

## *Calamintha pamphylica* subsp. *alanyense* (Lamiaceae), a new subspecies from South Anatolia, Turkey

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*Calamintha pamphylica* Boiss. & Heldr. subsp. *alanyense* S. Alan & Ocak *subsp. nova* is described and illustrated from the northwest of Alanya (Antalya) in Turkey. It is characterized by a puberulent, densely glandular flowering stem and calyx, sub-bilabiate calyx divided to 1/8, lower teeth mostly longer than upper teeth, clearly serrate leaves and linear-lanceolate bracteoles. A distribution map of the new subspecies is given. Stem and calyx hairs of three subspecies of *C. pamphylica* are displayed in SEM photographs.

Key words: *Calamintha*, Lamiaceae, new subspecies, taxonomy

The first major taxonomic study of *Calamintha* was that by Boissier (1879). The author recognized three subsections and included nine species in the genus. *Calamintha pamphylica* has two subspecies, subsp. *pamphylica* and subsp. *davisii* in *Flora of Turkey* (Davis & Leblebici 1982). During botanical field trips we observed that subsp. *pamphylica* thrives in shady places, brook sides and crevices around waterfalls at the altitude of 1–230 m by the Dim brook and Cebe-lireis mountain (Alanya–Antalya). Subsp. *davisii* also grows in similar habitats at altitudes between 50 and 557 m in Kemer, Kumluca and Tekirova. However, some specimens were growing in dry and sunny rocky slopes and rock crevices around of the Kargı brook (Alanya) at altitude 1–20 m. As a result of our detailed excursion and morphological and anatomical studies, we concluded

that the latter specimens differ morphologically and ecologically from the other populations. We recognize these specimens as a new subspecies easily distinguished from the two other subspecies especially by indumentum and calyx characters. A more detailed morphological comparison is given in Table 1.

***Calamintha pamphylica* Boiss. & Heldr. subsp. *alanyense* S. Alan & Ocak *subsp. nova* (Figs. 1–4)**

*Affinis subsp. pamphylicae, sed caule puberulo, dense glanduloso (non breviter villosulo et sparsim glanduloso), foliis late ovatis, 10–32 × 5–25 mm, clare serratis (non triangulatis vel deltoideis, 4–18 × 3–15 mm, dilute crenato-denticu-*

*latis*), calyce puberulo, dense glanduloso, diviso ad 1/8 (non villosa, sparsim glanduloso et diviso ad 1/5), calycis dentibus superioribus 0.6–1 mm (non 1–2 mm) recedit.

ETYMOLOGY: The subspecific epithet is derived from the name of the Alanya city where the type was collected.

TYPE: Turkey. C4 Antalya: Alanya, Kargı brook, rock crevices, 2.VII.2002 S. Alan 1005 (holotype ESSE 14384; isotypes GAZI, HUB, Osmangazi Univ. Herb.).

