Satureja zarkosii (*Lamiaceae*), an interesting species from North Peloponnese, Greece

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Abstract. *Satureja zarkosii* (*Lamiaceae*) is described as a new species endemic to Greece, and illustrated by photographs. It was found on a river bank in a restricted locality in north central Peloponnese, and has its closest affinities with *S. montana* from North and Central Greece. The latter occupies a different habitat and has so far, not been found in the Peloponnese.

Key words: Balkans, endemic, Greece, new species, *Satureja*

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Introduction

The Selinoundas (Greek Σελινούντας) is a river in Achaia, northwestern Greece. It is 47.8 km (29.7 miles) long. Its source is on Mt Erymanthos, arising near the village of Kato Vlasia in southern Achaia. It flows northeast, through the municipalities of Kalavryta and Egialia, ending in the Corinthian Gulf at the village of Valimitika near the town of Egio. Its banks have never been botanically explored.

On a weekend visit to the Monastery of Taxarchion in Egialia, Georgios Zarkos, a high school teacher of mathematics and very observant amateur botanist, decided to take a look at the river banks of Selinoundas. *Epilobium dodonaei* Vill. in full flower attracted him by its splendid purplish-pink display, and he moved closer to take photographs. He was surprised to find a labiate growing in half shade on the stony flats at the edge of the river, a plant he did not recognize despite his frequent botanical explorations in northern Peloponnese. The stems were slender and flexuous, the inflorescence delicate, and the leaves aromatic like *Thymus*. He gathered a few flowering stems for further investigation.

According to Olof Ryding (Copenhagen) the genera *Thymus* L. and *Satureja* L. cannot be distinguished by any single clear-cut difference, only by a combination of several characters. Raymond Harley (Kew) had great difficulties in keying out *Thymus* from related genera, thus *Thymus* often emerges in several places in morphological keys. The most reliable is that most species of *Thymus* have a more pronounced 2-lipped

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calyx, but there are overlaps. Another difference is that *Satureja* has conduplicate leaves, at least when young.

On the basis of the less conspicuously 2-lipped calyx, the subconduplicate leaves, and general facies we assigned our plant to *Satureja*.

Material and methods

The material used in this study was collected during an autumnal visit to the Monastery of Taxarchion in northwest Peloponnese. No rain had fallen in the previous months and the water level was low. A rich flora of *Amaranthus*, *Arundo donax*, *A. plinii* and *Xanthium strumarium* flourished on the stony river flats together with the flotsam and jetsam of earlier floodwaters. Plant material was collected sparingly with the intention of later visits to harvest seed. On return to the laboratory a comparison with herbarium specimens from Greece was carried out. However, the plants did not match any of the Greek or European species, or indeed any taxon described in literature.

Results and discussion

Description of new species

Satureja zarkosii Kit Tan, Ziel. & Vold, **sp. nov.** (Figs. 1-3)

Nomos Achaias, Eparchia Egialias: on the stony banks of the river Selinoundas, 3 km from Moni Pamegiston Taxarchion to Egio, 162 m, 38°11'N, 22°03'E, 20 October 2023, *Kit Tan* & *G. Vold* 33265 (holotype C; isotypes ATH, KOR); *loc. ibid*., flowering stems, 13 October 2023, *Zarkos* s.n. (paratype herb. Kit).

