

# **Scilla dimartinoi spec. nov. (Liliaceae) from Lampedusa and its relationships with Scilla sicula Tin.**

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# Scilla dimartinoi spec. nov. (Liliaceae) from Lampedusa and its relationships with Scilla sicula Tin.

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## RÉSUMÉ

BRULLO, S. & P. PAVONE (1987). *Scilla dimartinoi* spec. nov. (Liliaceae) de Lampedusa et ses affinités avec *Scilla sicula* Tin. *Candollea* 42: 613-620. En anglais, résumés français et anglais.

*Scilla dimartinoi* a été trouvée sur les rochers calcaires de l'île de Lampedusa (Sicile). Cette nouvelle espèce, qui se rattache au complexe de *S. peruviana* L., est en rapport avec *S. sicula* Tin., répandue dans la Calabre, la Sicile et l'Archipel maltais. Le nombre chromosomique ( $2n = 28$ ) et les caryotypes des deux espèces sont examinés.

## ABSTRACT

BRULLO, S. & P. PAVONE (1987). *Scilla dimartinoi* spec. nov. (Liliaceae) from Lampedusa and its relationships with *Scilla sicula* Tin. *Candollea* 42: 613-620. In English, French and English abstracts.

*Scilla dimartinoi* is described from calcareous rocks of Lampedusa island (Sicily). This new species, belonging to the complex of *S. peruviana* L., is related to *S. sicula* Tin., distributed in Calabria, Sicily and the Maltese Archipelago. The chromosome number ( $2n = 28$ ) and the karyotypes of these two species are examined.

## Introduction

In the ambit of cytotaxonomical researches on the taxa belonging to the cycle of *Scilla peruviana* L., a new species was discovered. It grows on the rocky coast of Lampedusa, calcareous island of the Sicily Channel, where it was collected for the first time by DI MARTINO (1960), who ascribed it to *Scilla sicula* Tin. Effectively, this plant shows some relationships with *S. sicula*, but it differs remarkably from the latter in the habit and in numerous morphological characters, which can be surveyed in the cultivated specimens too. This species is dedicated to Andrea Di Martino, botanist of the Botanical Institute of Palermo and our dear friend.

## Materials and methods

The specimens utilized for the cytotaxonomical study are represented by plants coming from bulbs gathered in various localities, then cultivated in the Botanical Garden of Catania. The bulbs of *Scilla sicula* were collected at Ghar Lapsi (Malta), Ta' Cenc (Gozo) and Central Sicily (those coming from the last station have been cultivated for about 30 years in the Botanical Garden of Catania); while those of *Scilla dimartinoi* come from Capo Grecale (Lampedusa). For the caryological analysis, root-tips of bulbs were pretreated with 0.2% colchicine, fixed in Carnoy and stained according to the Feulgen technique. Dried specimens of the plants examined are deposited in CAT.

