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***Limonium kardamylii* (Plumbaginaceae), a New Species from S Peloponnisos (Greece)**

By

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With 4 Figures

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Summary

ARTELARI R. & KAMARI G. 1995. *Limonium kardamylii* (Plumbaginaceae), a new species from S Peloponnisos (Greece). – *Phyton* (Horn, Austria) 35 (1): 131–137, 4 figures. – English with German summary.

Limonium kardamylii ARTELARI & KAMARI is described as a new species found on the coast of Kardamyli in S Peloponnisos. Its diploid chromosome number ($2n=18$), as well as the pollen and stigma combination, support the view that it is a sexually reproducing species which belongs to the *L. cosyrense* group. Many of the species of this group are endemic to the Ionian area. The differences from other species of the group are indicated and the relationships of *L. kardamylii* with related species are briefly discussed.

Zusammenfassung

ARTELARI R. & KAMARI G. 1995. *Limonium kardamylii* (Plumbaginaceae), eine neue Art vom S-Peloponnes (Griechenland). – *Phyton* (Horn, Austria) 35 (1): 131–137, 4 Abbildungen. – Englisch mit deutscher Zusammenfassung.

Limonium kardamylii ARTELARI & KAMARI wird als neue Art beschrieben, die an der Küste von Kardamyli am S Peloponnes entdeckt worden ist. Die diploide Chromosomenzahl ($2n=18$), wie auch die Kombination zwischen Pollen und Stigma, unterstützen die Ansicht, daß es sich um eine sexuelle Art handelt, die zur *L. cosyrense*-Gruppe gehört, von der viele Arten im Ionischen Raum endemisch sind. Die Unterschiede zu anderen Arten der Gruppe sind angegeben und die Beziehungen zwischen *L. kardamylii* und ihren nächsten Verwandten werden kurz diskutiert.

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Limonium kardamylii ARTELARI & KAMARI, spec. nova

Descriptio: Planta perennis, glabra, usque ad 40 cm alta. Folia (1.5–)2–3(–5.5) × (0.2–)0.3–0.4(–0.8) cm, oblanceolata, obtusa, erecta, revoluta, in petiolum longum gradatim attenuata, uninervia, florendi tempore non omnia emarcida. Caules floriferi, erecti, fragiles, non vel paulo ramosi, ramis sterilibus paucis vel nullis. Inflorescentia corymbosa. Spicae (2.5–)5–9(–10) cm longae, fragiles, laxae. Spiculae 5–6 mm longae, 2–3 pro cm dispositae. Bractea exterior 1.5–2 mm longa, triangulari-ovata, ± acuta. Bractea interior (3–)3.5–4 × 2.3–2.5 mm, elliptica, valde acuta ad obtusa, margine hyalina 0.2–0.5 mm lata, parte centrali herbacea, acuminata, acumine (0.2–)0.5–0.8 mm longo. Calyx 4.5–5 mm longus, tubo limbo subaequilongo, basi et costae laxe piloso; lobi calycis 0.6–1 mm longi, obtusi. Corolla 7–7.5 mm longa, violacea.

Chromosomatum numerus: $2n=18$.

Affine *L. saracinato* ARTELARI, sed caulibus floriferis non vel paulo ramosis, fragilibus, ramis sterilibus paucis vel nullis, foliis oblanceolatis, angustioribus, rectis et spicis longioribus manifeste differt.

Holotypus: Flora Hellenica: Peloponnisos, Nomos Messinias, Ep. Kalamon: ad pagum Kardamyli, in conglomeratis littoreis (36°53'N 22°13'E), 23. 9. 1990, leg. PHITOS & KAMARI 20789 (UPA).

Icones: Fig. 1 and 2.

