

**Zeitschrift:** Candollea : journal international de botanique systématique = international journal of systematic botany

**Herausgeber:** Conservatoire et Jardin botaniques de la Ville de Genève

**Band:** 44 (1989)

**Heft:** 2

**Artikel:** Limonium creticum (Plumbaginaceae) : a new species from Kriti island (Aegean sea) Greece

**Autor:** Artelari, R.

**DOI:** <https://doi.org/10.5169/seals-879618>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 25.04.2026

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

# Limonium creticum (Plumbaginaceae), a new species from Kriti island (Aegean sea) Greece

R. ARTELARI

## RÉSUMÉ

ARTELARI, R. (1989). *Limonium creticum* (Plumbaginaceae), une espèce nouvelle de l'île de Crète (Mer Egée), Grèce. *Candollea* 44: 415-421. En anglais, résumés français et anglais.

*Limonium creticum* Artel., espèce nouvelle pour la science est décrite de l'île de Crète (Mer Egée). Le nombre chromosomique hexaploïde ( $2n = 51$ ), le caryotype, les caractéristiques du pollen et du stigmate donnent l'impression que cette espèce est apomictique et doit son origine à l'hybridisation. Ses relations avec *L. pigadiense* (Rech. fil.) Rech. fil. et d'autres espèces voisines sont brièvement présentées.

## ABSTRACT

ARTELARI, R. (1989). *Limonium creticum* (Plumbaginaceae), a new species from Kriti island (Aegean sea) Greece. *Candollea* 44: 415-421. In English, French and English abstracts.

*Limonium creticum* Artel., from Kriti island (Aegean sea) is described as a species new to science. The hexaploid chromosome number ( $2n = 51$ ), the karyotype and the pollen and stigma combination support the view that this species is apomictic originated through hybridization. Its relationships with *L. pigadiense* (Rech. fil.) Rech. fil. and other related species are briefly discussed.

**Limonium creticum** Artel., **spec. nov.** (Figs. 1, 2).

**Typus:** Kriti island, Nomos Irakliou, Ep. Pirjiotissis: on maritime marls of village Matala, *Artelari & Chondropoulos 1028* (Holotypus UPA, Isotypi B, C, LD, M, W).

Planta perennis, 20-45 cm alta. Folia 2.0-8.5 cm longa  $\times$  0.5-2.0 cm lata, obovato-spathulata, coriacea, subtus 1-3-nervia, obtusa vel paulo mucronata, in dimidio laminae latissima, angustissime cartilagineo-marginata, margine ca. 0.1 mm lata, in petiolum lamina longiore vel subaequante abrupte attenuata, pallide viridia. Caules floriferi flexuosi, a tertia parte inferiore vel dimidio ramosi, arcuato-adscedentes, pallide virides, ramis sterilibus nullis vel subnullis. Inflorescentia pyramidata. Spicae 1.5-4.5 cm longae, arcuatae. Spiculae 6.5-7.0 mm longae, suberectae vel paulo incurvae, 2-4 pro cm dispositae, saepissime secundae. Bractea exterior 2.1-2.6(-2.8) mm longa, ovato-triangularis, acuta, interiore triplo brevior. Bractea interior 6.1-6.8 mm longa  $\times$  3.4-3.7 mm lata, elliptica, apice rotundata vel paulo emarginata, margine hyalina ca. 1 mm lata, parte centrali herbacea, acuminata, acumine 0.7-1.2 mm longa. Calyx (5.6-)6.0-6.2 mm longus, tubo limbo longiore vel subaequilongus, a basi et costas dense piloso; lobi calycis 0.6-0.8 mm longi, ovati, obtusi.

Affinis *L. pigadiensis* (Rech. fil.) Rech. fil., sed foliis in dimidio laminae latissimis in petiolum abrupte attenuatis, spicis laxissimis arcuatis, bracteis interioribus longioribus ellipticis, calycibus longioribus, differt.