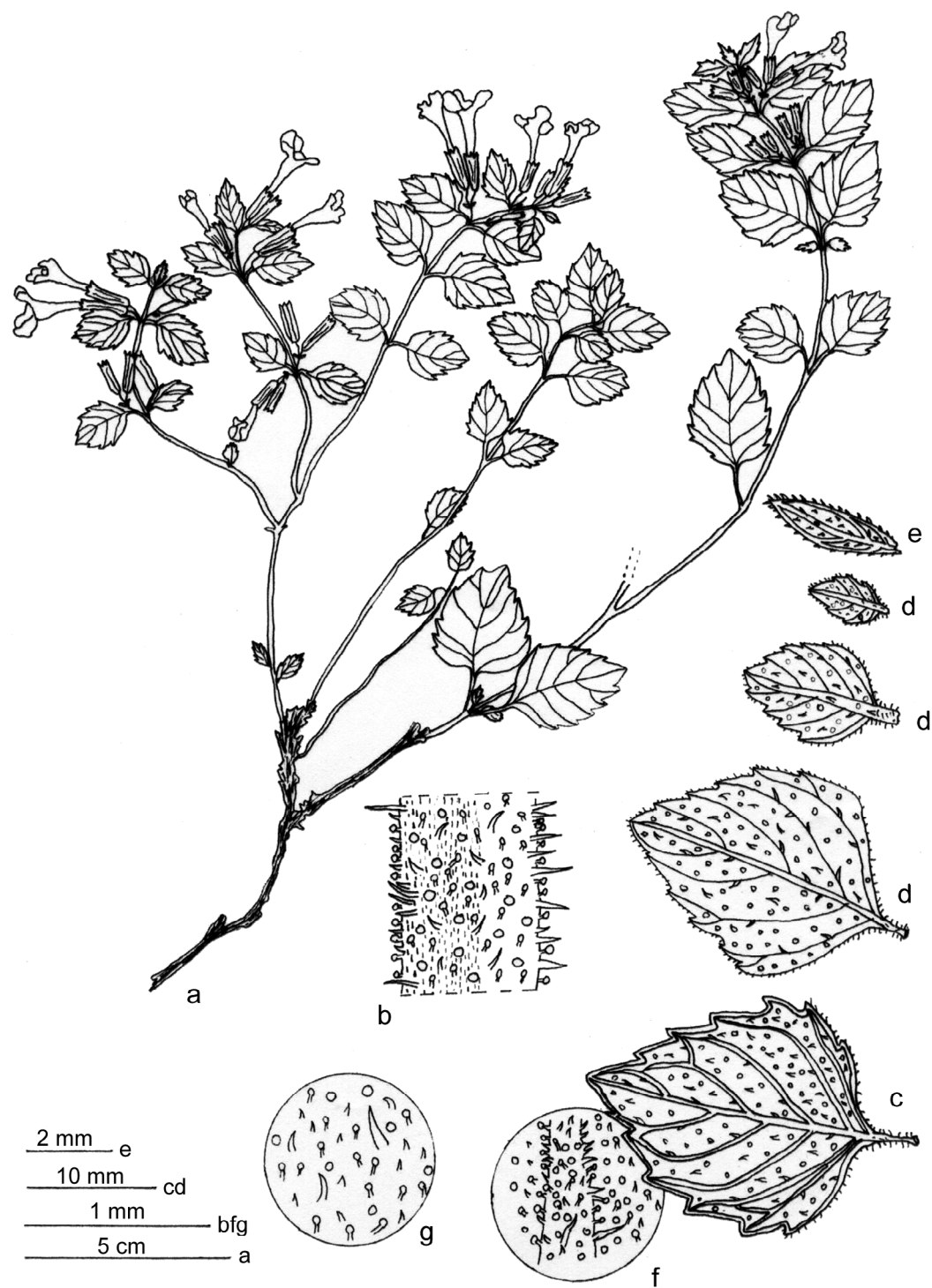
Perennial herbs, 8–35(–45) cm. Stems ascending–erect, usually creeping, tetragonal, simple or branched, sparsely puberulent, densely short-stalked glandular hairy, pale-dotted. Cauline leaves broadly ovate, 10–32 × 5–25 mm, green, with a somewhat purple tip, rounded or cuneate at base, acute, serrate with 5–6(–7) teeth, lateral veins 3–5 pairs, conspicuously craspedodrom, sparsely puberulent, densely short-stalked glandular hairy, sparsely pale-dotted, petioles 3–10 mm. Inflorescence lax, erect, 3–16 cm, verticillasters 2–9, 2–12 flowered, 2–35 mm distant. Bracts broadly ovate, 4–30 × 1.5–22 mm, indumentum as leaves. Bracteoles linear-lanceolate, 1–3 mm, green. Pedicels 1–7 mm, hairy. Calyx usually green, somewhat greenish above, purplish below, 4–12 mm, tubular-campanulate, distinctly 11-veined, sub-bilabiate, divided to 1/8, upper lip 3-toothed, teeth 0.6–1 mm, triangular,

curved, acute–acuminate, short-ciliate margined, lower lip with 2 teeth, teeth 1–2 mm, subulate, short-ciliate margined, upper shorter than lower, calyx tube 3–10 mm, cylindrical, longer than teeth, outside densely short-stalked glandular hairy, sparsely pale-dotted, inside of tube and throat glabrous. Corolla 11–20 mm, tubular-campanulate, tube exceeding calyx, bilabiate, lips deep violet, tube purplish, middle of upper lip and inside of lower lip purple-spotted, flat, upper lip 2-lobed, emerginate at tip, 3 mm, lower lip with 3 equal lobes, lobes rotundate, middle lobe 3 mm, densely covered with long, simple hairs and stalked-glandular ones outside, sparsely puberulent, densely glandular and with yellow sessile glands below; lips densely wrinkled, simple hairy inside. Stamens 4, filaments 1–2 mm, glabrous, white, anthers 1 mm, purple. Ovarium 4-lobed, 0.1–0.2 mm, oblong. Style 9–15 mm, glabrous. Nutlets 1.2–1.5 × 1–1.2 mm, scarlet to light-yellow, oblong–obovoid, triangular.