Herbaceous perennial with slender woody stock, whole plant strongly and pleasantly aromatic. Flowering stems numerous, weakly quadrangular to semi-terete, 25–60 cm long, ascending to flexuous-trailing, reddish-brown when young, retrorsely puberulent all round. Leaves opposite, simple, subconduplicate when young, flattening with age, subsessile, entire, ± glabrous, densely glandular-punctate, dark to mid-green. Winter leaves 8–15 (–20) × 2–3.5 (–6) mm, narrowly obovate to linear-spathulate, acute or obtuse, margins stiffly white-ciliate; middle cauline summer leaves oblanceolate to elliptical, acuminate, ciliate. Lower bracts leaf-like, 5–10 mm long, not exceeding verticillasters. Bracteoles 3–4 mm, shorter than calyx. Verticillasters lax, distant, each of two 1–3-flowered cymes; flowers often solitary in axils of bracts near inflorescence apex. Peduncles slender, 7–12 mm long at mid-inflorescence; pedicels 2–5 mm. Calyx sub-bilabiate, 4–6 mm long, tubular-campanulate; tube 10-nerved, straight, white-barbate in throat, densely puberulent and glandular-punctate; teeth acuminate, ± glabrous, glandular-punctate, shorter than or equalling tube, the upper 3 slightly shorter than the lower 2. Corolla distinctly 2-lipped, 10–12 mm long, white, pubescent; upper lip ± flat, shorter than 3-lobed lower lip; tube straight, 5–6 mm long. Fertile stamens 4, didynamous; posterior (upper) pair shorter than the anterior, anterior (lower) pair exserted beyond corolla upper lip; filaments white, anther-thecae divergent, purplish-pink; pollen creamy-white. Ovary 2-carpellate, 4-lobed. Style branches subequal, subulate. Mature nutlets 1.5–2 × 0.75–1 mm, oblong-obovoid to broadly obovoid, blackish-brown, glabrous.

Stony damp river banks and flats subject to inundation, c. 160 m. Flowering from mid-October to early November, fruiting till mid-November. Rare, probably endemic to Greece.

Affinities

A member of the *S. montana* group. Distinguished from *S. montana* L. by its slender woody stock, long flexuous flowering stems with lax, distantly spaced, few-flowered verticillasters, longer peduncles and pedicels, lower bracts not exceeding the verticillasters, etc. *Satureja montana* is a small branched shrub with a stout woody stock and many-flowered verticillasters densely crowded on the flowering stems due to the short peduncles and pedicels less than 5 mm long. It has so far not been found in the Peloponnese. It occurs in dry, open, sunny and rocky places in North and Central Greece, flowering from June to Septem-

