

## *Stachys marashica* (Lamiaceae), a new species from Turkey

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*Stachys marashica* A. İlçim, M. Çenet & Dadandı *sp. nova* (Lamiaceae) from Turkey is described and illustrated. It belongs to the section *Infrarosularis* and resembles *S. cataonica* and *S. pumilia*, with which the new species is compared. The geographical distributions of the species are provided on a map.

Key words: Lamiaceae, new species, *Stachys*, taxonomy

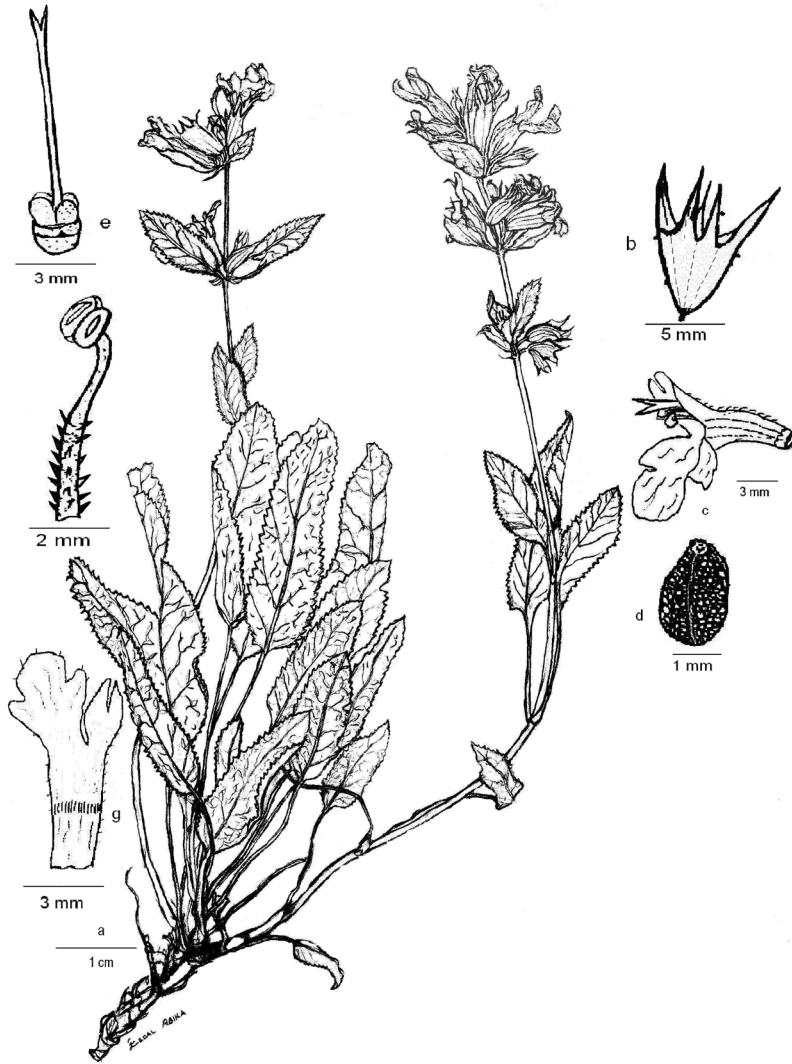
*Stachys* is one of the largest genera of the Lamiaceae, containing ca. 270 species throughout the world. It is a subcosmopolitan genus, most diverse in the warm–temperate regions of the Mediterranean and SW Asia, and with secondary centres in North and South America and southern Africa. There are two main centres of diversity in terms of species number. One is in the South and East Anatolia, Caucasia, northwestern Iran and northern Iraq, and the other is on the Balkan Peninsula (Bhattacharjee 1980). Since the revision by Bhattacharjee (1980) ten species have been added to the flora of Turkey (Davis *et al.* 1988, Yıldız & Tan 1988, Sümbül 1990, Gemici & Leblebici 1998, Duman 2000, Dinç & Doğan 2006).

The first author collected a specimen of *Stachys* near Andırın-Efil ağzı (K. Maraş) region in 2003 during his work towards a revision of *Stachys* sect. *Infrarosularis*. Further plants of the same species were collected from Andırın Harboğazı and Kabak kesme (K. Maraş) the

following year and identified with the help of Bhattacharjee's (1974, 1980, 1982) treatments. The specimen belongs to the section *Infrarosularis*, which forms a coherent group of closely similar chasmophytes in the eastern Mediterranean region of Anatolia. Its taxonomic position is quite isolated, although there is some phenetic resemblance with the widely distributed sect. *Eristomum*.