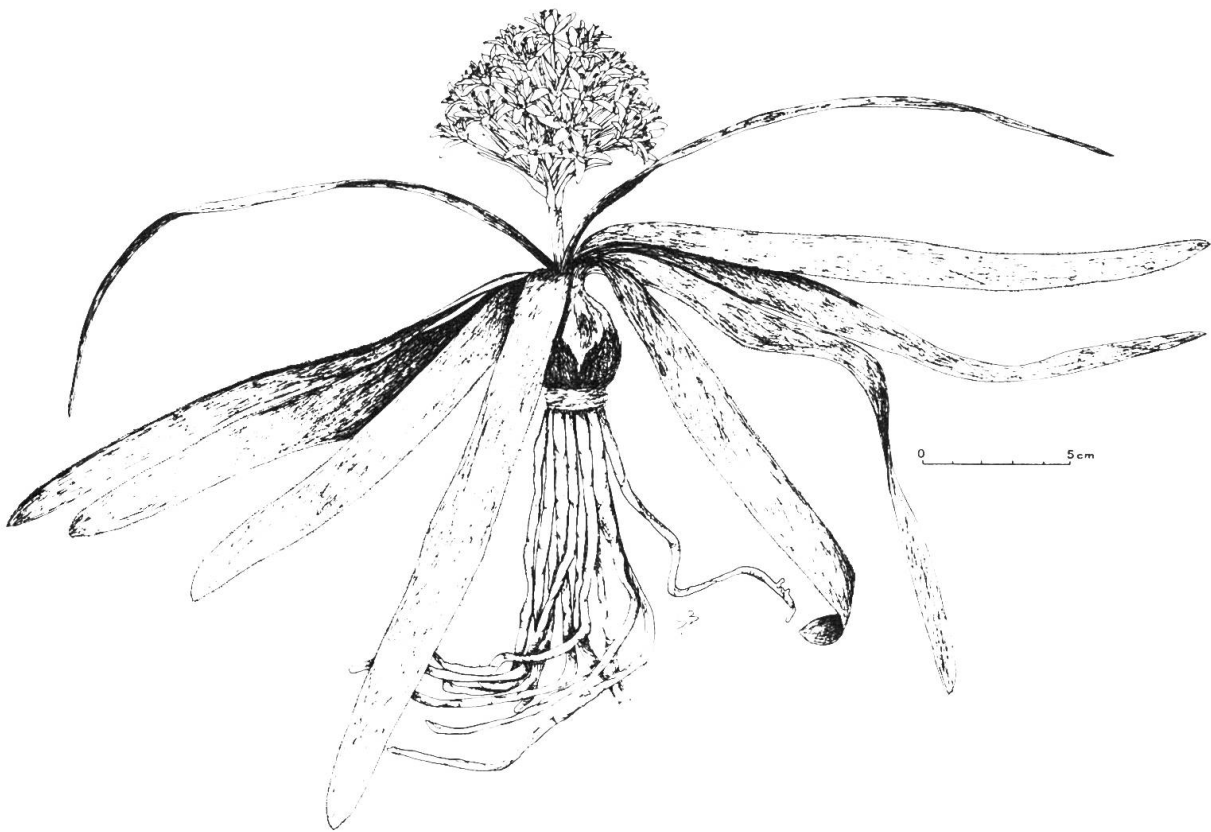


Fig. 1. — *Scilla dimartinoi* Brullo & Pavone, spec. nov.

***Scilla dimartinoi* Brullo & Pavone, spec. nov. (Fig. 1).**

**Typus:** Sicilia: Lampedusa, Litorale roccioso presso Capo Grecale, 18.3.1985, *Brullo, Minissale & Spampinato s.n.* (holotypus CAT).

Bulbus subsphaericus, 2-4 cm diametro, tunicis externis brunneo-nigriscentibus, internis albostraminei. Folia 7-10, plana, procumbentia, linearia, obtusiuscula, 0.8-2 cm lata, 12-22 cm longa, atro-viridia, margine breviter ciliolata. Scapus solitarius, 7-10 cm altus, glaber, teres, 3-4 mm diametro, erectus, foliis valde brevior. Inflorescentia hemisphaerica, densa, 20-40 flora, pedicellis inaequalibus, 2-3 cm longis, bracteis anguste ovatis, longe acicularis, uninervis, 1.5-3 cm longis, pedicello subaequalibus vel longioribus. Perigonium lilacinum, stellatum, tepalis 8-10 mm longis, lanceolatis, breviter connatis basi, apice saepe papilla rotundata, nervo dorsali prominente atropurpureo. Stamina tepalis breviora, filamentis violaceis, planis, lanceolatis, antheris luteolis, ca. 3 mm longis. Pistillum sessile, lageniforme, 6-7 mm longum, stylo ovario brevior, stigmate lineari decurrente, papilloso, 1 mm longo. Capsula 11-13 mm longa, papiracea, brunneola, trigona, acuminata, in longum rostrum attenuata.

