

## ALYSSUM SAMIUM: A NEW ENDEMIC FROM SAMOS

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**ABSTRACT.** *Alyssum samium* T. R. Dudley & D. Christodoulakis, *sp. nov.* (Cruciferae) is described from the east Aegean island of Samos (Greece). It is a chasmophyte of limestone rocks of Mt Kerkis, growing between 850 and 900m and closely related to *A. fragillimum* (Baldacci) Rech. f.

In 1979 an undescribed taxon of *Alyssum* was collected on the Greek island of Samos by the junior author, with supplementary fruiting specimens being collected in 1981. These collections represent a vicarious species new to science and endemic to that island. This new species, *Alyssum samium*, is very closely allied to and a vicariant of *A. fragillimum* (Baldacci) Rech. f., an endemic of higher altitudes in Crete. However, *A. samium* is very distinct and cannot be confused with *A. fragillimum* or any other species.

***Alyssum samium* T. R. Dudley & D. Christodoulakis, *sp. nov.* (Section *Odontarrhena*). Figs 1, 2.**

Valde affinis *A. fragillimo* (Baldacci) Rechinger f. sed habitu ascendenti, omnibus partibus vegetativis maioribus, floribus et fructibus minoribus differt.

Type: Greece, insula Samos, mons Kerkis supra pagum Drakei, in ditone 'Purnara' dicto, alt. 850-900m, in saxosis calcareis, 27 viii 1981, D. Christodoulakis 1601 (holo. UPA; iso. E, NA, UPA).

Plants perennial, caespitose, 5-15cm wide and tall, multibranched, aphyllous and strongly woody at base, overall indumentum silvery grey composed of dense and appressed prominently dark-punctate stellate-lepidote hairs, 0.15-0.25mm diam., with 20-30 equally branched rays. *Flowering and fruiting stems* slender, ascending or erect, sometimes lax, 3-15cm, densely foliate toward apices, efoliate at base, covered with silvery grey and densely appressed stellate-lepidote hairs. *Leaves of flowering and fruiting stems* decreasing in size upward, deciduous after anthesis, oblanceolate-obovate or narrowly spatulate, 2-8(-10) × 1.2-2(-3)mm, obtuse or subacute, silvery grey. *Sterile shoots* densely foliate at apices, erect or ascending from thick woody caudex, bases efoliate, 0.5-3(-5)cm, silvery grey. *Leaves of sterile shoots* (1-)2.5-8 × 1-2mm, linear-obovate or oblanceolate or narrowly spatulate, obtuse, densely silvery grey. *Corymbs* generally 2-3-branched or simple (0.5-)1-2cm long and wide, multifruited with (3-)10-30 silicles, branches strictly ascending and secondary corymbs may be subumbelliform. *Pedicels* rigid, ascending or divergent, 2-7mm, with dense silvery grey, appressed or subappressed stellate hairs. *Sepals* deciduous, membranous, ovate, cucullate, acute, 0.8-1(-1.5) × 0.4-0.5(-0.6)mm, covered with dense silvery grey stellate-lepidote hairs. *Petals* pale yellow,

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FIG. 1. *Alyssum samium*. Isotype (UPA).

subulate or narrowly linear-spathulate, rotund-obtuse and frequently emarginate to retuse at apices,  $(1-1.5-2 \times 0.3-0.5\text{mm})$  at limb, totally glabrous, gradually attenuate into claws. *Stamens* equal,  $1-1.5\text{mm}$ , appendages  $\frac{1}{2}$  or less the length of filaments, acute or bidentate and connate to the lower half of filaments. *Ovaries* at anthesis at first appearing glabrate but minutely papillose and with very small, remotely distributed primordial stellate hairs. *Silicules* narrowly elliptic or ovate-elliptic,  $(2-3-4(4.5) \times 1.5-2\text{mm})$ , attenuate-acute or subobtuse at apices, bases rotund-obtuse; valves equally inflated, nearly compressed, appearing viridescent or slightly greyish, covered with appressed, sparse and remotely dispersed epunctate, caducous stellate hairs  $0.1-0.15(-0.2\text{mm})$  diam. with 6-15 branched rays. *Styles* glabrate at maturity but when young minutely pubescent on bases, very slender, erect or most often deflexed,  $0.8-1\text{mm}$ , basally dilated. *Seeds*  $1.5-2 \times 1\text{mm}$ , unwinged.

