

Stachys yildirimlii (Lamiaceae), a new species from south Anatolia, Turkey

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Stachys yildirimlii M. Dinç *sp. nova* (Lamiaceae) from Turkey is described and illustrated in line drawings. It belongs in subgen. *Stachys* sect. *Ambleia* and resembles *S. cydni*, from which it differs mainly in its crenate, oblong, obtuse and concolorous leaves, brown nutlets, and greenish indumentum. A distribution map of the new species is given. Nutlet coat surface of *S. yildirimlii* and *S. cydni* are displayed in SEM-photographs.

Key words: Labiatae, *Stachys*, taxonomy, Turkey

Stachys contains about 285 species (Bhattacharjee 1980, Davis *et al.* 1988, Heywood 1993, Hickey & King 1997, Duman 2000). It is a subcosmopolitan genus centred in the warm temperate regions of the Mediterranean and southwest Asia, with secondary centres in North and South America and southern Africa. There are two main centres of diversity in terms of species number. One is confined to south and east Anatolia, Caucasia, northwest Iran and north Iraq; the other is on the Balkan Peninsula (Bhattacharjee 1980).

Stachys was revised for the *Flora of Turkey* (Bhattacharjee 1982). Since then, nine new species have been added (Bhattacharjee 1974, Davis *et al.* 1988, Duman 2000) and *S. inflata* was removed from the flora of Turkey (Gemici & Leblebici 1998). Eighty-one *Stachys* species belonging to 12 subsections, 15 sections and two subgenera are at the moment known from Turkey (Bhattacharjee 1982, Davis *et al.* 1988, Gemici & Leblebici 1998, Duman 2000).

The authors collected some flowering *Stachys* specimens during an excursion in June 2004. Fruiting specimens of the same species were collected from the same locality in July 2004 to determine the systematic status of the taxon. After examining the specimens carefully, we concluded that they belong to sect. *Ambleia*. The specimens were compared with data from literature and the morphologically fairly similar species *S. cydni*, the only taxon of sect. *Ambleia* in Turkey, and which was collected from the type locality by the authors (Bhattacharjee 1974, 1980, 1982, Knorringer 1977, Rechinger 1982, Gemici & Leblebici 1998, Duman 2000). We came to the conclusion that our specimens represented an hitherto undescribed species.

Stachys yildirimlii M. Dinç, *sp. nova* (Figs. 1, 2, 3C and D)