*Examined specimens*

Sicily: Lampedusa, litorale roccioso presso Capo Grecale, 18.3.1985, *Brullo, Minissale, Spampinato s.n.* (CAT); *ibid.*, Capo Grecale lungo il litorale roccioso, 21.3.1986, *Brullo, Minissale, Pavone, Spampinato s.n.* (CAT).

**Ecology**

This geophyte grows in a very circumscribed area of Lampedusa. In this coastal site, placed near Capo Grecale, *Scilla dimartinoi* occurs in the shrub vegetation characterized by *Thymus*

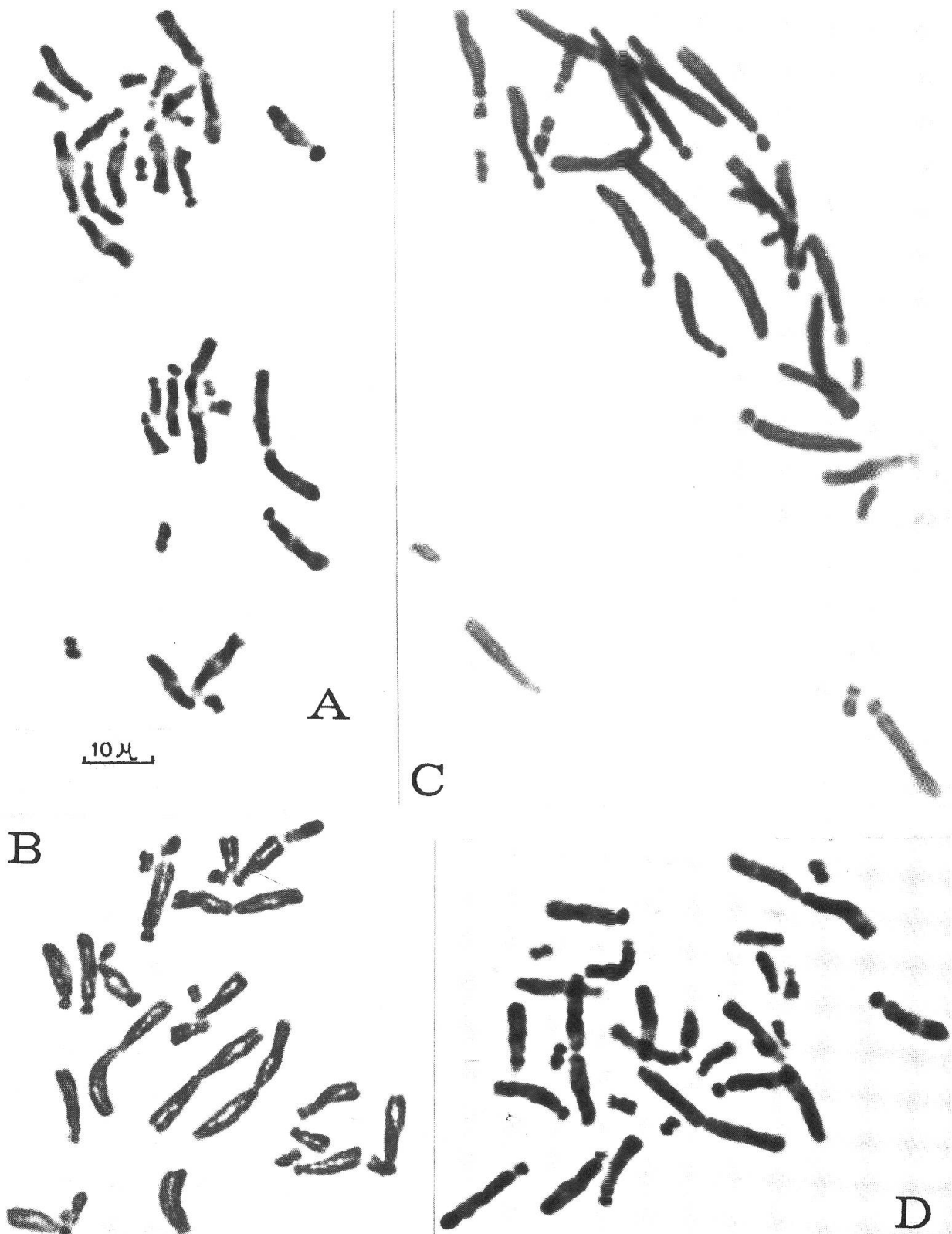


Fig. 2. — Mitotic chromosome plates.  
A, *Scilla dimartinoi* (Capo Grecale, Lampedusa); B, *Scilla sicula* (Ghar Lapsi, Malta); C, *Scilla sicula* (Sicily); D, *Scilla sicula* (Ta Cenc, Gozo).

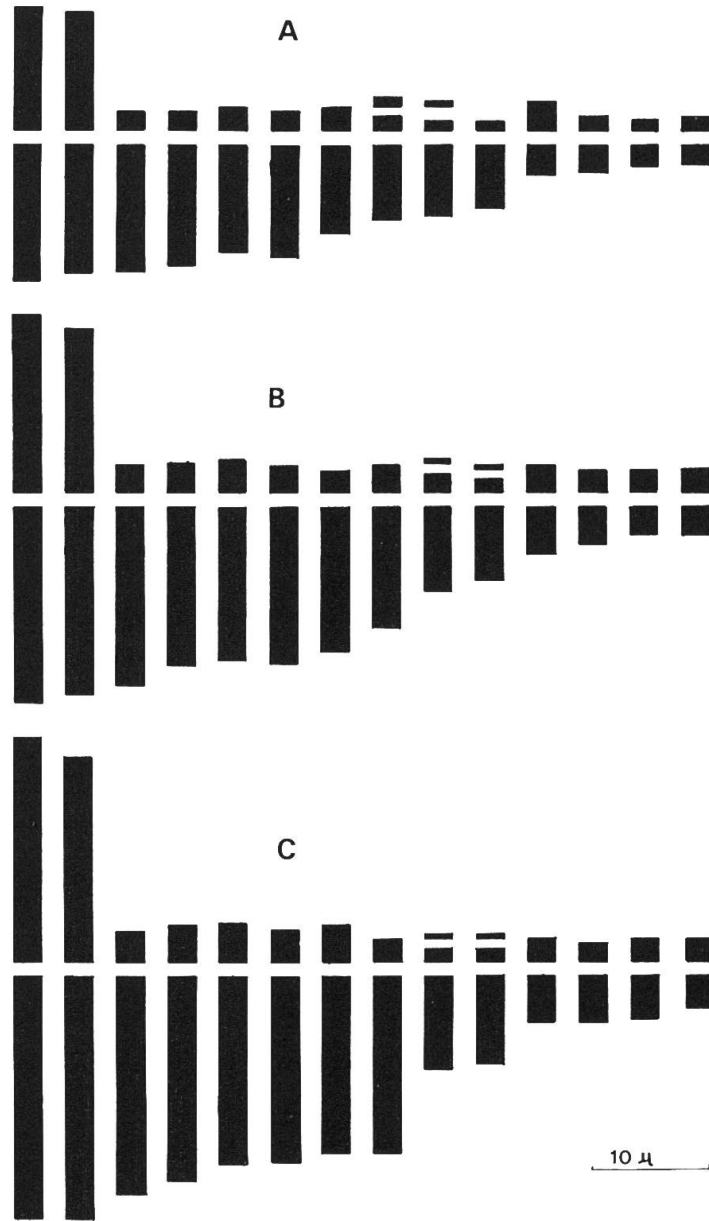


Fig. 3. — Karyograms.  
A, *Scilla dimartinoi* (Lampedusa); B, *Scilla sicula* (Malta); C, *Scilla sicula* (Sicily).