Additional material examined:

GREECE. Insula Samos, mons Kerkis supra pagum Drakei, in ditione 'Purnara' dicto, alt. 850-900m, in saxosis calcareis, 14 iv 1979, D. Christodoulakis 364 (E, NA, UPA). Samos, Runemark 16946 (LD, W) [this depauperate collection was incorrectly referred to *A. condensatum* subsp. *flexibile* (Nyárády) T. R. Dudley by Dudley (1964, 1965: 402)].

*Alyssum samium* is a local endemic species of the island of Samos, in the eastern Aegean. It occurs on the northern slopes of Mt Kerkis at an altitude of 850-900m, and grows in crevices or hollows of eroded limestone rocks, where there is a small amount of soil.



FIG. 2. *Alyssum samium* (holotype). A, fruiting branch; B, hair from leaf surface.

In this rocky biotope the associated species of the sparse vegetation are mostly cushion-forming plants such as: *Genista parnassica* Halácsy, *Atraphaxis billardieri* Jaub. & Spach, *Acantholimon ulicinum* (Willd. ex Schultes) Boiss. subsp. *ulicinum* var. *ulicinum*, and *Silene urvillei* Schott. Several grasses are also present, including: *Festuca heldreichii* (Hackel) Alexeev, *Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman, *Sesleria anatolica* Deyl, and *Poa bulbosa* L. Chasmophytes are well represented by, e.g.: *Inula heterolepis* Boiss., *Euphorbia rigida* M. Bieb., *Sideritis sipylea* Boiss., *Micromeria juliana* (L.) Benth., *Centaurea acicularis* Smith var. *urvillei* Boiss., *Aubrieta deltoidea* (L.) DC., *Dianthus zonatus* Fenzl var. *zonatus*, *Bupleurum trichopodium* Boiss. & Spruner, *Verbascum pycnostachyum* Boiss. & Heldr., *Anthemis cretica* L. subsp. *leucanthemoides* (Boiss.) Grierson, *Minuartia verna* (L.) Hieron., *Aethionema saxatile* (L.) R. Brown, *Draba bruniifolia* Steven subsp. *archipelagi* (Gilg ex Schulz) Coode & Cullen, and *Ceterach officinarum* DC.

Without question the closest affinity of *A. samium* lies with the vicariant *A. fragillimum* an endemic to Crete at altitudes of 1850–2730m. Both species are well distinguished from one another and their contrasting and differential characters are detailed in Table 1.

TABLE 1  
Comparison of *Alyssum samium* and *A. fragillimum*

|                          | <i>A. samium</i>  | <i>A. fragillimum</i>   |
|--------------------------|---|---|
| Habit                    | ascending, 5–15cm tall and across   | procumbent, (0.5–)1–3(–4)cm tall and 2–8cm across   |
| Indumentum               | dense silvery-grey, dark-punctate, stellate-lepidote hairs 0.15–0.25mm diam. with 20–30 branched rays   | sparse greyish green, light-punctate stellate hairs 0.4–0.5mm diam. with 10–20 branched rays  |
| Fruiting stems           | 3–15cm long, erect to ascending, stiff or semi-tortuose   | 0.5–4cm long, suberect to procumbent, lax-flexuose and fragile  |
| Leaves of fertile shoots | 2–8(–10) × 1.2–2(–3)mm, oblanceolate-obovate or narrowly spathulate, uniformly scattered along stems and patent, decreasing in size upward and deciduous after anthesis | 2–4 × 0.5–1.5mm, oblong-spathulate to orbicular spathulate, crowded and imbricated along stems, increasing in size upward and persistent through fruiting |
| Sterile shoots           | 0.5–3(–5)cm long, stout, lax and ascending  | (0.2–)0.5–1.5(–2.5)cm long, slender and flexible-fragile, always densely conferted and aggregated   |
| Leaves of sterile shoots | (1–)2.5–8 × 1–2mm, linear-obovate to oblanceolate or narrowly spathulate, and obtuse, patent  | (0.5–)1–3(–4) × 0.5–1.5mm, spathulate to orbicular-spathulate and acute, strongly imbricated  |
| Fruiting corymbs         | generally 2–3-branched or unbranched but not noticeably umbelliform, (0.5–)1–2cm long and wide, multifruited with (3–)10–30 silicles                                    | unbranched, greatly abbreviated and capitate-umbelliform, 0.5–1cm long, few-fruited with 3–8 silicles   |

TABLE 1 (cont.)