Affinis Stachys cydni sed planta tomentosa,

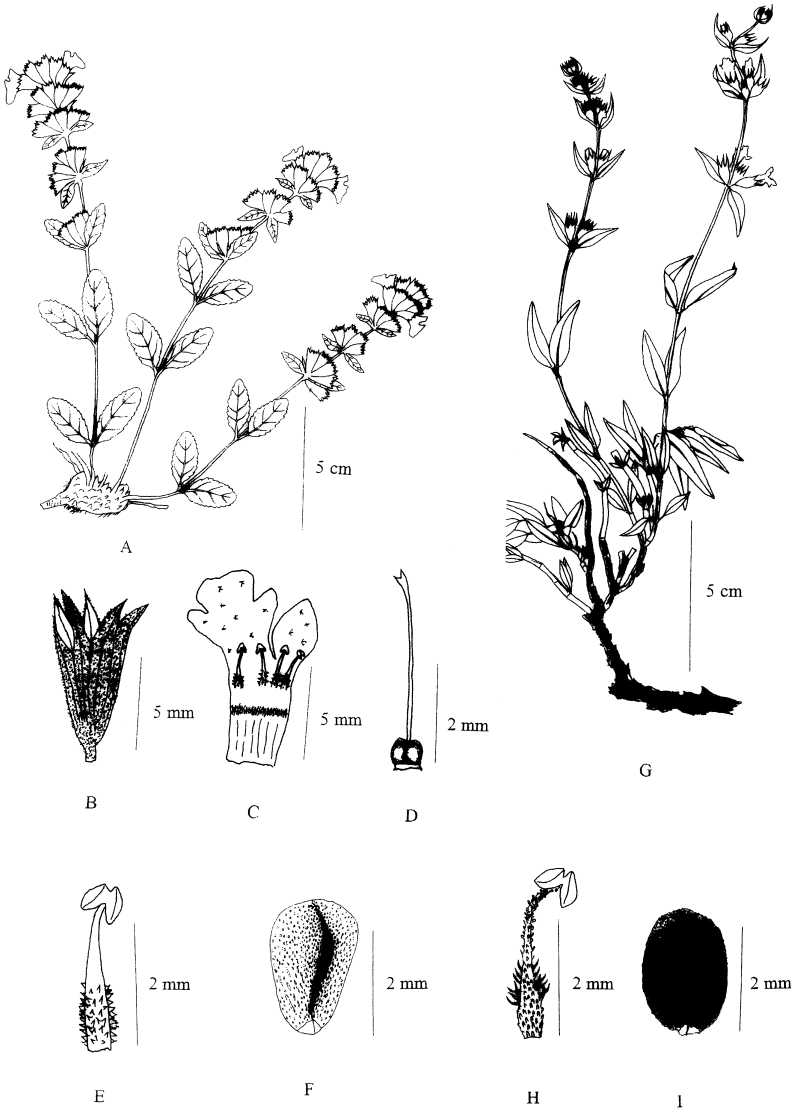


Fig. 1. A–F: *Stachys yildirimlii* (A–E from holotype, F from paratype). — A: Habit. — B: Calyx. — C: Dissected corolla. — D: Pistil. — E: Stamen. — F: Nutlet. — G–I: *Stachys cydni* (G and H from Gemici & Leblebici 1998, I from M. Dinç 2275 & H.H. Doğan). — G: Habit. — H: Stamen. — I: Nutlet.

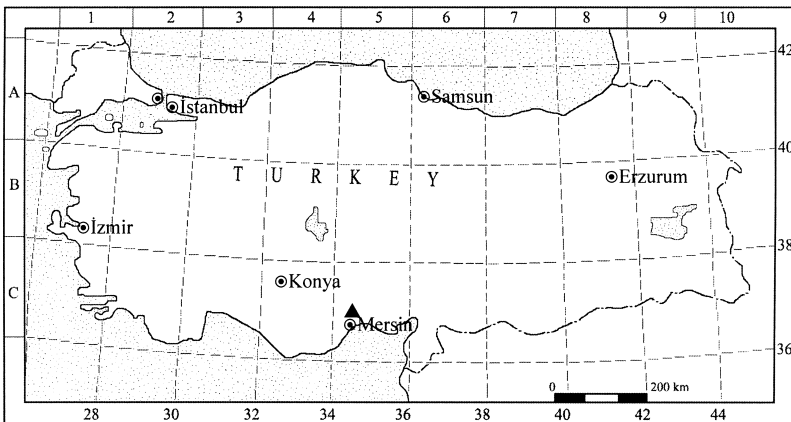


Fig. 2. Distribution of *Stachys yildirimlii* (▲) in Turkey.

viridia (non dense alba-tomentosa); folia caulina oblongo vel oblongo-elliptica, viridia, margine crenata, apice obtusa (non ovata-elliptica, supra viridia, infra alba, margine integra, apice \pm acuta); verticillastri 4–6(8) flori, inferiores paulo remoti, superiores approximati (non 2–6 flori, plerumque remoti ad 3 cm); filamentis ciliatis (non ciliatis, papillis et glandulis); nucula obovata-triangularata et fusca (non oblonga-triangularata, et nigra) differt.

TYPE: Turkey. C5 Mersin: Aslanköy, Cocakdere, *Cedrus libani*-*Pinus nigra* forest, clearings, rocky slopes, crevices of limestone rocks, 1950 m, 15.VI.2004 M. Dinç 2150 & H.H. Doğan (holotype KNYA; isotype GAZI).

