

Scutellaria anatolica (Lamiaceae), a new species from Turkey

Mehmet Çiçek^{1,*} & Osman Ketenoğlu²

¹⁾ Pamukkale University, Faculty of Arts & Science, Department of Biology, 20070 Denizli, Turkey
(*corresponding author's email: mcicek@pau.edu.tr)

²⁾ Ankara University, Faculty of Science, Department of Biology, 06100 Ankara, Turkey

Received 25 Nov. 2009, revised version received 17 Dec. 2009, accepted 20 Jan. 2010

Çiçek, M. & Ketenoğlu, O. 2011: *Scutellaria anatolica* (Lamiaceae), a new species from Turkey. — *Ann. Bot. Fennici* 48: 276–279.

Scutellaria anatolica M. Cicek & O. Ketenoglu, *sp. nova* (Lamiaceae) is described from south Anatolia, Turkey, and illustrated. It belongs to the section *Lupulinaria* subsection *Lupulinaria* and resembles *S. bicolor*, but differs by its ascending-erect stems, smaller triangular-ovate and sessile median cauline leaves, and smaller lanceolate bracts with acute apex, equalling or shortly exceeding the calyx at anthesis.

Scutellaria, with nearly 360 species, is one of the largest genera of the family Lamiaceae (Paton 1990a). The genus has its main centre of diversity in the Iran-Turanian region of Asia. Eastern Mediterranean and the Andes are secondary centres of diversity (Paton 1990b). In the *Flora of Turkey*, Edmondson (1982), who first revised the Turkish *Scutellaria*, divided the genus into four sections on the basis of flower, inflorescence and habit characters: *Scutellaria*, *Galericularia*, *Salviifoliae*, and *Lupulinaria*, and recognized totally 15 species. The first three sections have a one-sided inflorescence with secund flowers arranged in an opposite manner and borne in the axils of small leaf-like bracts. The last section differs from the others in having a four-sided inflorescence with flowers arranged in an opposite and decussate manner and subtended by cucullate bracts. Since Edmondson's (1982) treatment, two new taxa of the section *Lupulinaria* have been described from north Anatolia: *S. orientalis* subsp. *tortumensis* (Davis *et al.* 1988) and *S. uzunderensis* (Duman 2000).

Paton (1990a), who presented a global infra-generic classification of *Scutellaria*, divided the section *Lupulinaria* into two subsections (*Lupulinaria* and *Cystaspis*) on the basis of scutellum (a dish-like or shield-like or sail-like structure formed of folded upper calyx lip), calyx indumentum, corolla and habitat characters. The subsection *Lupulinaria* is characterized by a thick-textured non-membranous scutellum less than 5 mm across, and a slender corolla tube. Paton (1990a) included in the subsection *Lupulinaria* all the taxa placed in section *Lupulinaria* by Edmondson (1982).

The species described here belongs to section *Lupulinaria* subsection *Lupulinaria*. That subsection contains approximately 120 species growing in mountainous and upland areas of Eurasia and North Africa. It is represented by 21 taxa (including the new species described here), 18 of which are members of the *Scutellaria orientalis* group, in the Turkish flora. These taxa are prostrate to erect suffruticose herbs, and similar to each other in their mat-forming habits.

Scutellaria orientalis group is the most problematic group in the subsection. When most of the taxa in the group were first described, they were treated at specific ranks. However, Edmondson (1980) adopted a broad species concept for *S. orientalis* due to the morphological similarities within the group. Actually, his treatment of the *S. orientalis* group in the *Flora of Turkey* is an infraspecific classification on the basis of a combination of morphological characters and the distribution of geographically isolated populations. Nevertheless, it is shown that *S. orientalis* is among the critical groups of the genus, because relationships within this large group are unclear (Greuter & Raus 1984, Paton 1990a).