***Stachys marashica*** A. İlçim, M. Çenet & Dadandı, *sp. nova* (Figs. 1–3)

*Species Stachys pumiliae affinis, sed cauli glabra vel sparse glanduloso-papillosus (non appressed tomentosis); folia caulina glandulosis vel glandulosis et eglandulosis hirsuta, basi cuneata vel truncata, margine dentata-crenata (non canescenti-tomentosa, cordata, crenulata); verticillastri 2–4, 2–13 flori (non 1–2 et 6–10 flori); calyx 9–12 mm longis, glabra vel glandulo-papillosus,*



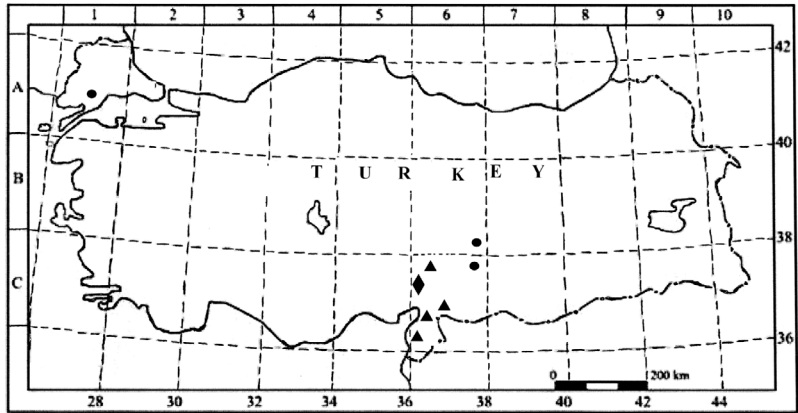
**Fig. 1.** *Stachys marashica* (from the holotype). — **a**: Habit. — **b**: Calyx. — **c**: Corolla. — **d**: Seed. — **e**: Pistil. — **f**: Anther. — **g**: Opened corolla.

*dentis calycis anguste triangulares (non 7.5–9 mm appressed tomentosa, dentis lanceolata); corolla 7.5–12 mm longis (non 12.5–14 mm) differt.*

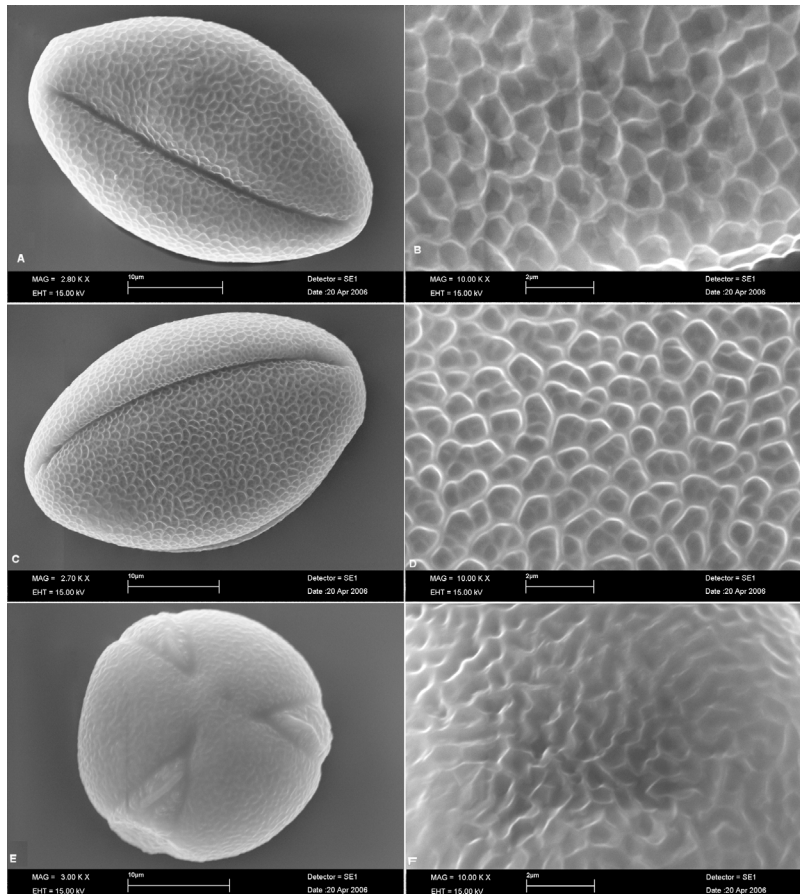
**TYPE:** Turkey. South Anatolia, C6 Kahramanmaraş, Andırın, between Başkonuş mountain and Sarımsak mountain, Efil ağzı, on limestone rocks, 615 m, 10.V.2003 A. İlçim 1299 (holotype KSUH; isotype VANF). **PARATYPES:** Turkey. C6 Kahramanmaraş, Andırın, Harboğazi, on limestone rocks, 385 m, 26.V.2004 A. İlçim 1519 (KSUH), C6 Kahramanmaraş, Andırın, Kabakkesme, on limestone rocks, 875 m, 26.V.2004 A. İlçim 1521 (KSUH).