|                     | <i>A. samium</i>   | <i>A. fragillimum</i>  |
|---------------------|--|--|
| Fruiting pedicels   | 2-7mm long, silvery grey with dense stellate hairs   | 1-3(-3.5)mm long, greenish with sparse and remote stellate hairs   |
| Sepals              | 0.8-1(-1.5) × 0.4-0.5(-0.6)mm, ovate and acute, dense silvery grey with stellate-lepidote hairs  | 1.5-2.5 × 0.5-0.8mm, linear-lanceolate and obtuse, greenish with sparse and remote stellate hairs  |
| Petals              | (1-)1.5-2 × 0.3-0.5mm wide at limbs, pale yellow, totally glabrous, subulate or narrowly linear-spathulate and attenuate into claws; apices rounded and frequently emarginate to retuse  | 2-2.5(-3) × 0.7-1(-1.5)mm wide at limbs, deep yellow, lower $\frac{1}{2}$ of claws with stellate hairs, strongly spathulate with distinct expanded limbs and abruptly constricted into claws; apices broad-obtuse to truncate  |
| Stamens             | short and equal, 1-1.5mm; appendages of all stamens similar, acute or bidentate, $\frac{1}{2}$ or less the length of filaments and connate to lower half of filaments  | long and unequal, 2-2.5mm; appendages of long and short stamens dissimilar, those of long stamens acute, as long as filaments and connate $\frac{1}{2}$ or more the length of filaments, those of short stamens acute, as long as filaments and only very slightly connate to filament bases |
| Ovaries at anthesis | appearing glabrate but minutely papillose and with very small primordial stellate hairs  | prominently pubescent with dense and overlapping stellate hairs  |
| Silicles            | (2-)3-4(-4.5) × 1.5-2mm, narrow-elliptic or ovate-elliptic; valves equally inflated and compressed, greenish or slightly greyish with sparse-random and smaller caducous stellate hairs, 0.1-0.15(-0.2)mm diam. with 6-15 branched rays; apices attenuate-acute to subobtus; bases rounded | 3.5-5 × 2-2.5(-3mm); valves unequally inflated, rhomboid-elliptic, attenuate-obtus at both ends, greyish-canescens with large, dense and overlapping, persistent 15-25-rayed stellate hairs, 0.4-0.5mm diam.   |
| Styles              | 0.8-1mm, long and very slender, at first erect then deflexed, minutely pubescent at bases when young, then glabrate; bases dilated   | 1-1.5mm long, stout, rigid and straight, always glabrous; bases not dilated  |
| Distribution        | Samos; 850-900m  | Crete; 1850-2730m  |

***A. fragillimum* (Baldacci) Rech. f.**

In the course of evaluating the Christodoulakis materials of *A. samium* it was necessary to study the following collections of *A. fragillimum*, which were all collected on Crete: Sphakia (Sfakia), Hagios Pneuma, 21-22 vii 1893, *A. Baldacci* 104 (Type: BM, BP, BR, FI, K, M, W, WU) [non *A. Baldacci* 174 = *A. sphacoticum* (BR, G, K, LE, P. W)]; Levka Ori, Mts Pachnes, 2300m, 16 vii 1942, *K. H. Rechinger f.* 13833 (BM, E, G, M, US, W); Mt Pachnes, 2300-2400m, 6 vii 1961, *W. Greuter* 3780 (B, G); between Eklissidia and Mavro Korfali, NW of Mt Pachnes, 1850m, 6 vii 1961,

*W. Greuter* 3763 (G); Mt Kastro, 2000–2200m, 2 vii 1962, *W. Greuter* 4842 (G); White Mts, Svowichti, 2200–2300m, 4 viii 1950, *P. H. Davis* 18127 (E, K); Hagios Pneuma, 1900–2100m, 1936, *F. Lemperg* 1174 (GB); Hagios Pneuma, 2730m, vii 1933, *S. C. Atchley* 1713 (K); Hagios Pneuma, vi 1932, *F. Guiol* 2132 (BM).

It was discovered during this study that the type collection of *A. fragillimum* has previously been cited incorrectly. Rechinger (1943:77) cited *Baldacci* 174 as the type of *A. fragillimum* when he raised *A. alpestre* var. *fragillimum* Baldacci (*Malpighia* 9:58, 1895) to specific rank. This citation by Rechinger is an error, as without question *Baldacci* 174, collected on 11 August 1893 from Mt Ida in District Amari, represents *A. sphacoticum* Boiss. & Heldr. (in Boissier, 1849:35), another endemic of Crete. The type material of *A. fragillimum* is *Baldacci* 104.

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