Suffrutescent saxatile perennial. Flowering stems 10–20 cm, ascending, greenish, sometimes purplish above, densely tomentose with dendroid hairs. Cauline leaves petiolate, oblong to oblong-elliptic, 10–35 \times 6–16 mm, crenate, narrowly or widely cuneate at base, obtuse at apex, tomentose above, densely greenish-tomentose below, petiole 4–14 mm. Floral leaves sessile, lower sometimes similar to the cauline leaves, crenate and longer than verticillasters, upper lanceolate, apex acute, margin entire, shorter than verticillasters. Verticillasters 4–6(8) flowered, lower remote, 1–2.5 cm distant at anthesis, to 3.5 cm at fruiting time, upper approximate, up to 0.5 cm distant. Bracteoles linear, herbaceous, 3–7 mm, tomentose. Pedicels 1.5–3 mm. Calyx \pm campanulate, sometimes purplish, 7–13 mm, not inflated, densely tomentose outside, distinctly 10-nerved. Teeth erect, subequal, tomentose outside, narrowly triangular-ovate to triangular-lanceolate, 2.5–5 mm, without or with purplish, and glabrous mucro up to 0.6 mm. Corolla annulate, 12–16 mm, rose, tomentose outside, with sparsely dendroid hairs inside, tube subexserted. Stamens included, filaments ciliate from base to middle. Nutlets obovate-triangular, 2.2–2.3 \times 1.1–1.2 mm, glabrous and brown. Flowering in June, mature fruits in July.

ETYMOLOGY: This species is named in honour of the eminent Turkish botanist Prof. Dr. Şinasi Yıldırımli (Biology Department, Hacettepe University) who is an expert on the flora of Turkey and has a private herbarium (Yıldırımli Herbarium) including about 30 000 specimens belonging to 5000 taxa from Turkey and Europe.

DISTRIBUTION, HABITAT ECOLOGY AND ACCOMPANYING SPECIES: *Stachys yildirimlii* was discovered in South Anatolia (Mersin province) and represents an endemic Eastern Mediterranean (mountain) element. The dominant vegetation of the locality where the species occurs is a mixed forest of *Pinus nigra* subsp. *nigra* var. *caramanica* and *Cedrus libani*. *Stachys yildirimlii* grows in crevices of limestone rocks in the clearings of the mixed forest and the population consists of less than 250 individuals. The other taxa growing together with it are the woody *Juniperus drupacea*, the shrubby *Salvia heldreichiana* (endemic) and the herbaceous *Salvia multicaulis*, *Stachys rupestris* (endemic), *Dianthus zonatus*, *Galium canum*, *Rosularia libanotica*, *Inula heterolepis*, *Reichardia glauca*, *Chaenorhinum minus* and *Viola heldreichiana*.

NUTLET MORPHOLOGY: The nutlet coats of *S. yildirimlii* and *S. cydni* were examined in detail. The nutlets of *S. yildirimlii* are brown, obovate-triangular, and on average 2.2–2.3 mm long and 1.1–1.2 mm wide. The surface ornamentation is reticulate-granulate. The nutlets of *S. cydni* are black, oblong-triangular, and on average 2.1–2.2 mm long and 1.0–1.1 mm wide. The surface ornamentation is rugulate-granulate (Fig. 3).

General characteristics of *Stachys* subg. *Stachys* sect. *Ambleia* are: (1) xerophytic suffruticose perennials, (2) tomentose indumentum with dendroid hairs, (3) ovate to oblong-lanceolate cauline leaves with entire margins, (4) 2–6 flowered verticillasters, (5) lanceolate to linear bracteoles, (6) tubular to campanulate and \pm regular calyx, (7) exerted to subexserted corolla tubes, (8) slightly exerted stamens, (9) usually subparallel anthers cells, and (10) obovoid to oblong nutlets (Bhattacharjee 1980). *Stachys yildirimlii* mainly displays these features except that the margins of the cauline leaves are crenate. However, the indumentum of dendroid hairs is the most important feature characterizing sect. *Ambleia*, which is rather an isolated taxon within *Stachys* (Bhattacharjee 1980). Therefore, we place *S. yildirimlii* in sect. *Ambleia* without hesitation.