Suffrutescent perennial with sterile basal

rosettes. Flowering stems 9.5–25 cm long, simple, rarely branched, glabrous, with a few sessile glands, rarely with a mixture of sessile glands and sparse eglandular hairs. Basal leaves 0.8–6.5 × 0.3–3 cm, petiolate, petiole 1–4.5 cm long, oblong, elliptic, rarely ovate, dentate to crenate, base cuneate, truncate, glabrous or with sparse–dense sessile glandular hairs, rarely mixed with eglandular hairs. Cauline leaves 0.4–1.5 cm long petiolate, 1–4 paired, 1.6–2 × 0.7–0.9 cm. Floral leaves 1–2.2 × 0.3–0.8 cm, sessile or petiolate, petiole 1 cm long, smaller than lower leaves, longer or shorter than flowers. Verticillasters 2–4, remote, 2–13 flowered,



**Fig. 2.** Distribution of *Stachys pumilia* (▲) *S. cataonica* (●) and *S. marashica* (◆) in Turkey.



**Fig. 3.** SEM micrographs of pollen grains. — **A** and **B**: *Stachys marashica* (from the holotype). **A**: Equatorial view. **B**: Ornamentation of pollen. — **C** and **D**: *Stachys pumilia* (A. İlçim 1444, KSUH). **C**: Equatorial view. **D**: Ornamentation of pollen. — **E** and **F**: *Stachys cataonica* (A. İlçim 1577, KSUH). **E**: Polar view. **F**: Ornamentation of pollen.

bracteoles 4–5 mm, usually setaceous. Pedicels 1–3 mm. Calyx 9–12 mm, campanulate to narrowly campanulate, glabrous or sessile glandular, teeth 2.5–4 mm, narrowly triangular to subulate, equal or shorter than tube, glabrous

or sparsely pilose, longer than  $1/2 \times$  calyx tube, straight or irregularly curved. Corolla 7.5–12 mm yellow, glabrous, pilose or mixed with glandular and eglandular hairs, tube subsessile. Nutlets oblong ovoid,  $2.2 \times 1$  mm, light brown.

### Key to the new and morphologically similar species

1. Flowering stems ca. 7–8 cm long; verticillasters 2–3; calyx teeth  $1/5$ – $1/3$  × tube ..... 2
1. Flowering stems ca. 10–25 cm long; verticillasters several; calyx teeth ca.  $1/2$  × tube ..... 3
2. Calyx densely tomentose, teeth with glandular and eglandular hairs ..... *S. petrokosmos*
2. Calyx glabrescent, teeth with few eglandular hairs and sessile glands ..... *S. amanica*
3. Stem glabrous or with sessile glands, leaf base cuneate to truncate, calyx 9–12 mm ..... *S. marashica*
3. Stem pilose to tomentose, leaf base cordate to subcordate, calyx 7.5–9 mm ..... 4
4. Stem patent-pilose to long glandular hairy; calyx teeth with dense glandular hairs ..... *S. cataonica*
4. Stem adpressed-tomentose; calyx teeth glabrescent or with sessile glands ..... *S. pumilia*

*Stachys marashica* grows on limestone rocks associated with plants such as *Styrax officinalis*, *Pistacia vera*, *Quercus coccifera* and *Paliurus spina-christi*. It resembles *S. cataonica* and *S. pumilia* but clearly differs from them by the stem being glabrous or sparse pilose with sessile glands, indumentum (not adpressed-tomentose like in *S. pumilia* nor patent-pilose and mixed with long glandular hairs as in *S. cataonica*).

