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A new species of *Oncostema* (*Hyacinthaceae*) from Tunisia

Abstract

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Oncostema maireana, a new species belonging to *O. peruviana* group, is described and illustrated from Cap Bon (Tunisia). Its ecology, chorology and relationships with *O. cupani* are examined.

Introduction

During field investigation in Tunisia, a population belonging to the *Oncostema peruviana* group was found near Cap Bon.

According to Speta (1987, 1998a, 1998b), the taxa belonging to the *S. peruviana* group have been referred to the distinct genus *Oncostema* Raf. which differs from *Scilla* L. s. str. in several features mainly regarding the vegetative structures, floral morphology and karyology.

In particular, the genus *Oncostema* is characterized by large bulbs, foliage leaves proteranthous, broad, flat, ciliate at margin, solitary scape, inflorescence with long and broad bracts, prophylls minute, concealed by the bracts, long and straight pedicels, tepals persistent after anthesis, stamen filaments blue, thickened in lower 1/3 and connate at the base, ovary locules 4-6 ovulate, nectariferous ducts covered with short hairs. Instead, *Scilla* s. str. (type: *Scilla bifolia* L.) mainly differs in having small bulbs, foliage leaves synanthous, narrow, not ciliate at margin, inflorescence with bracts minute or lacking, prophylls lacking, tepals not persistent, stamen filaments filiform to ligulate, ovary locules several ovulate. Another allied genus is *Prospero* Salisb. (type*: Scilla autumnalis* L.) showing autumnal flowering, small bulbs, foliage leaves hysteranthous, filiform or strap shaped, scape 1-4, bracts and prophylls lacking, pedicels short and patent, tepals not persistent, stamen filaments filiform to ligulate, ovary locules 2 ovulate.

Moreover, there are substantial differences among these genera as regards the basic chromosome number and the karyotype.

The investigated Tunisian population of *Oncostema*, due to the very small size, narrow leaves, small and few-flowered inflorescences, differs markedly from the other known species of this genus, such as *Oncostema peruviana* (L.) Speta s. str., *O. sicula* (Tineo in

Guss.) Speta, *O. hughii* (Tineo ex Guss.) Speta, *O. africana* (Borzi & Mattei) Speta, *O. dimartinoi* (Brullo & Pavone) F. Conti & Soldano, and *O. elongata* (Part.) Speta. Instead, for its reduced habit, this population seems to be closer to *O. cupani* (Guss.) Speta, a rare Sicilian endemic, but many morphological features and chromosome complement allow to distinguish them at specific level.

For this reason the Tunisian population is described as a species new to science and its name dedicated to René Maire author of the "Flore de l'Afrique du Nord".

Oncostema maireana Brullo, Giusso & Terrasi **sp. nova. - Fig.1**

Type: Tunisia, Cap Bon, colline sabbiose sopra Korbous, 07.05.2001, Brullo, Giusso & Sciandrello (Holotype CAT).

Bulbus ovoideus, 2.5-4 cm diametro, tunicis extemis brunneo-nigrescentibus, internis albo-stramineis. Folia 7-10, plana, erecto-divaricata, lineari-oblanceolata, obtusa vel obtusiuscula, 6-15 mm lata, 7-13 cm longa, viridia, margine breviter ciliolata. Scapus solitarius, 15-19 cm altus, glaber, teres, 2.5-4 mm diametro, erectus, foliis longior. Inflorescentia corymbosa vel corymboso-hemisphaerica, leviter densa, 35-40 flora, pedicellis inaequalibus, 20¬45 mm longis, bracteis anguste triangulari-lanceolatis, longe apiculatis, uninervis, 12-25 mm longis, pedicello brevioribus. Perigonium roseo-lilacinum, stellatum, tepalis 13-15 mm longis, 4-4.5 mm latis, oblanceolatis, apice incrassato-papilloso, nervo dorsali prominente, vindi-purpureo. Stamina tepalis breviora, filamentis coeruleo-lilacinis, 10-11 mm longis, 1.5-2 mm latis, incrassatis, irregulariter sulcatis transverse, lineari-fusiformis, antheris viridi-coeruleis, 4-4.5 mm longis. Pistillum subsessile, lageniforme, 9.5-10 mm longum, stylo ovarium subaequanti, stigmate subhemisphaerico, leviter decurrente, papilloso, ca. 0.7 mm longo, ca. 1 mm diametro. Capsula 15-16 mm longa, papyracea, acuminata, in longum rostrum attenuata.