The authors have studied the taxonomy of the Turkish *Scutellaria* since 2005. Here, we describe a new species. During field work for the project "A revision of the genus *Scutellaria* L. in Turkey" during the years 2005–2007, the specimens of the new species were collected in south Anatolia, Turkey. When we first collected the specimens, we thought that they might represent *S. bicolor* of subsection *Lupulinaria*. After carefully examining the type specimen of *S. bicolor* in Tübingen Herbarium (TUB) and many additional specimens belonging to subsection *Lupulinaria* recorded from Turkey and its nearest regions (Boissier 1879, Post 1932, Juzepczuk 1954, Richardson 1972, Rechinger 1982), we concluded that a new species was at hand.

***Scutellaria anatolica* M. Cicek & O. Ketenoglu, sp. nova** (Figs. 1 and 2)

Affinis S. bicolori sed caulibus ascendens-erectis, 25–30(–35) cm altis, foliis caulinis mediis sessilibus et triangulari-ovatis minore, bracteis lanceolatis minore, calycem aequantibus vel breviter calycem superantibus sub anthesis, apice acutatis differt.

TYPE: Turkey. C5 Niğde, Ulukışla'nın 15 km kuzeydoğusu, Çaykavak geçidi, 37°35'56.3"N, 34°32'36.3"E, 1540–1610 m, aşınmış volkanik kayalık ve taşlık yamaçlar, 14.VI.2007 M. Çiçek 2050 (holotype ANK!; isotypes AEF!, ANK!, GAZI!, PAMUH!). — PARATYPES: Turkey. C5 Adana: above Solaklı, Cappod. (Cappodocia), Antitaurus, 2800 m, subalpine region, VII.1913 *Siehe 1913:573* (W!); Konya: Ereğli, Aydos Dağı, Delimahmutlu, Karasirt, 1600 m, bozkır,

kalkerli yamaç, 26.VI.1976 S. Erik 1628 (HUB!); Niğde: 15 km from Ulukışla to Niğde, Çaykavak pass, 37°35'56.3"N, 34°32'36.3"E, 1540–1610 m, eroded igneous rocky and stony slopes, 9.VII.2005 M. Çiçek 1886 (ANK!, PAMUH!); ibid., 14.VII.2006 M. Çiçek 1985 (ANK!, PAMUH!).

ETYMOLOGY: The specific epithet refers to the Asian portion of Turkey (Anatolia).

Suffrutescent, 20–30(–35) cm, not aromatic perennial herbs with many ± slender stems arising from a woody root-stock. Stems ascending to erect, branched at and near base (not in upper half), tetragonal, pale green, and purplish towards base, tomentulose or antrorsely puberulous with curved hairs. Leaves ± distant, lamina 10–15 × 6–8 mm, triangular-ovate, margin crenate, apex subobtuse-acute, discolorous, dark green and tomentulose above, whitish-pale green and densely tomentulose beneath, those of median cauline sessile, 1–2 pairs of lower leaves shortly petiolate (2–4 mm long). Inflorescence a dense ovoid spike, terminal, elongating in fruit. Flowers opposite and decussate, in a four-sided spike. Pedicels strongly flattened and parallel to inflorescence axis, 2.5–3 mm at anthesis, to 5 mm in fruit. Bracts sessile, flattened, not clasping calyx, often equalling or rarely somewhat exceeding calyx at anthesis, lanceolate, 5–7 × 2–4 mm, not imbricate and not membranous, apex acute, pale green, tomentulose. Flowering calyces 1.75–2 mm, whitish-pale green, densely tomentulose, fruiting calyces 3.5–3.75 mm. Scutellum 1–1.5 mm at anthesis, enlarging to 3.5–4 mm in fruit. Corolla 22–27 mm, villous, tube pale yellow, upper lip yellow, lower lip dark yellow, brownish or reddish-brownish. Nutlet 4, ovoid, 1.0–1.8 × 0.5–1.2 mm, grey-black to sky blue-greyish, surface completely hair-covered.

PHENOLOGY AND HABITAT: Flowering in June–July. Eroded igneous rocky and stony slopes, calcareous slopes, steppe and subalpine regions between 1540–2800 m altitude.

DISTRIBUTION AND LIFE FORM: Endemic to south Anatolia, Turkey. Iran-Turanian element. Known from three localities in the provinces of C5 Adana, Konya, and Niğde. Hemicryptophyte.