In addition, *S. marashica* differs in the cuneate, truncate leaf base and dentate to crenate leaf margin (not crenulate as in *S. pumilia* and *S. cataonica*). A more detailed comparison of the species is in Table 1.

The pollen grains of *S. marashica*, *S. pumilia* and *S. cataonica* were studied by light microscopy and SEM. The pollen grains of *S. marashica*, studied from the isotype, are isopolar, radiosymmetrical, subprolate (when fresh) and prolate (when acetolised). The aperture is tricolpate and the exine thickness in fresh pollen and in acetolised pollen is  $1.30 \mu\text{m}$  and  $1.36 \mu\text{m}$ , respectively. The intine is  $0.76 \mu\text{m}$  thick (Fig. 3 and Table 2).

The pollen grains of *Stachys cataonica* are isopolar, radiosymmetrical, and prolate in both fresh and acetolised pollens. Some of the important characteristics of these pollens results are; the aperture is tricolpate and the thickness of exine in fresh pollens and acetolised pollens are  $1.13 \mu\text{m}$  and  $1.34 \mu\text{m}$  respectively. The intine is very thin  $0.48 \mu\text{m}$  thick. (Fig 3). The details of this study are presented in Table 2.

*Stachys marashica* is included in the section *Infrasolaris*. The general characteristics that section are: suffrutescent perennials, indumen-

**Table 1.** Comparison of the diagnostic characteristics of *Stachys marashica*, *S. pumilia* and *S. cataonica*.

Character	<i>S. marashica</i>	<i>S. pumilia</i>	<i>S. cataonica</i>
Stem indumentum	glabrous or sparsely pilose with sessile glands	adpressed tomentose	patent-pilose and mixed with long glandular hairs
Leaf indumentum	glabrous or sessile glandular hairs, rarely mixed with eglandular hairs	greyish-white-tomentose	sparsely pilose, with dense short glandular hairs, ± glabrescent
Leaf type	oblong-elliptic, rarely ovate	oblong-elliptic	oblong-elliptic to ovate-oblong
Leaf base	cuneate, truncate	cordate	cordate to subcordate
Leaf margin	dentate to crenate	crenulate	crenulate
Number of verticillasters	2–4	1–2 remote or upper part dense	2–5
Number of flowers	2–13	6–10	8–12
Calyx length (mm)	9–12	7.5–9	7–9
Teeth	narrowly triangular to subulate	lanceolate-subulate	triangular-lanceolate
Calyx indumentum	glabrous or with sessile glandular hairs	adpressed tomentose	pilose, with short glandular hairs
Corolla length (mm)	7.5–12	12.5–14	12–14

**Table 2.** Comparison of pollen morphology of *Stachys marashica*, *S. cataonica* and *S. pumilia* (measurements in  $\mu\text{m}$ ).

Species		Polar axis	Equatorial axis	Shape	Colpus width	Colpus length	Apocolpium	Amb	Exine	Intine
<i>S. marashica</i>	Acetolised pollen	28.45	20.09	1.44	6.33	20.38	5.45	28.73	1.36	
	Fresh pollen	35.09	28.27	1.24	5.29	28.45	7.00	28.80	1.30	0.76
<i>S. pumilia</i>	Acetolised pollen	25.70	18.70	1.39	5.72	20.20	5.56	25.45	1.04	
	Fresh pollen	28.70	20.70	1.39	5.92	22.20	5.86	28.45	1.09	0.63
<i>S. cataonica</i>	Acetolised pollen	25.17	17.67	1.50	5.26	18.83	6.00	25.67	1.34	
	Fresh pollen	27.60	20.45	1.37	5.45	20.85	6.25	30.09	1.13	0.48

tum greyish-tomentose or patent-pilose, ovate-oblong to elliptic basal leaves with cordate to cuneate at base and long-petiolate, 4–12(–16)-flowered verticillasters, few herbaceous to setaceous bracteoles, tubular to subcampanulate and  $\pm$  unequal calyx, exserted to subexserted corolla tubes, obovoid to  $\pm$  oblong nutlets (Bhattacharjee 1980). *Stachys marashica* mainly shows these characteristics but it has 2–13 flowered verticillasters and the stem is glabrous or with an indumentum with sessile glands.

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