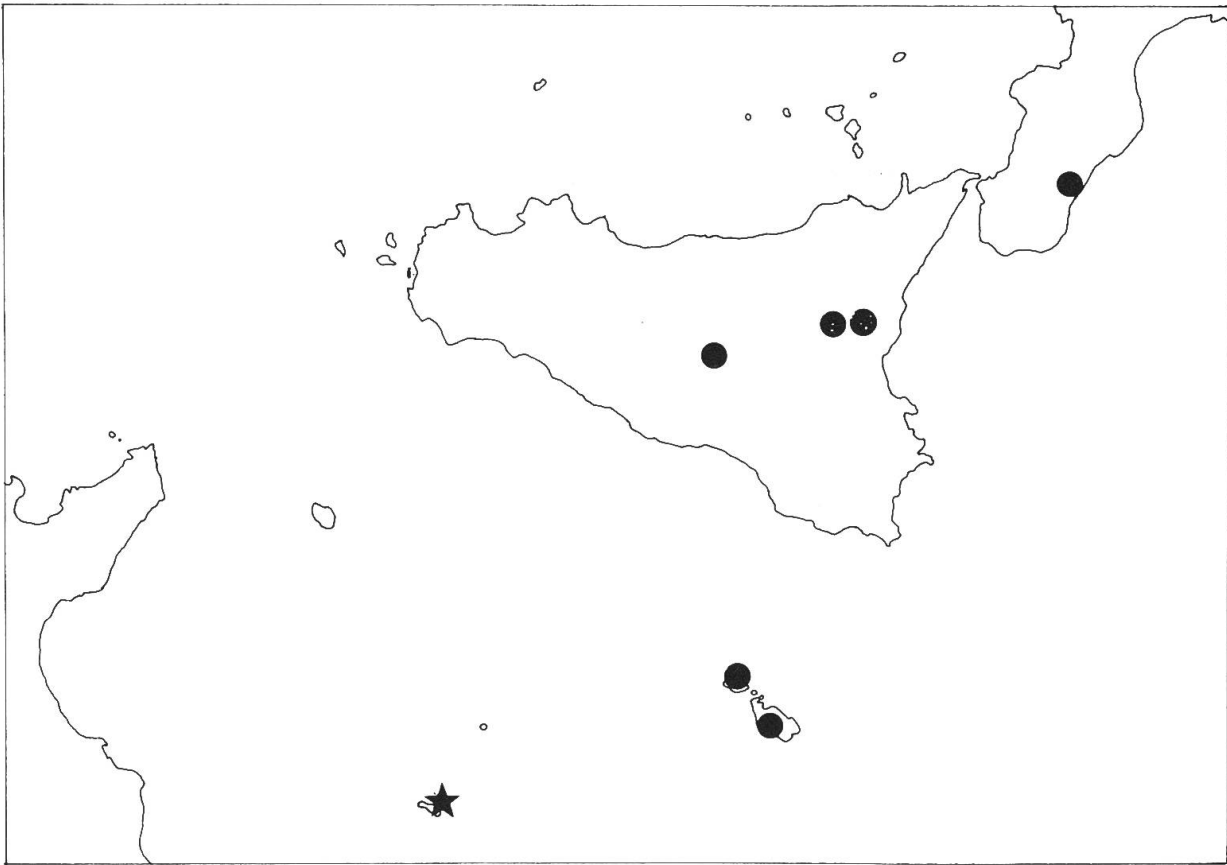


Fig. 4. — Distribution of *Scilla dimartinoi* (star) and *Scilla sicula* (spots), based on herbarium records.

*capitatus* (L.) Hoffm. & Link, *Crucianella rupestris* Guss., *Chiliadenus lopadusanus* Brullo, *Triadenia aegyptiaca* (L.) Boiss., *Caralluma europea* (Guss.) N. E. Br. subsp. *europaea*, *Lotus cytisoides* L., *Thymelaea hirsuta* (L.) Endl., *Echinops spinosus* L., etc.