Scutellaria anatolica has a four-sided inflorescence, nutlets with hairs completely covering the surface, the lower cauline leaves with short petioles, a slender corolla tube, and a thick-textured non-membranous scutellum, enlarging to

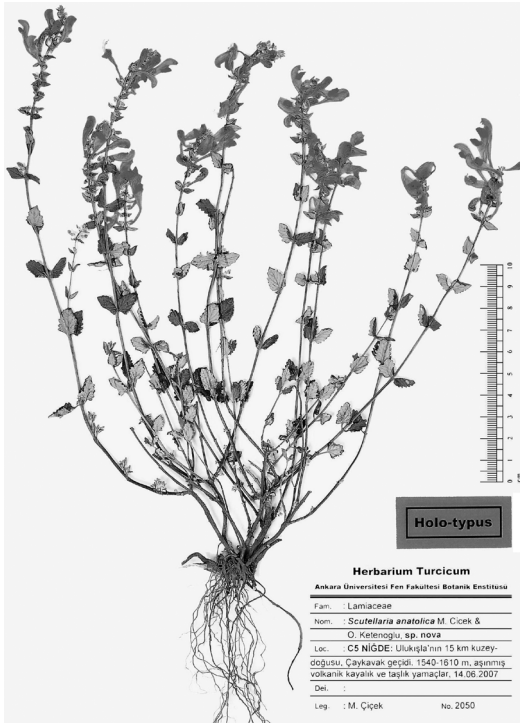


Fig. 1. Holotype of *Scutellaria anatolica*.

3.5–4 mm in fruit. Considering Paton's (1990a) infrageneric classification, *Scutellaria anatolica* clearly belongs in the subsection *Lupulinaria*.

It is not easy to distinguish the taxa in subsection *Lupulinaria* due to morphological similarities in their habits and flowers, except for size and colour. However, they differ from each other in characters such as stem form, indumentum, size, shape and side of leaves, and size, shape and apex of bracts.

Although *Scutellaria anatolica* resembles the other taxa in subsection *Lupulinaria*, it is closely related to *S. bicolor*, an endemic species of Turkey. The important diagnostic characters between *S. anatolica* and *S. bicolor* are given in Table 1.

Acknowledgements

We thank TUBITAK (project no. 106T741) and Ankara University (project no. BIYEP-2005K120140-6) for their financial support. Thanks also to the directors of AEF, ANK, B, BM, EGE, GAZI, G-Boiss., HUB, ISTE, ISTF, JE, K, LD, OXF, TUB, W, and WU herbaria. This research received support from the SYNTHESYS Project which is financed by European Community Research Infrastructure Action under the FP6 "Structuring the European Research Area" Programme.

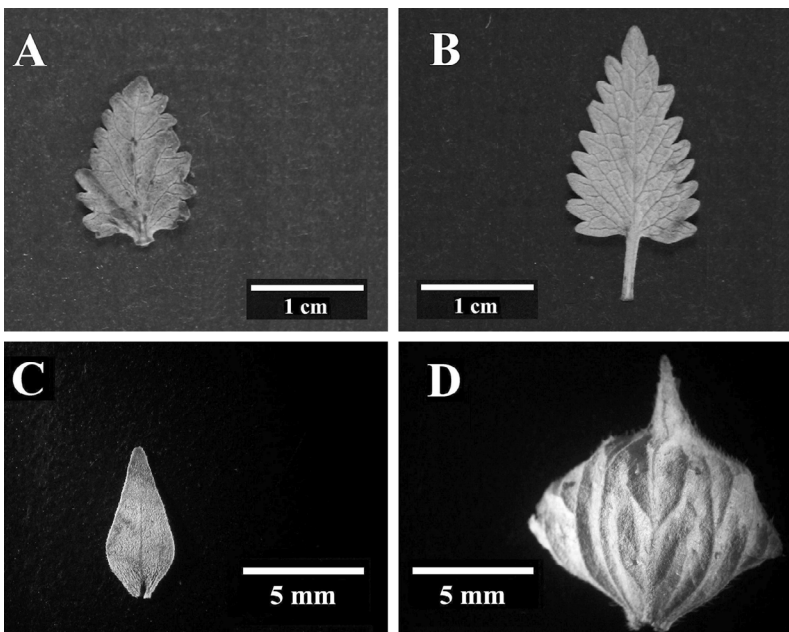


Fig. 2. Median cauline leaves (A and B) and bracts (C and D). — A and C: *Scutellaria anatolica* (from the holotype). — B and D: *S. bicolor* (M. Çiçek 1949).