South and east Anatolia are one of the main centres of diversity of the genus *Stachys* in Turkey and the central part of the Taurus range

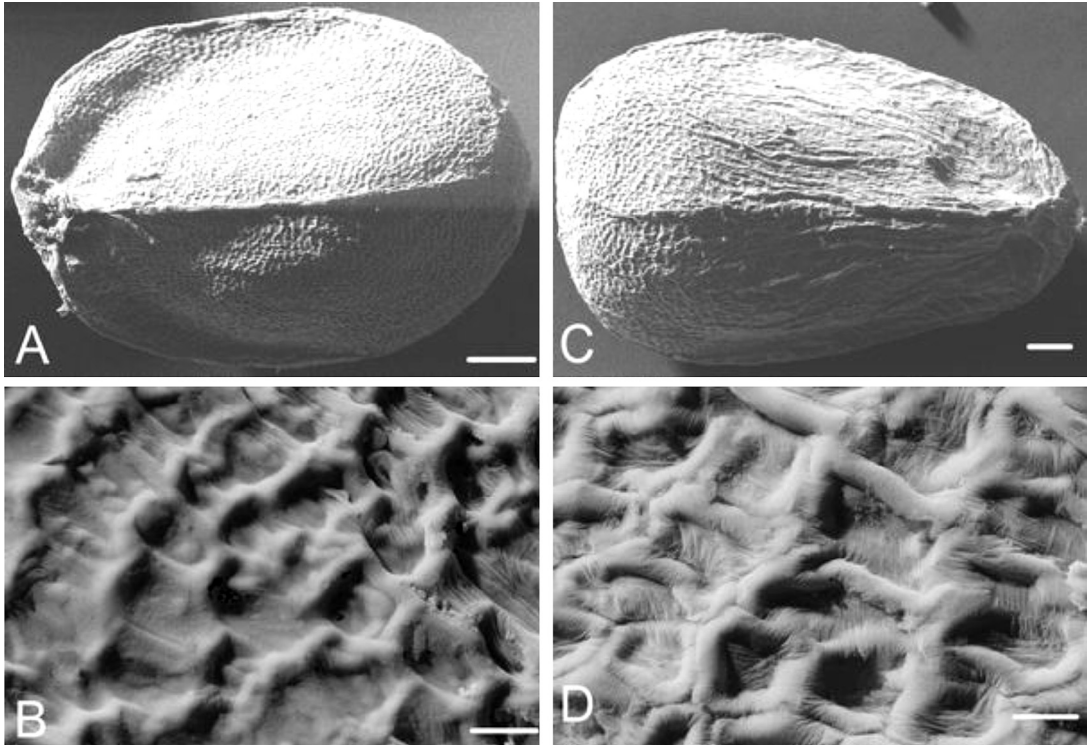


Fig. 3. SEM photographs of the nutlet coat. — **A** and **B**: *Stachys cydni* (**A**: General view; **B**: Nutlet coat surface). — **C** and **D**: *Stachys yildirimlii* (**C**: General view; **D**: Nutlet coat surface). Scale bars: **A** = 300 μ m, **C** = 200 μ m, **B** and **D** = 20 μ m.

Table 1. Morphological comparison of *Stachys yildirimlii*, *S. cydni*, *S. inflata* and *S. kotschy*.