### Caryology

The somatic number of *S. dimartinoi* is  $2n = 28$  (Fig. 2A). The same number was also found in *S. sicula* Tin. (Fig. 2B, C, D), that confirms the previous count recorded by BARTOLO & al. (1979). Therefore, these species must be considered tetraploid, because the basic number of the taxa belonging to the group of *S. peruviana* L. is  $x = 7$  or  $8$  (cf. BATTAGLIA, 1949; BATTAGLIA & al., 1969; SPETA, 1979).

On the whole, *S. dimartinoi* shows a karyotype very similar to that one of *S. sicula* (cf. Fig. 3). It differs only in the lesser length of the chromosomes. According to LEVAN & al. (1964) the chromosome formula is:  $Z = 2n = 4x = 8m + 4sm + 12st + 4st^1$ .

### Relationships

*S. dimartinoi* for its small size is similar to *S. africana* Borzi and *S. cupanii* Guss. (cf. MAUGI-NI, 1956; BARTOLO & al., 1984), but it differs substantially from them in the chromosome complement and in some morphological characters. As previously emphasized, *S. dimartinoi* shows closer relations with *S. sicula*, species distributed in Sicily, S. Italy and the Maltese Islands (cf. Fig. 4). In the two former territories *S. sicula* is very rare and was not found recently, while in Malta is quite widespread. In fact, both species are tetraploid with  $2n = 28$  and show a pale lilac perigon, though remarkable differences allow to distinguish them very well (cf. Tab. 1).