Description: Perennial, glabrous, up to 40 cm. Leaves (1.5–)2–3(–5.5) × (0.2–)0.3–0.4(–0.8) cm, oblanceolate, obtuse, revolute, straight, gradually tapering into a petiole much longer than lamina, 1-veined, the majority withered at anthesis. Flowering stems erect, fragile, not or few-branched; non-flowering branches absent or few at the lower part. Inflorescence corymbose. Spikes (2.5–)5–9(–10) cm long, fragile, lax. Spikelets 5–6 mm long (including calyx), 2–3 per cm. Outer bract 1.5–2 mm long, triangular-ovate, ± acute. Inner bract (3–)3.5–4 × 2.3–2.5 mm, elliptical, slightly acute to obtuse, with a hyaline margin 0.2–0.5 mm wide; herbaceous part of the bract forming a thin point (0.2–)0.5–0.8 mm long. Calyx 4.5–5 mm long, sparsely hairy with short decumbent hairs; limb about equal to the tube, lobes 0.6–1.0 mm long, obtuse. Corolla 7–7.5 mm long, violet. Chromosome number: $2n=18$.

Specimina visa (Fig. 3): Peloponnisos: Nomos Messinias, Ep. Kalamon: ad pagum Kardamyli, in conglomeratis littoreis (36°53'N 22°13'E), 23. 9. 1990, leg. PHITOS & KAMARI 20789 (UPA, holotype); Agios Nikolaos, in conglomeratis littoreis (36°49'N 22°16'E), 15. 9. 1991, leg. ARTELARI & CHONDROPOULOS 1246 (UPA); Stoupa, in conglomeratis littoreis (36°50'N 22°15'E), 15. 9. 1991, leg. ARTELARI & CHONDROPOULOS 1247 (UPA).

Karyology: *Limonium kardamylii* is diploid in all populations examined with $2n=18$ chromosomes. Its karyotype is similar to those of diploid *Limonium* species endemic to the Ionian area (ARTELARI & KAMARI