*Numerus chromosomaticus:*  $2n = 51$

Perennial, 20-45 cm. Leaves obovate-spathulate, 1-3-veined, 2.0-8.5  $\times$  0.5-2.0 cm, obtuse to lightly mucronate, broader at the middle of the lamina, coriaceous, pale green, with indistinct, very

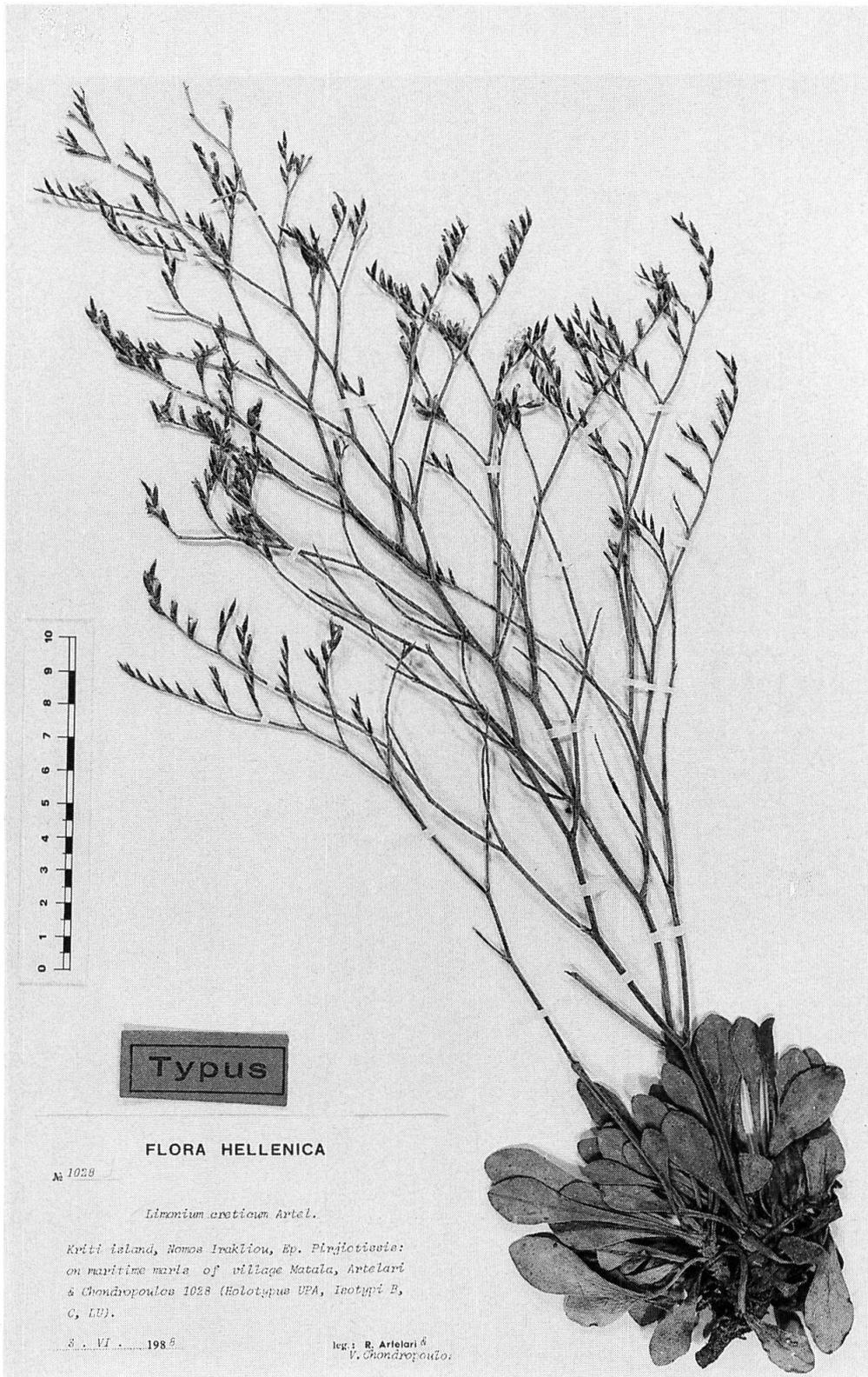


Fig. 1. — *Limonium creticum* Artel.