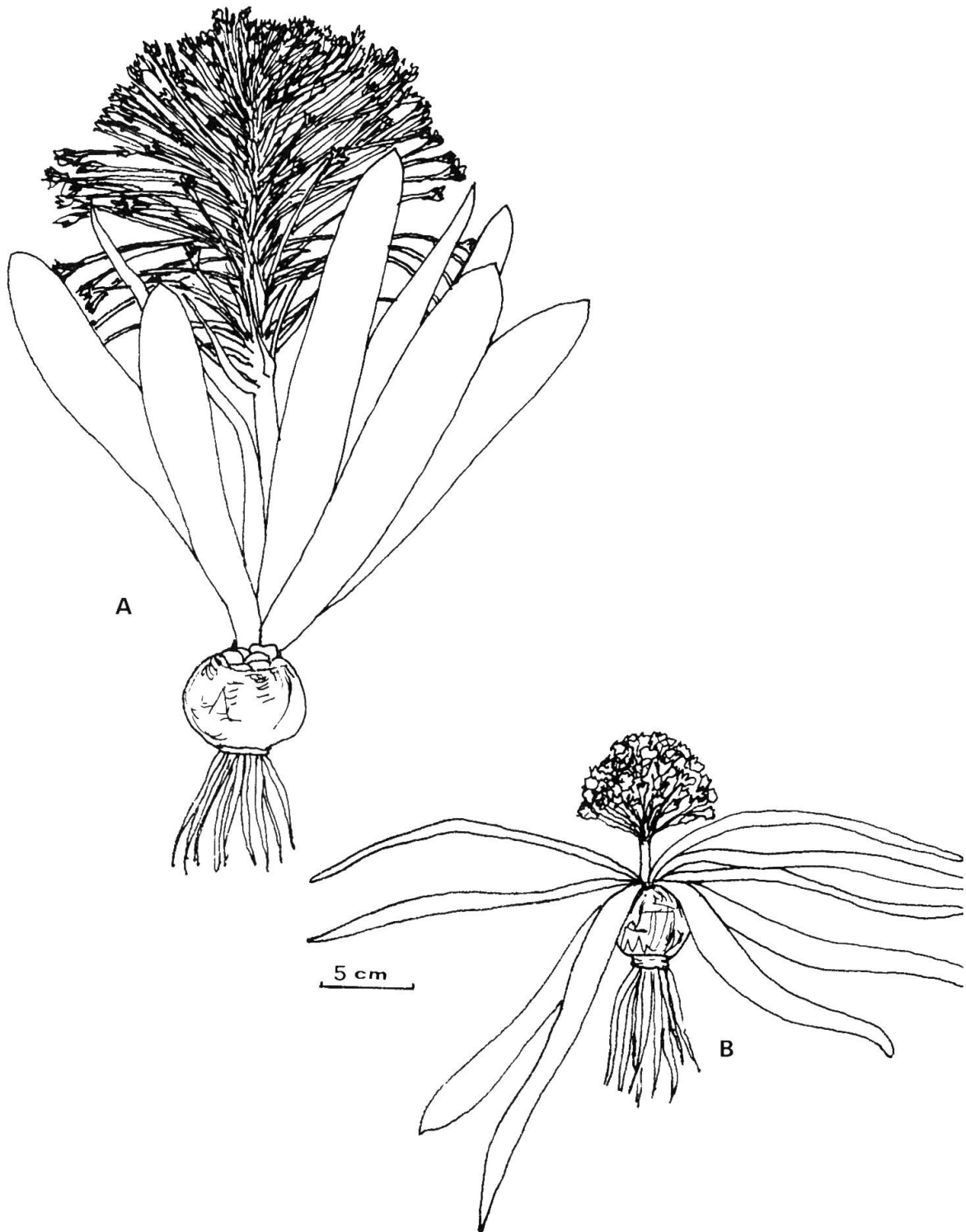


Fig. 5. — Habit of *Scilla sicula* (A) and *Scilla dimartinoi* (B).