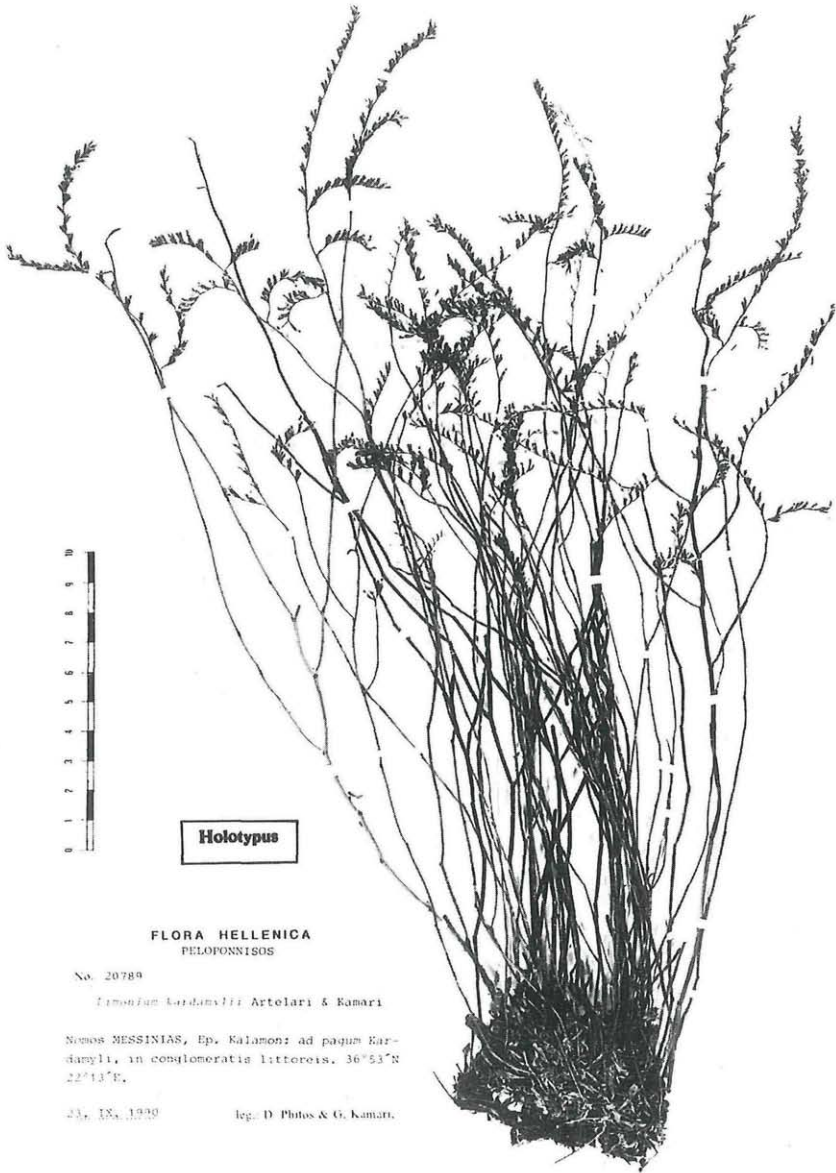


Fig. 1. *Limonium kardamylii*, Holotypus (UPA).

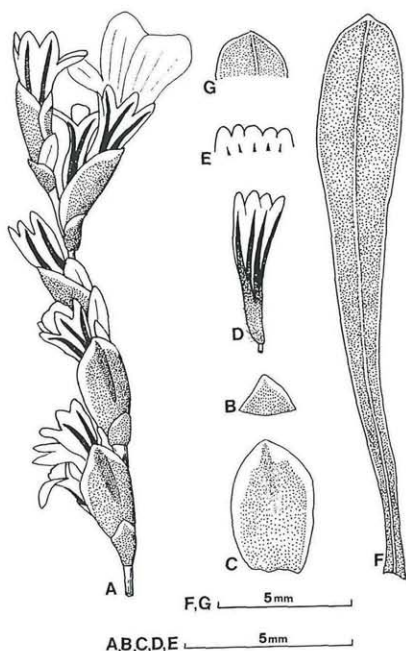


Fig. 2. *Limonium kardamylii*, Isotypus (UPA). – A spike. – B outer bract. – C inner bract. – D calyx. – E calyx lobes. – F leaf. – G leaf apex.

1986). It consists of five submetacentric (sm), three metacentric (m), and one acrocentric (st) chromosome pairs. The longer submetacentric pair and the acrocentric one have satellites which are not always visible in all chromosomes (Fig. 4).

Reproduction: The study of the pollen and stigma combination as well as pollen fertility revealed that *L. kardamylii* reproduces sexually. In all populations both self-incompatible combinations A and B occur at about the same ratio (1:1) (see ARTELARI & KAMARI 1986: 511 for references) and indicate self-sterility of the plants. The pollen fertility of the populations is high and averages 80–95%.

Taxonomic Relationships

Limonium kardamylii belongs to the group of *L. cosyrense* (PIGNATTI 1972) and especially to the diploid Ionian endemics (ARTELARI 1984). From the species of this group it is more related to *L. saracinatum* ARTELARI, which is distributed in Kefallinia, Ithaki, and Levkada, than to *L. coronense* ARTELARI which occurs in the same gulf of Messinia, on the rocky coast of Koroni, and to *L. pylium* ARTELARI from the western coast of Peloponnisos (Pilos, Methoni, Kiparissia, Glifa, etc) (Fig. 3).