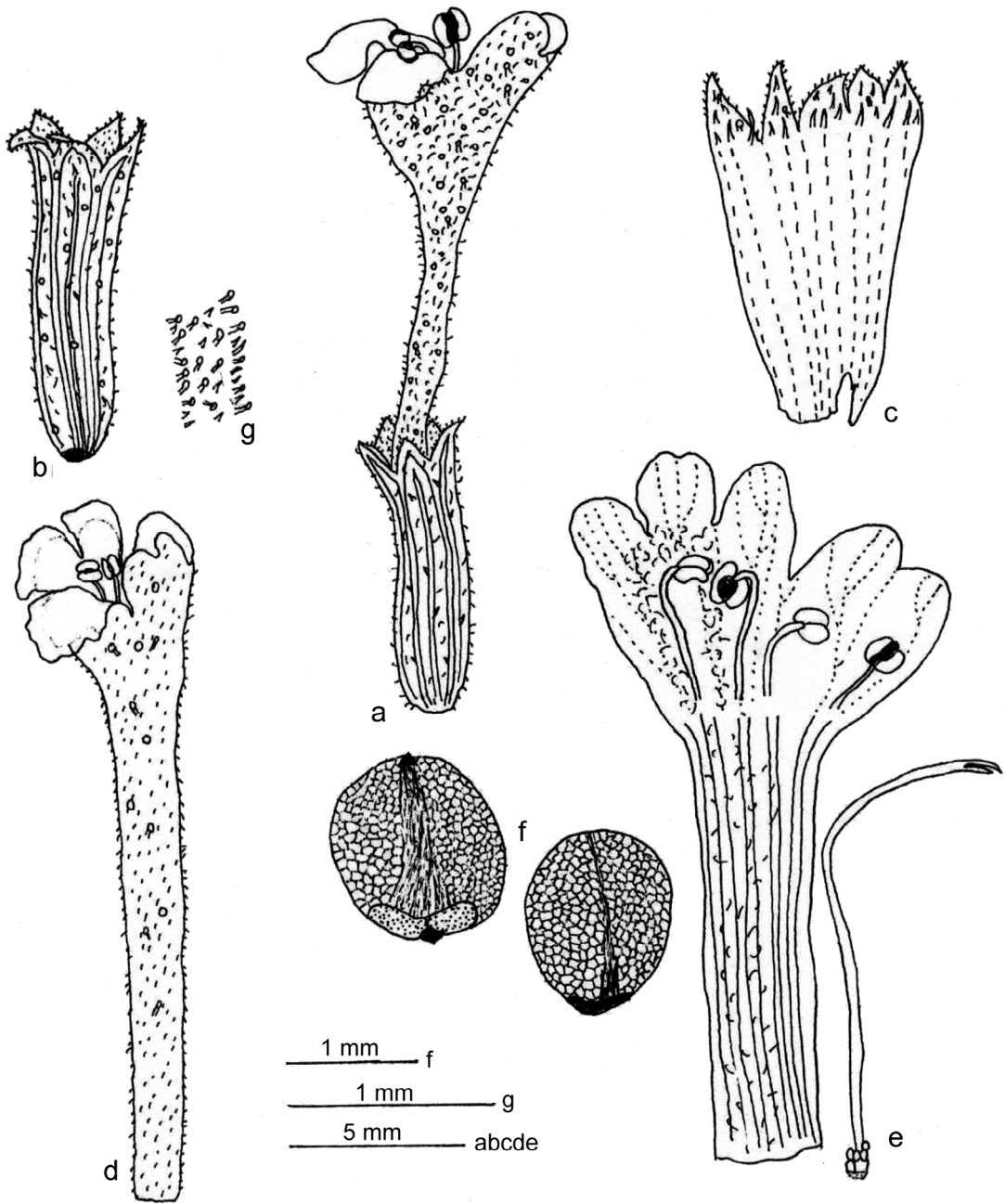
HABITAT ECOLOGY AND PHENOLOGY. This subspecies grows in dry limestone rock crevices and rocky slopes not near brook sides, in clearings of *Pinus brutia* and *Cupressus sempervirens* forests, together with *Ajuga reptans* (endemic), *Ballota saxatilis* and *B. inaequidens* (endemic), at altitude 1–20 m. It flowers in June–September and fruits in August–September.