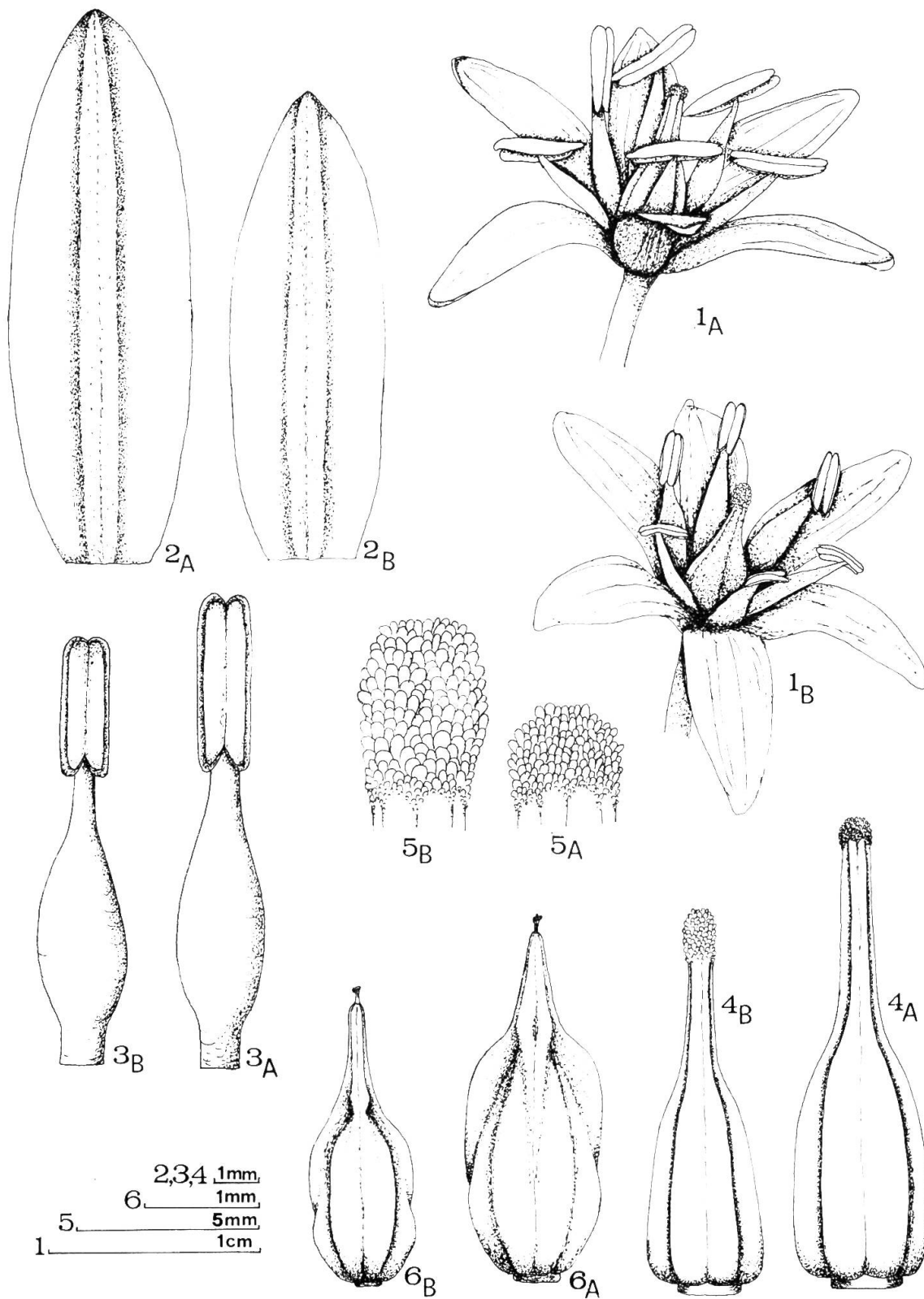


Fig. 6. — Differences between *Scilla sicula* (A) and *Scilla dimartinoi* (B).  
 1, flower; 2, tepal; 3, stamen; 4, pistil; 5, stigma; 6, capsule.



	<i>Scilla sicula</i>	<i>Scilla dimartinoi</i>
Bulb diameter .....	5-8 cm	2-4 cm
Leaf width .....	(2)3-9 cm	0.8-2 cm
Leaf length .....	20-35 cm	12-22 cm
Leaf direction .....	erect	prostrate
Scape height .....	30-40 cm	7-10 cm
Inflorescence flowers .....	No. 80-300	No. 20-40
Length of floral pedicel .....	6-8 cm	2-3 cm
Length of fruiting pedicel .....	8-15 cm	3-5 cm
Bract length .....	3-8 cm	1.5-3 cm
Tepal length .....	10-12 mm	8-10 mm
Stamen length .....	10-11 mm	7-9 mm
Anther length .....	4 mm	3 mm
Pistil length .....	8-10 mm	6-7 mm
Stigma length .....	0.5 mm	1 mm
Capsula length .....	15-19 mm	10-12 mm

Tab. 1. — Differences between *Scilla sicula* and *Scilla dimartinoi*. Measurements are based on living material.

These differences regard mainly the habit (cf. Fig. 5) and the floral morphology (cf. Fig. 6). In fact, *S. sicula* unlike *S. dimartinoi* shows a bigger size with wider and erect leaves, a larger inflorescence with up to 300 flowers, which have longer tepals, anthers and pistil, while the stigma is shorter. For the close relationships, *S. dimartinoi* and *S. sicula* can be considered as schizo-endemics geographically quite isolated. This attests the remarkable floristic correlation between Lampedusa and Malta. These islands have in common some rare species, viz: *Senecio pygmaeus* DC., *Crucianella rupestris* Guss., *Triadenia aegyptiaca* (L.) Boiss., *Daucus rupestris* Guss., *Elatine hydropiper* L. var. *gussonei* Sommier, etc. Besides, in Lampedusa two rare endemics occur: *Chiliadenus lopadusanus* Brullo and *Allium lopadusanum* Bartolo, Brullo & Pavone, which are replaced in Malta respectively by *Chiliadenus bocconeii* Brullo and *Allium lojaconoi* Brullo & Pavone.

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