Table 1. A morphological comparison between *Scutellaria anatolica* and *S. bicolor*.

Characters	<i>S. anatolica</i>	<i>S. bicolor</i>
Plant height	20–30(–35) cm	15–25(–30) cm
Stem	ascending to erect, pale green	decumbent, green
Stem branching	branched at and near base	branched at base and in upper half
Leaf size	10–15 × 6–8 mm	14–24 × 8–14 mm
Leaf shape	triangular-ovate	triangular
Leaf margin	crenate	deeply crenate
Petiole of median cauline leaves	sessile	petiolate (2–4 mm long)
Inflorescence	dense ovoid spike, elongating in fruit	dense ovoid to oblong spike
Bract size	5–7 × 2–4 mm	12–16 × 10–14 mm
Bract shape	lanceolate, flattened, not membranous, not clasping calyx at anthesis, not imbricate	large ovate to orbicular, concave, ± membranous, clasping calyx at anthesis, imbricate
Bract apex	acute	acuminate
Corolla	22–27 mm, tube pale yellow	20–28 mm, tube yellow
Nutlet	ovoid, 1.0–1.8 × 0.5–1.2 mm, grey-black to sky blue-greyish	ovoid, 0.9–1.9 × 0.8–1.5 mm, greyish-black

References

- Boissier, E. 1879: *Flora Orientalis*, vol. 4: 681–691. — H. Georg-Bibliopolam, Genevae et Basileae.
- Davis, P. H., Mill, R. R. & Tan, K. (eds.), 1988: *Flora of Turkey and the East Aegean Islands*, vol. 10 (Supplement): 202. — Edinburgh Univ. Press, Edinburgh.
- Duman, H. 2000: *Scutellaria* L. — In: Güner, A., Özhatay, H., Ekim, T. & Başer, K. H. C. (eds.), *Flora of Turkey and the East Aegean Islands*, vol. 11 (Supplement II): 198–199. Edinburgh Univ. Press, Edinburgh.
- Edmondson, J. R. 1980: *Scutellaria* L. — *Notes Royal Bot. Garden Edinburgh* 38: 52–55.
- Edmondson, J. R. 1982: *Scutellaria* L. — In: Davis, P. H. (ed.), *Flora of Turkey and the East Aegean Islands*, vol. 7: 78–100. Edinburgh Univ. Press, Edinburgh.
- Greuter, W. & Raus, T. (ed.) 1984: Med-checklist Notulae, 10. — *Willdenowia* 14: 299–308.
- Juzepczuk, S. V. 1954: *Scutellaria* L. — In: Shishkin, B. K. & Juzepczuk, S. V. (eds.), *Flora of the U.S.S.R.*, vol. 20: 50–150. Izdatel'stvo Akademii Nauk SSSR, Moskva–Leningrad. [Translated from Russian by the Israel Program for Scientific Translations, Jerusalem].
- Paton, A. 1990a: A global taxonomic investigation of *Scutellaria* (Labiatae). — *Kew Bulletin* 45: 399–450.
- Paton, A. 1990b: The phylogeography of *Scutellaria* L. — *Notes Royal Bot. Garden Edinburgh* 46: 345–359.
- Post, E. G. 1932: *Scutellaria* L. — In: Post, E. G. (ed.), *Flora of Syria, Palestine and Sinai*, vol. 1: 367–370. American Press, Beirut.
- Rechinger, K. H. 1982: *Scutellaria* L. — In: Rechinger, K. H. (ed.), *Flora Iranica* (Labiatae) 150: 44–84. Akademische Druck- und Verlagsanstalt, Graz.
- Richardson, I. B. K. 1972: *Scutellaria*. — In: Tutin, T. G. (ed.), *Flora Europaea*, vol. 3: 135–137. Cambridge Univ. Press, Cambridge.