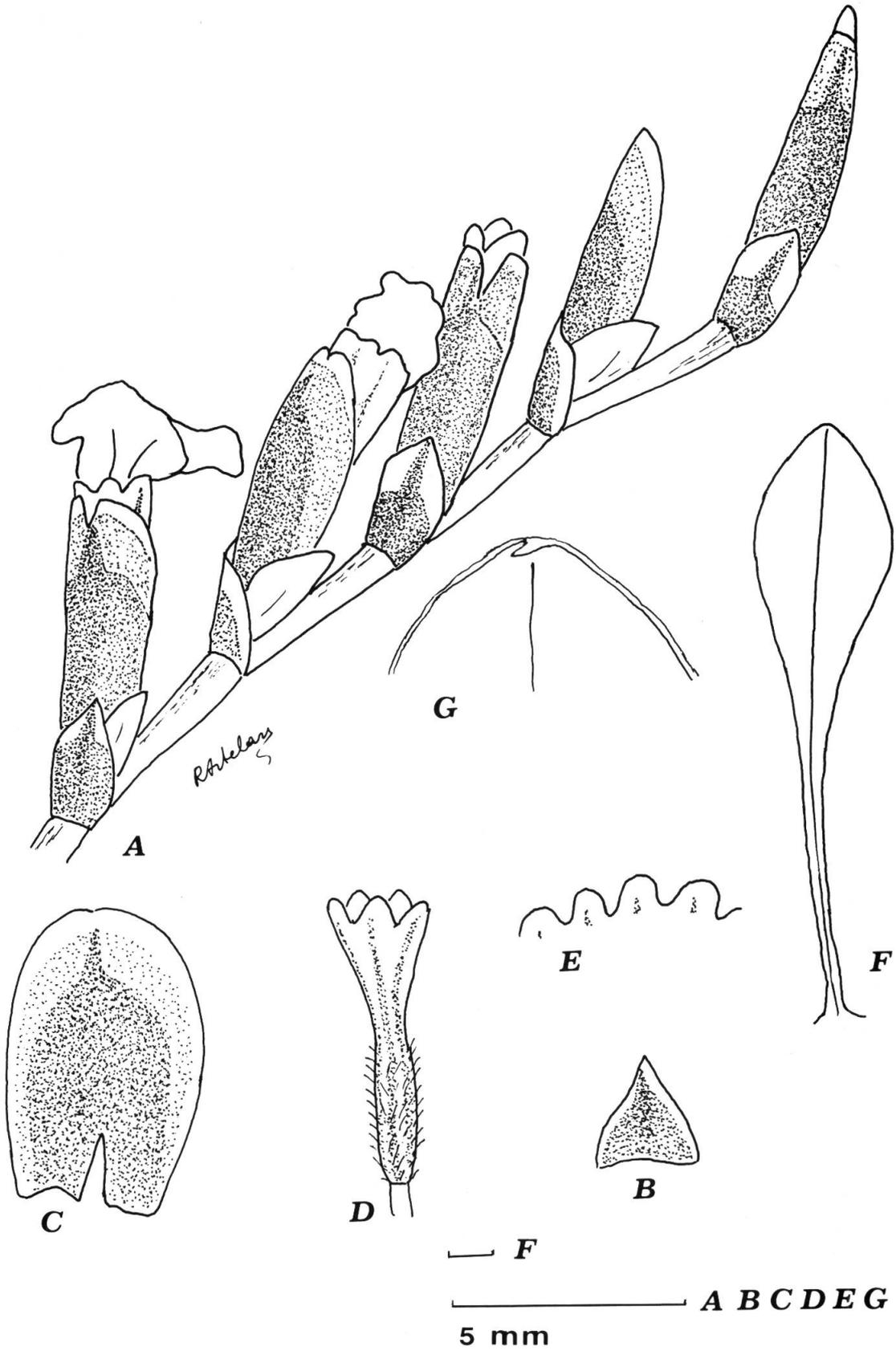


Fig. 2. — *Limonium creticum* Artel.  
 A, spike; B, outer bract; C, inner bract; D, calyx; E, calyx lobes; F, leaf; G, leaf margin.