Character	<i>S. yildirimlii</i>	<i>S. cydni</i>	<i>S. inflata</i>	<i>S. kotschy</i>
Cauline leaves	petiolate, oblong to oblong-elliptic, margin crenate, apex obtuse, 10–35 \times 6–16 mm	subsessile, elliptic to lanceolate, margin entire, apex \pm acute, 17–44 \times 5–10 mm	sessile, lanceolate to narrowly elliptic, margin entire, apex \pm acute, 8–40 \times 3.5–12 mm	petiolate, ovate-elliptic, margin entire, apex obtuse, 15–20 \times 10–20 mm
General indumentum	greenish-tomentose	densely felted white-tomentose	densely felted white-tomentose	densely felted white-tomentose
Leaves indumentum	\pm concolorous, greenish	strongly discolorous, white tomentose below, greenish above	discolorous, white tomentose below, greenish above	discolorous, white tomentose below, greenish above
Floral leaves	shorter than verticillasters	longer than verticillasters	shorter than verticillasters	longer than verticillasters
Verticillasters	4–6(8) flowered, upper approximate, lower remote	2–6 flowered, remote	4–8 flowered, remote	4–6 flowered approximate, rarely remote
Calyx	7–13 mm, campanulate	8–16 mm, campanulate	8–17 mm, tubular, inflated	8–9 mm, campanulate
Bracteoles	linear	linear	linear-lanceolate	setaceous
Filaments	ciliate not with papillae, and glandular hairs	ciliate with papillae, and glandular hairs	pubescent	?
Nutlets	obovate-triangular	oblong-triangular	obovoid	?

displays a minor disjunction in these regions (Bhattacharjee 1980, 1982). Many *Stachys* taxa grow here and some of them are endemic. Taxa such as *S. antalyensis* and *S. chamosericea* from Antalya-Beşkonak, *S. anamurensis* from Mersin-Kızıllalan, *S. cydni* from Mersin-Aslanköy to Çamlıyayla, *S. sericantha* and *S. aleurites* from Antalya vicinity, *S. longiflora* from Mersin-Güzel Dere, *S. euadenia* from Ermenek to Gülnar, *S. butleri* from Antalya-Düden, *S. pseudopinardii* from Mersin vicinity, and *S. distans* var. *cili-cica* from Mersin-Silifke are local endemics and grow in restricted areas in the central part of the Taurus range (Davis *et al.* 1988, Gemici & Leblebici 1998, Duman 2000). *Stachys yildirimlii* also is a highly local endemic in this range.

Stachys cydni, which resembles *S. yildirimlii*, was described from Çamlıyayla and Aslanköy districts of Mersin province (Gemici & Leblebici 1998). According to our observations, this species grows in the range about 20 km from Cocakdere valley (Aslanköy) to Cehennemdere valley (Çamlıyayla) continuously. *Stachys yildirimlii* is restricted to only one locality along that range. The latter species is readily distinguished from *S. cydni*, which has a densely felted white-tomentose indumentum, as well as strongly discoloured and entire leaves. The morphological differences between *S. yildirimlii*, *S. cydni* and two other fairly similar species are given in Table 1.

ADDITIONAL SPECIMEN EXAMINED (paratype): **Turkey**. C5 Mersin: Aslanköy, Cocakdere, *Cedrus libani*-*Pinus nigra* forest, clearings, rocky slopes, crevices of limestone rocks, 1950 m, 14.VII.2004 *M. Dinç* 2272 & *H.H. Doğan* (HUB, Yildirimli Herb.).

REPRESENTATIVE SPECIMENS EXAMINED of *Stachys cydni*: **Turkey**. C5 Mersin: Aslanköy, Cocakdere, Şahinkayaş mevki, *Pinus nigra* forest, clearings, rocky slopes, 1500 m, 2003 *M.Dinç* 1794 & *H.H. Doğan* (GAZI): C5 Mersin: Çamlıyayla, Payam, Manastır area, limestone rocks, 1700 m, 2004 *M.Dinç* 2188 & *H.H. Doğan* (KNYA): C5 Mersin: Aslanköy; Cocakdere, *Pinus nigra* forest, clearings, rocky slopes, crevices of limestone rocks, 1700 m, 2004 *M. Dinç* 2275 & *H.H. Doğan* (KNYA)

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