Cosson?* in Bourgeau, Pl. d'Espagne 785 (G, LD, P, W, Z).

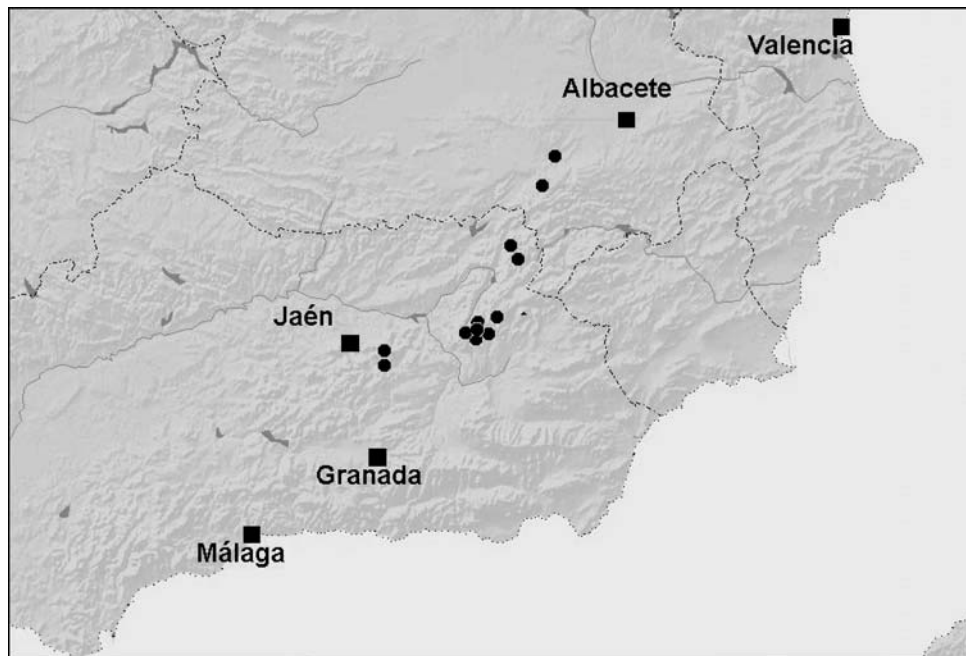


Fig. 5. Distribution of *Cynoglossum baeticum*.

Discussion

Habitually the new species is very similar to *Cynoglossum dioscoridis*, which differs by lanceolate, acuminate leaves, with only the basal leaves being more or less acute. Its leaf trichomes are thin, up to 1.5 mm long, exceptionally longer, not stout and straight, looking mostly unordered, not well-arranged. The calyx lobes inside near the tip are densely covered with trichomes. The corolla is blue, also when dry. The nutlets of *C. dioscoridis* are smaller, (4.2-)5.6-6.2(-7.5) mm long and (3.9-)4.5-5(-6.7) mm wide, with less slim glochids, with less conspicuously developed margin, in most cases forming only a broader, elevated rim (Fig. 1A, C). *C. dioscoridis* is more widespread, reaching from SE Spain to S France (Bolòs & Vigo 1995: 207) and grows at lower elevations.

Three further taxa related to *Cynoglossum dioscoridis* have been published and have to be considered here.

Cynoglossum valentinum Lag. was published with a short description: “*Cynoglossum valentinum*: foliis angusto-lanceolatis hirsutis, caulinis sessilibus; laciniis calycis ovatis; spicis ebracteatis. Planta herbacea *Anchusae angustifoliae* Linn. facie. B. Cavanilles legit in Regno Valentino.” The original material collected by Cavanilles and determined by Lagasca is preserved in MA (no. 95038!). It is a very young plant collected before flowering and its identification is not possible. The broadly defined locality “Regno Valentino”, according to Joseph M. Montserrat (pers. comm.), corresponds with the today provinces of Castellón, Valencia and Alicante. Cuatrecasas (1929) considers *C. valentinum* only as a form of the variable *C. dioscoridis*. Otherwise it is considered as synonymous with *C. dioscoridis*, e.g., by Willkomm (1870, with question mark), Candolle (1846), Amo y Mora (1871), Brand (1921), the monographer of the genus, and the contemporary authors Fernandez Galiano & Heywood (1960), Sanz (1990), Bolòs & Vigo (1995) and Sanz & Crespo (1995, 2001). The name is omitted by Kovanda (1972), Greuter & al. (1984), Lopez & Jimenez (1974), García Rollán (1981, 1985) and Días-Vargas & al. (1991). Because of the insufficient description and the insufficient type specimen with unclear provenance I considered this name as dubious.