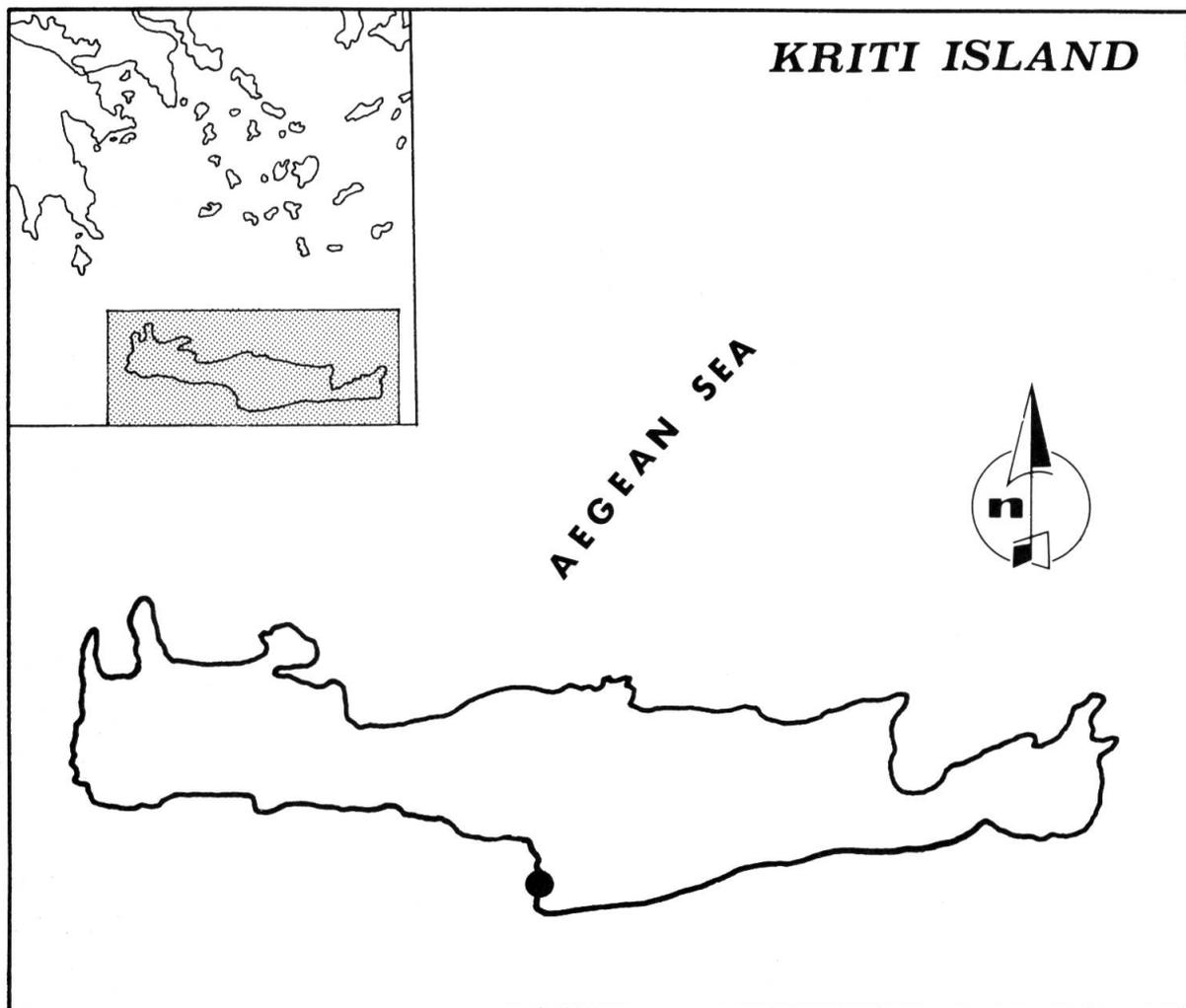


Fig. 3. — Map of Kriti island showing the type locality of *Limonium creticum*.