**Table 1.** Morphological comparison of three subspecies of *Calamintha pamphylica*.

	subsp. <i>alanyense</i>	subsp. <i>pamphylica</i>	subsp. <i>davisii</i>
Stem	8–35(–45) cm, short densely glandular	5–27 cm, villous and sparsely glandular	(5–)10–33 cm, long villose, short puberulent and sparsely glandular
Leaves	broadly ovate, 10–32 × 5–25 mm, rounded–cuneate at base, clearly serrate, acute, 5–6(–7) toothed	triangular or deltoid 4–15(–18) × 3–15 mm, truncate-subcordate at base, shallowly crenate–denticulate, obtuse, 3–6 toothed	ovate–broadly ovate or triangular, 5–25 × 4–20 mm, widely cuneate at base, distinctly crenate–dentate, acute–obtuse, 4–7 toothed
Inflorescence	2–12 flowered	2–6 flowered	2–8(–11) flowered
Bracts	broadly ovate, 4–30 × 1.5–22 mm	triangular–broadly ovate, 4–15 × 2.5–12 mm	ovate or triangular–broadly ovate, 4–22 × 1–18 mm
Bracteoles	linear-lanceolate	lanceolate–acuminate	lanceolate–acuminate
Calyx	short densely glandular, sub-bilabiate to 1/8	villous, sparsely glandular, bilabiate to 1/5	villose and short puberulent, bilabiate to 1/5–1/4
upper teeth	0.6–1 mm	1–2 mm	1–2 mm
lower teeth	1–2 mm, longer than upper, subulate	1–2(–2.5) mm, mostly equal to upper, acuminate–subulate	1.5–2.5(–2.8) mm, mostly equal to upper, acuminate–subulate



**Fig. 1.** *Calamintha pamphylica* subsp. *alanyense* (from holotype). — **a**: Plant. — **b**: Stem. — **c**: Leaves. — **d**: Bracts. — **e**: Bracteole. — **f**: Lower surface hairs of leaf. — **g**: Upper surface hairs of leaf.



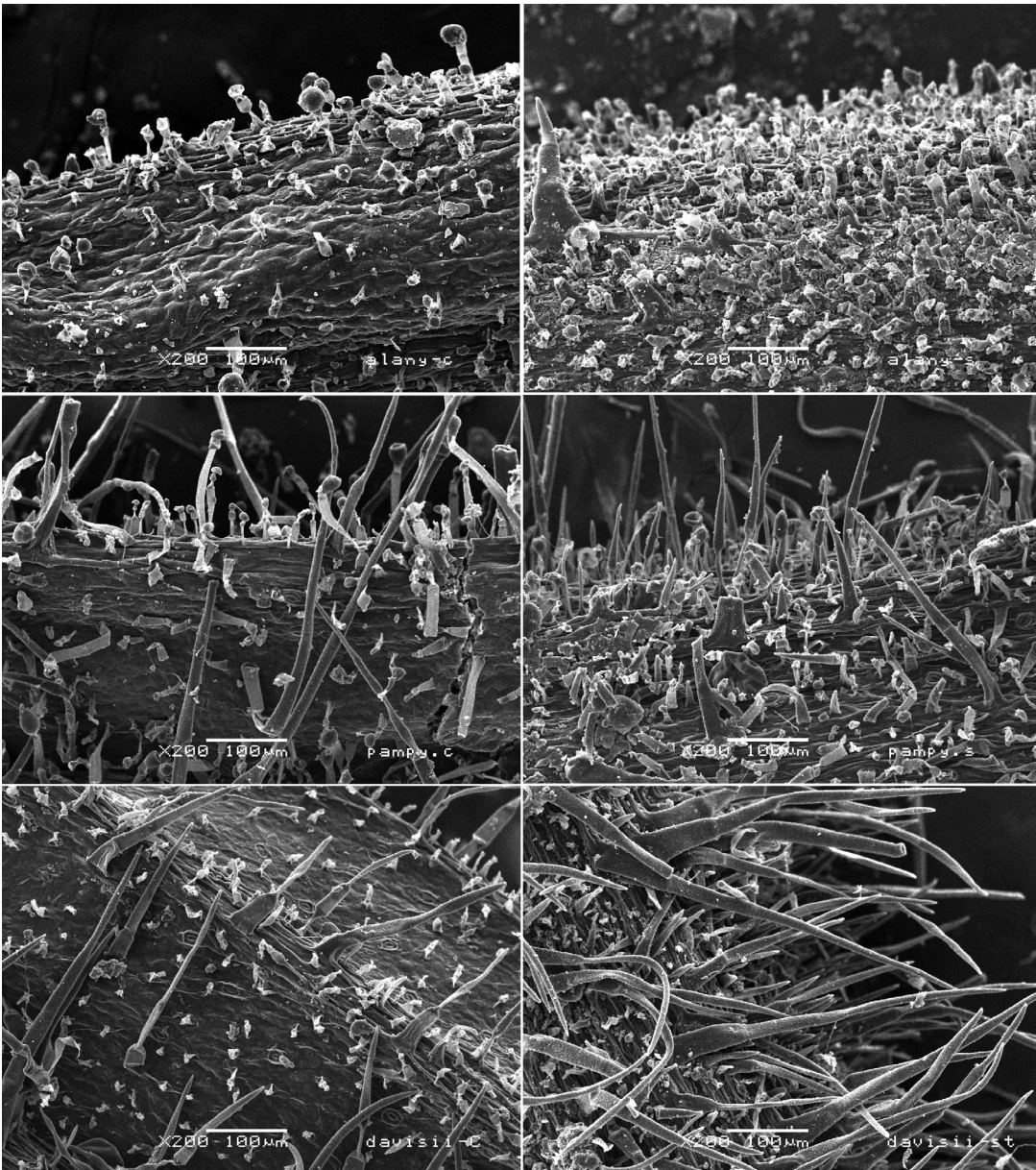
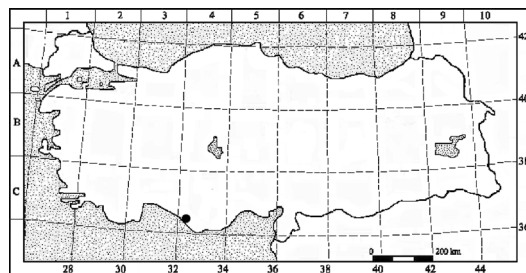
**Fig. 2.** *Calamintha pamphylica* subsp. *alanyense* (from holotype). — **a:** Flower. — **b:** Calyx. — **c:** Inside of calyx. — **d:** Corolla. — **e:** Corolla tube. — **f:** Nutlets. — **g:** Hairs of calyx.