Bulb ovoid, 2.5-4 cm in diameter, outer tunics brown-blackish, inner ones whitish. Leaves 7-10, flat, erect-divaricate, linear-oblanceolate, obtuse to sub-obtuse, 6-15 mm wide, 7-13 cm long, green, ciliate at margin. Scape solitary, 15-19 cm tall, glabrous, terete, 2.5-4 mm in diameter, erect, longer than leaves. Inflorescence corymbose to corymbose-hemispherical, lightly dense, 35-40 flowered, pedicels unequal, 20-45 mm long, bracts narrowly triangular-lanceolate, long apiculate, uninerved, 12-25 mm long, shorter than pedicel. Perigon pink-lilac, stellate, tepals 13-15 mm long, 4-4.5 mm wide, oblanceolate, apex thickened-papillose, with prominent dorsal vein, green-purple. Stamens shorter than tepals, filaments cerulean-lilac, 10-11 mm long, 1.5-2 mm wide, thickened, transversally sulcate, linear-fusiform, anthers green-cerulean, 4-4.5 mm long. Pistil subsessile, flask-shaped, 9.5-10 mm long, with style sub-equalling the ovary, stigma sub-hemispherical, slightly decurrent, papillose, ca. 0.7 mm long, ca. 1 mm in diameter. Capsule 15-16 mm long, papery, acuminate, gradually tapering into a long beak.