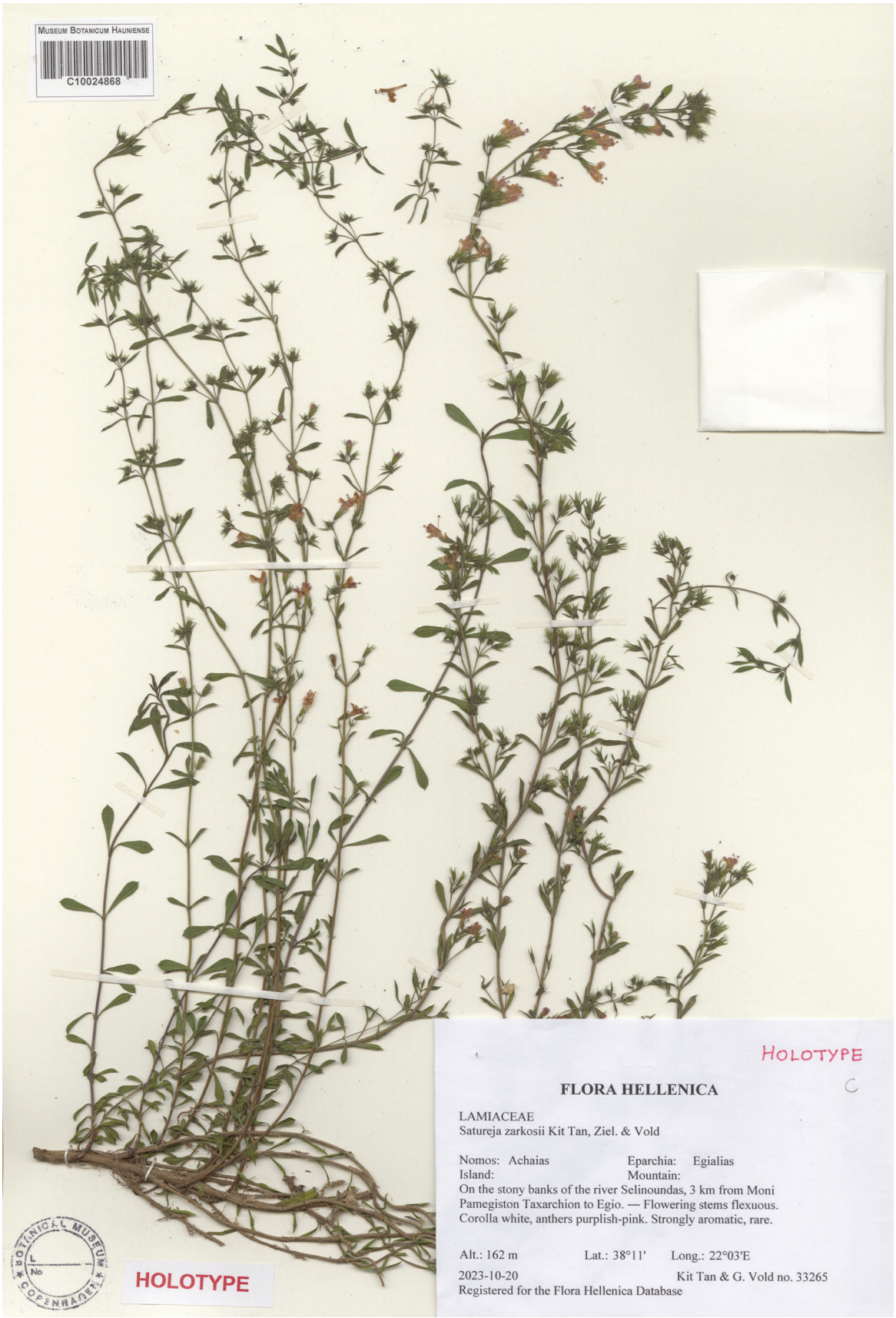

Fig. 1. *Satureja zarkosii*: holotype (*Kit Tan* & *G. Vold* 33265).

Fig. 2. *Satureja zarkosii*: **a**, habit in shaded places; **b**, winter foliage; **c**, part of inflorescence; **d**, flower in frontal view; **e**, mature nutlets.

Fig. 3. Distribution of *Satureja zarkosii* and *S. montana* in Greece.

ber whereas *S. zarkosii* is late autumnal flowering and found in damp shady places on river banks together with *Epilobium dodonaei* and *Alnus glutinosa*. Other plants in the near vicinity are *Salix alba*, *Calamintha nepeta*, *Melilotus albus*, *Amaranthus* spp.

The *Satureja montana* group comprises several taxa distributed in mostly mountainous and hilly regions around the Mediterranean, from Spain to Turkey, Lebanon, Syria and the Crimea. Several species have been separated by the degree of zygomorphy in the calyx, a character refuted by Davis (1982) for the Turkish taxa. The number of taxa constituting the group in Greece ranges from 4 (Ball & Getliffe 1972; Davis 1982) to 8 (Greuter & al. 1986). In a comprehensive study of this group Dardioti (2005) assigned the Greek plants to six species, viz., *S. spinosa* L., *S. cuneifolia* Ten., *S. parnassica* Heldr. & Sartori ex Boiss., *S. pilosa* Velen., *S. montana* L. and *S. horvatii* subsp. *macrophylla* (Halácsy) Baden. *Satureja cuneifolia* from the Ionian islands of Ithaka (not recently confirmed), Zakinthos and Kefallinia (Mts Ainos and Roudhi) shares some similarities and a late flowering period with *S. zarkosii*; until now, it has the most restricted distribution in Greece although it has a wider distribution elsewhere in West and Central Mediterranean. However, its inflorescences are not lax, the peduncles are short or absent, the corolla much smaller and the calyx not densely glandular-punctate.

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