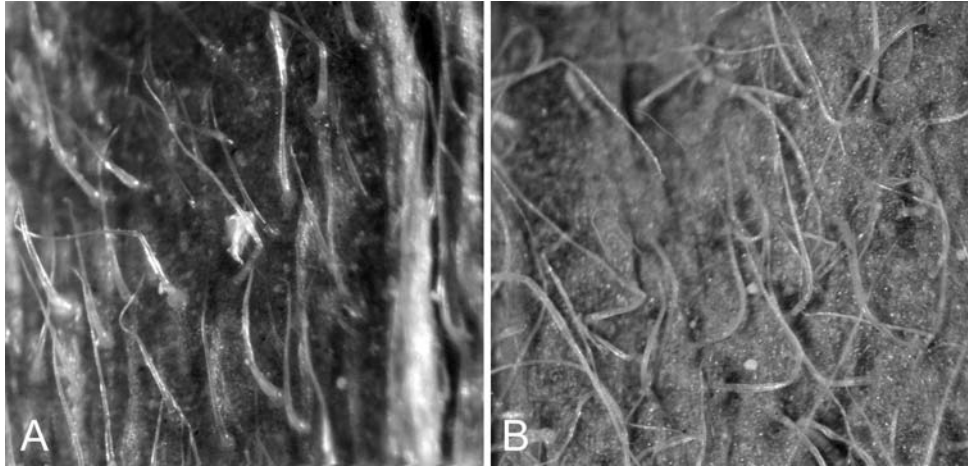


Fig. 6. Leaf trichomes (on surface of 2 × 2 mm) – A: *Cynoglossum baeticum*, B: *C. dioscoridis*.

Cynoglossum elongatum Hornem. is described with “staminibus corolla potesti brevioribus, fol. scabris, inferioribus lanceolato-linearibus petiolatis, superioribus sessilibus cordato-amplexicaulibus, ramis elongatis, floribus remotis, lacinii calycinis oblongis. Habitus *Cynog. montani* a *C. picto* et *C. off.* differt praecipue corollas patentibus carneis, ramis elongatis paucifloris rarioribus, a *C. picto* calycibus et foliis angustioribus. *Cynogl. lanceolatum* Forsk., quo nomine a celebr. Schradero missum suit, diversissimum est foliis omnibus asperimis lanceolatis basi angustatis.” The type material of *C. elongatum* is preserved in C. There are two sheets with this name. The first contains a very young plant with date 1820; that is five years after publication of the name *C. elongatum* so that it cannot be the type. The second sheet belongs to *C. dioscoridis*.

Cynoglossum loreyi Jordan ex Lange was provided with the short description “Forsan varietas praecedentis [*C. pictum*] v.[el] *C. dioscoridis* Vill., etsi habitum ab utroque satis diversum praebet. Folia multo angustiora (lineari-lanceolata), cauli adpressa magisque incana quam in *C. picto*; flores quoque minores totaque planta gracilior. Fructos maturos non vidi.”

Willkomm (1884) considers it as conspecific with *C. valentinum*. Later he repeated this opinion (Willkomm 1893) and cites as support a letter from Pau. In the same way it is treated by Nyman (1881, with question mark) and Smithies (1984). I have seen some *Jordan* specimens deposited in BM, MPU, P and Z with this name; all plants clearly belong to *C. dioscoridis*. No doubt this taxon is conspecific with *C. dioscoridis*.

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