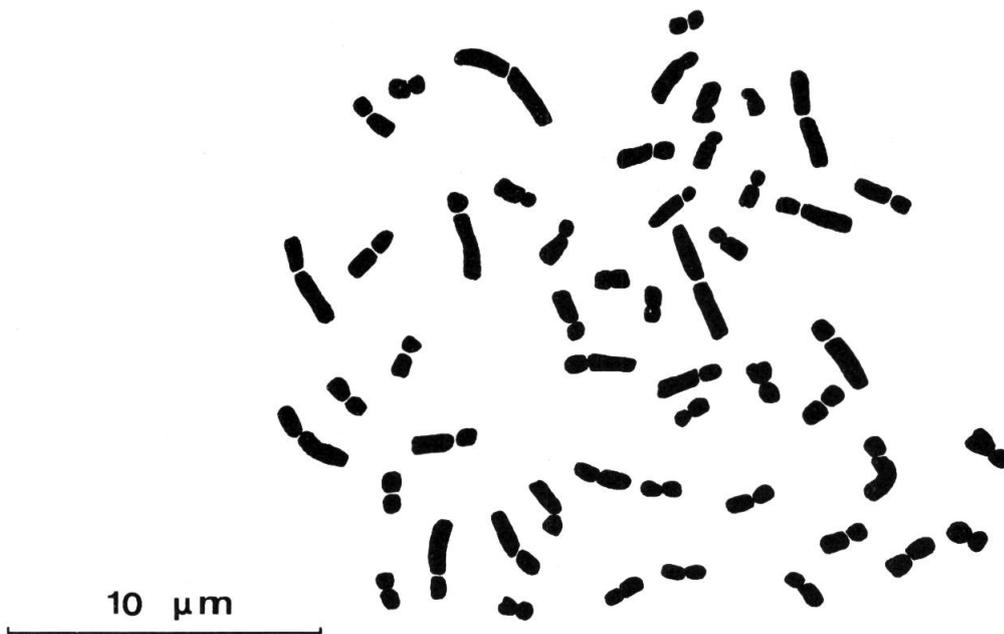


Fig. 4. — Mitotic metaphase plate of *Limonium creticum* with  $2n = 51$  chromosomes.

narrow cartilaginous margin about 0.1 mm wide, abruptly tapering into petiole usually longer than lamina. Flowering stems branched in the lower 1/3-1/2, usually arcuate, ascending, flexuose, pale green; non-flowering branches absent or sometimes 2-3 at the lower part. Inflorescence pyramidal. Spikes 1.5-4.5 cm long, arcuate, with 2-4 spikelets per cm, the most of them unilateral. Spikelets 6.5-7.0 mm long (including calyx), suberect or lightly curved. Outer bract 2.1-2.6(-2.8) mm long, ovate-triangular, acute, overlapping 1/3 of the inner. Inner bract 6.0-6.8 mm long  $\times$  3.4-3.7 mm wide, elliptical, rounded at apex or lightly emarginate, with rusty-brown and white hyaline margin about 1 mm wide; white part of the margin about 0.2 mm wide; herbaceous part of the bract forming a thin point, 0.7-1.2 mm long, nearly reaching to the apex. Calyx (5.6-)6.0-6.2 mm long, densely pilose with thin, long (about 0.5 mm), silken hairs; lobes ovate, obtuse, 0.6-0.8 mm long.

*Specimina visa* (Fig. 3)

Kriti island, Nomos Irakliou, Ep. Pirjiotissis: on maritime marls of village Matala, 3.6.1988, Artelari & Chondropoulos 1028 (UPA).

#### Karyology — Reproduction

The karyological study of *L. creticum* showed that it is hexaploid with  $2n = 51$  chromosomes. In the karyotype three long (3.9-3.3  $\mu\text{m}$ ) metacentric chromosomes exist, while the rest ones are shorter (3-1  $\mu\text{m}$ ) and metacentric to acrocentric (Fig. 4). These data, according to ERBEN's (1979) hypothesis concerning polyploid taxa with odd chromosome numbers and long metacentric "marker" chromosomes, indicate that *L. creticum* has a hybrid origin and the number  $2n = 51$  has derived from the combination of the two *Limonium* basic chromosome numbers  $x = 8$  and  $x = 9$ , i.e.  $(3 \times 8) + (3 \times 9) = 51$ . It should be noted that the number  $2n = 51$  is found for the first time in the genus. The hexaploid number  $2n = 54$  is already known (ERBEN, 1979; ARTELARI & ERBEN, 1986).

The study of the pollen and stigma combination as well as of the pollen fertility revealed that the new species is apomictically reproduced. Only the self-incompatible combination A (BAKER, 1948; ERBEN, 1978) occurs in the population and the pollen fertility is low (mean value 11.1%). Fertile pollen grains are much larger than sterile and 4- to 5-colpate. Moreover all plants showed good seed production.

### Taxonomic relationships

*L. creticum* together with *L. pigadiense* (Rech. fil.) Rech. fil., *L. hierapetrae* Rech. fil., *L. ocymifolium* (Poiret) O. Kuntze and *L. runemarkii* Rech. fil. constitute a species group distributed in the central and southern Aegean area. *L. pigadiense* has been described by RECHINGER (1938) from Karpathos and also reported from Kriti (RECHINGER, 1943b), Rodhos (HANSEN & SNOGERUP, 1966) and Kithira (GREUTER & RECHINGER, 1967). *L. hierapetrae*, also described by RECHINGER (1943b), seems to be endemic of Kriti, while *L. runemarkii* is known only from Evvia (RECHINGER, 1961). *L. ocymifolium* has a central and south Aegean range (RECHINGER, 1943a; BOKHARI & EDMONDSON, 1982; ARTELARI, 1988).