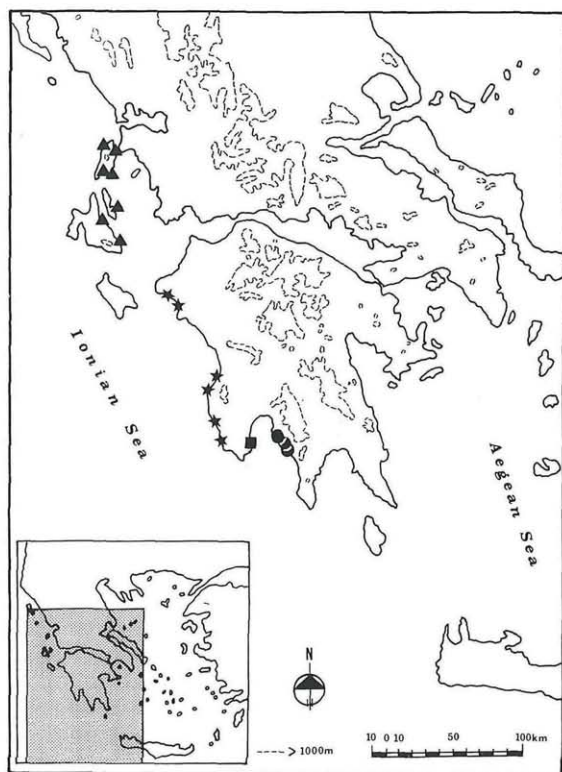


Fig. 3. Geographical distribution of *Limonium kardamylii* (dots) and its related species *L. saracinatum* (triangles), *L. pylum* (asterisks), and *L. coronense* (square).

The main morphological differences of *L. kardamylii* from those of *L. saracinatum* are: flowering stems fragile, not or few-branched; non-flowering branches absent or few at the lower part; narrower, straight, oblanceolate leaves, and longer spikes (Table 1).

It differs from *L. coronense* and *L. pylum* principally in the non or few-branched fragile flowering stems, the few or absent non-flowering



Fig. 4. Mitotic metaphase plate of *Limonium kardamylii* (from the type gathering) with $2n=18$ chromosomes. – Scale bar = 10 μ m.

Table 1.

Main morphological differences between *Limonium kardamylii* and related species

	<i>L. kardamylii</i> ARTELARI & KAMARI	<i>L. saracinatum</i> ARTELARI	<i>L. coronense</i> ARTELARI	<i>L. pylum</i> ARTELARI
Leaves cm	(1.5-)2.0-3.0(-5.5) × (0.2-)0.3-0.4(-0.8) oblanceolate, straight	(1.0-)1.6-5.6(-6.0) × 0.2-0.12 oblanceolate- spatulate, lax	2.3-7.2 × 0.3-0.12 oblanceolate, lax	1.0-7.0 × 0.2-9.0 oblanceolate lax
Flowering stems	Erect, very fragile, non or few- branched	Erect, ± fragile, branched from the base	Erect, ± fragile, branched from the base	± Fragile, flexuose, much branched from the base, the bran- ches diverging at an angle of up to 160°
Non-flowe- ring branches	Absent or few	In the lower 1/2 or 2/3	Many, in the lower 3/4	In the lower 1/2
Spike length cm	(2.5-)5.0-9.0(-10)	1.5-7.0	2.3-8.5(-10.0)	0.8-4.0
Spikelets per cm	2-3	2-3(-4)	3-4	3-5
Spikelet length mm	5.0-6.0 (including calyx)	7.0-8.0 (including calyx)	7.5-9.0(-10.0) (including calyx)	7.0-8.0 (including calyx)
Outer bract length mm	1.5-2.0	(0.5-)1.0-1.5(-1.7)	1.0-1.6(-1.8)	0.4-1.3(-1.6)
Inner bract length mm	(3.0-)3.5-4.0 subacute to obtuse	(3.0-)3.4-4.2(-4.6) obtuse	3.6-4.0(-4.2) acute	(3.0-)3.2-4.2 obtuse
Calyx length mm	4.5-5.0	(4.4-)4.6-5.7	4.9-5.6	4.5-5.2
Corolla length mm	7.0-7.5	6.5-7.0	6.5-8.0	6.0-7.0

branches, the narrower, straight leaves, and the longer and more lax spikes (for details see Table 1).

According to our observations so far, the distribution area of *L. kardamylii* is the southeasternmost site of occurrence of the group of diploid ($2n=18$) *Limonium* endemics. It is interesting that the presently known *Limonium* species which occur southwards in the same area as well as in the next gulf of Lakonia are polyploid, most of them characteristic of the Aegean area, i.e., *L. narbonense* MILLER, *L. doerfleri* (HALÁCSY) RECH. fil., *L. graecum* (POIRET) RECH. fil., *L. ocymifolium* (POIRET) O. KUNTZE, *L. hyssopifolium* (GIRARD) RECH. fil., and *L. virgatum* (WILLD.) FOURR. (ARTELARI unpubl.).

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