REPRESENTATIVE SPECIMENS EXAMINED: — *C. pamphylica* subsp. *pamphylica*: **Turkey**. C4 Antalya: Alanya, Cebelreis mountain, Dim cave, rocks crevices, 230 m, 2002 *S. Alan, M. Alan* (ESSE 14385); Alanya, Dim brook sides, rocks crevices and under the waterfall, 50 m, 2002, *S. Alan, M. Alan* (ESSE 14383); Alanya, Yerköprü-Türbelenos, rocks, 1200–1300 m, 1994 *H. Duman* (ESSE 10709, GAZI 5621). C4 Konya:

Ermenek, Koş, *Cedrus libani* forests, rocky slopes, 1500 m, 1978 *M. Vural* (KNYA 6410, GAZI 1096). — *C. pamphylica* subsp. *davisii*: **Turkey**. C3 Antalya: Kemer, Kesme valley, *Pinus brutia* forests, limestone rock crevices, 557 m, 2003 *S. Alan, M. Alan* (ESSE 14389), and 77 m, 2003 *S. Alan, M. Alan* (ESSE 14390); Kemer, Tekirova, Yarıkkeşme, rocks, brook sides, 50 m, 2003 *S. Alan, M. Alan* (ESSE



**Fig. 3.** Distribution of *Calamintha pamphylica* subsp. *alanyense* (●).



**Fig. 4.** SEM photographs of hairs of three subspecies of *Calamintha pamphylica*. — Subsp. *alanyense* (top left) calyx and (top right) stem. — Subsp. *pamphylica*: (middle left) calyx and (middle right) stem. — Subsp. *davisii*: (bottom left) calyx and (bottom right) stem.

14388); Kumluca, Adrasan, Ulupınar brook sides, rock crevices, 2004 *S. Alan, Y. B. Köse* (ESSE 14404); Kemer, Kesme valley, Kuzdere road, rocky slopes, 80 m, 1995 *K. H. C. Başer, H. Duman* (ESSE 11292); Kemer, 50–100 m, *P. H. Davis* (ANK 15150); Kemer, Kesme valley, calcareous rocky places, *Pinus brutia-Cupressus sempervirens* forests, 150–300 m, 1978 *H. Peşmen, Ş. Kaplan* (ANK, HUB 3855), and 1978 *H. Peşmen, Ş. Kaplan*, (HUB, ISTE 52651); Kemer, near Kesme valley, 1948 *P.H. Davis* (EGE 14071).

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