The detailed morphological comparison of *L. creticum* to the other taxa mentioned above lead us to the following conclusions:

The new species is more closely related to *L. pigadiense*. Comparing to that, *L. creticum* has leaves broader at the middle of the lamina and abruptly tapering into petiole, spikes more lax and arcuate, inner bract longer and elliptical (instead of obovate in *L. pigadiense*) and calyx longer and hairy in all veins.

In respect to *L. hierapetrae*, *L. creticum* has leaves obovate-spathulate with narrower cartilaginous margin, inflorescence pyramidal, shorter and denser spikes, longer, elliptical inner bract, longer calyx, hairy in all veins, as well as different chromosome number (in *L. hierapetrae*  $2n = 43$ , ARTELARI, in press.).

The differentiation of *L. creticum* from *L. ocymifolium* concerns the leaves which are broader at the middle of the lamina and abruptly tapering into petiole, the more branched arcuate flowering stems, the longer elliptical inner bract, the longer calyx and the chromosome number (in *L. ocymifolium*  $2n = 43$ , ARTELARI, 1988).

Regarding to *L. runemarkii*, *L. creticum* is characterized by long-petioled leaves having narrower cartilaginous margin, pyramidal inflorescence, shorter, arcuate, denser spikes, acute outer bract, longer, denser calyx hairs and longer calyx lobes.

### ACKNOWLEDGEMENTS

We are grateful to the Directors and Curators of the Naturhistorisches Museum of Wien (W) and the Botanical Museum of Lund (LD) for the loan of herbarium material.

We are also greatly indebted to Assist. Prof. G. Kamari and Prof. D. Phitos for their valuable comments on the manuscript of this paper.

### REFERENCES

- ARTELARI, R. (1988). Biosystematic study of the genus *Limonium* (Plumbaginaceae) in the Aegean area (Greece). I. Some *Limonium* species from the Kikladhes islands. *Willdenowia* 18(2): 399-408.
- ARTELARI, R. (1989). Biosystematic study of the genus *Limonium* (Plumbaginaceae) in the Aegean area (Greece). II. *Limonium hierapetrae* Rech. fil. from Kriti island. *Webbia* (in press).
- ARTELARI, R. & M. ERBEN (1986). *Limonium brevipetiolatum*, eine neue hexaploide Sippe aus süd- Griechenland. *Mitt. Bot. Staatssamml. München* 22: 507-511.
- BAKER, H. G. (1948). Dimorphism and Monomorphism in the Plumbaginaceae. I. A survey of the family. *Ann. Bot.* 12: 207-219.
- BOKHARI, M. H. & J. R. EDMONDSON (1982). *Limonium* Miller, p. 465-476. In: DAVIS, P. H. (ed.), *Flora of Turkey and the East Aegean islands*: 7. Edinburgh.
- ERBEN, M. (1978). Die Gattung *Limonium* im südwestmediterranean Raum. *Mitt. Bot. Staatssamml. München* 14: 361-631.
- ERBEN, M. (1979). Karyotype differentiation and its consequences in Mediterranean *Limonium*. *Webbia* 34(1): 409-417.
- GREUTER, W. & K. H. RECHINGER (1967). *Chloris Kythereia*. *Boissiera*: 13.
- HANSEN, A. & S. SNOGERUP (1966). Beiträge zur Kenntnis der Flora der Insel Rhodos. *Österr. Akad. Wiss. Math.-Naturwiss. Kl. Sitzungsber. Abt. I. Biol.* 175: 363-381.
- RECHINGER, K. H. (1938). *Plantae novae Aegaeae*. *Feddes Repert.* 43: 144-151.

- RECHINGER, K. H. (1943a). Flora Aegaea. Flora der Inseln und Halbinseln des Ägäischen Meeres. *Akad. Wiss. Wien, Math.-Naturwiss. Kl., Denkschr.*: 105(1).
- RECHINGER, K. H. (1943b). Neue Beiträge zur Flora von Kreta. *Akad. Wiss. Wien, Math.-Naturwiss. Kl., Denkschr.*: 105(2, 1).
- RECHINGER, K. H. (1961). Die Flora von Euboea. *Bot. Jahrb. Syst.* 80: 370-372.