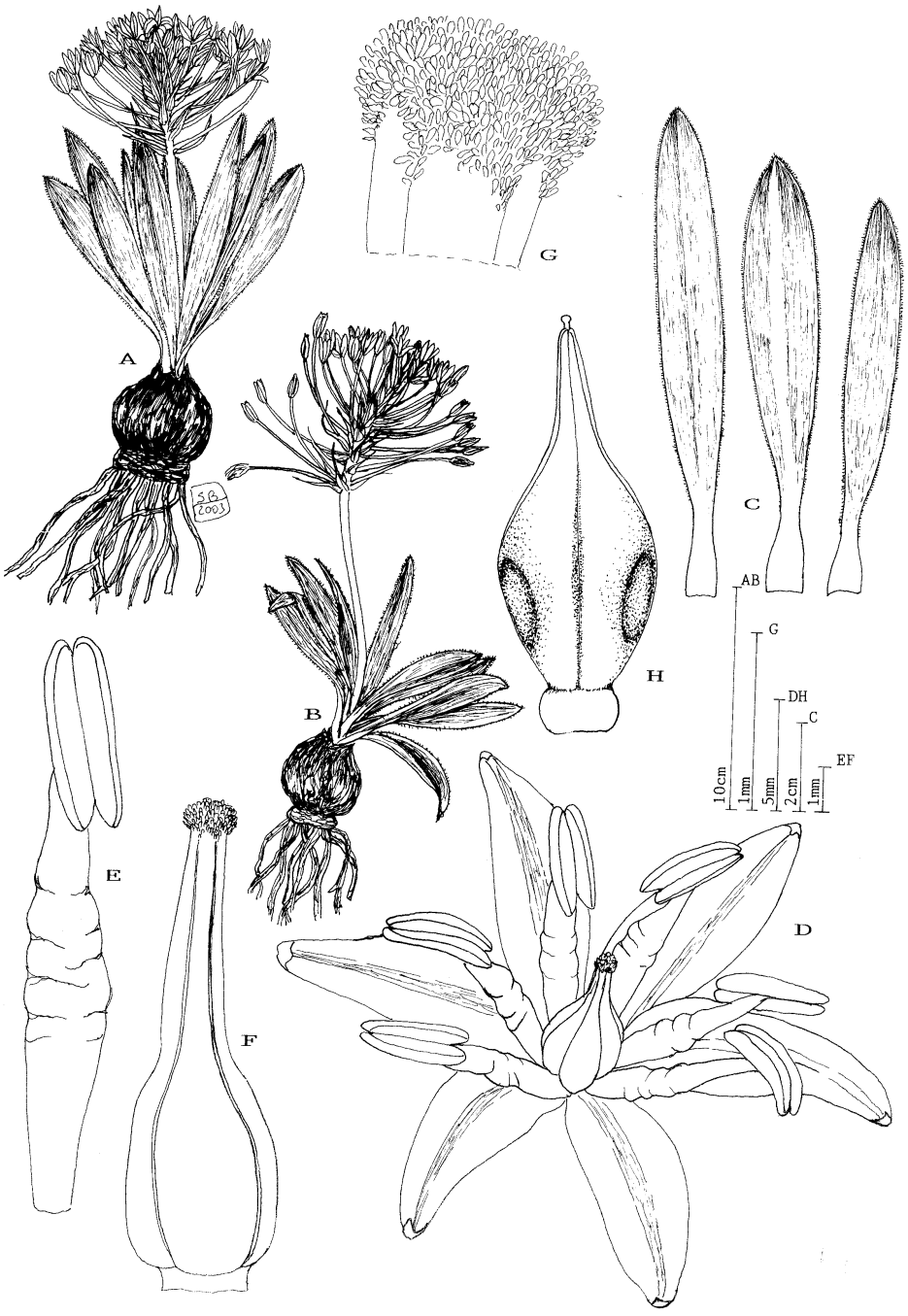

Fig. 1. *Oncosetma maireana* Brullo, Giusso & Terrasi. **A-B:** habit; **C:** leaves; **D:** flower; **E:** stamen; **F:** ovary; **G:** stigma; **H:** capsule.

Ecology and distribution

Oncostema maireana grows on sandy substrata at an altitude of about 200 m near Korbous (Cap Bon, Tunisia). It is localized on flat surfaces within clearings of gangues or pine-woods, where it is a member of grasslands dominated by *Brachypodium retusum* P. Beauv., *Stipa lagascae* Roemer & Schultes and *Festuca caerulescens* Desf.

Karyology

Oncostema maireana shows a tetraploid chromosome complement (2*n*=28) with a quite isomorphic karyogram (Fig. 2-3).

The chromosome formula is 2*n*=4*x*=28:4M+8msm+12st+4sts. In particular, it is characterized by 4 big metacentric chromosomes, 12 medium sub-telocentric chromosomes, 8 small metacentric¬submetacentric chromosomes and 4 subtelocentnc microsatellited chromosomes. This pattern is typical for all the taxa belonging to the genus *Oncostema* showing a basic chromosome number *x*=7 or 8 (see Battaglia 1949, 1951; Malign 1952, 1956; Brullo & al. 1980, Bartolo & al. 1984).

Fig. 2. Somatic metaphasic plates of *Oncostema maireana*.

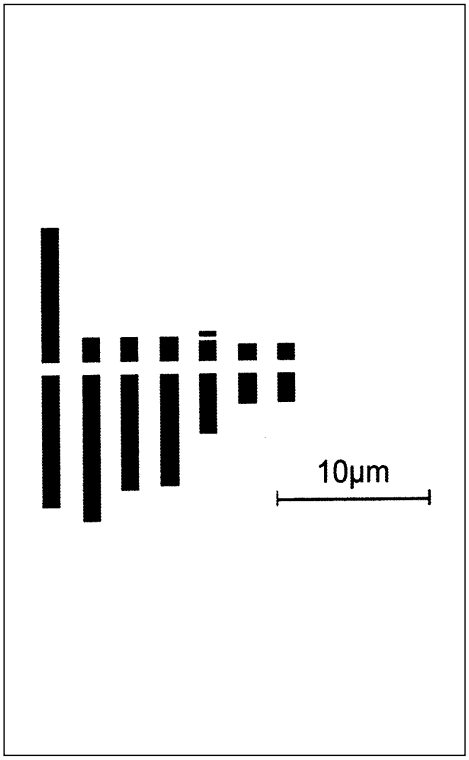

Fig. 3. Idiogram of *Oncostema maireana*.

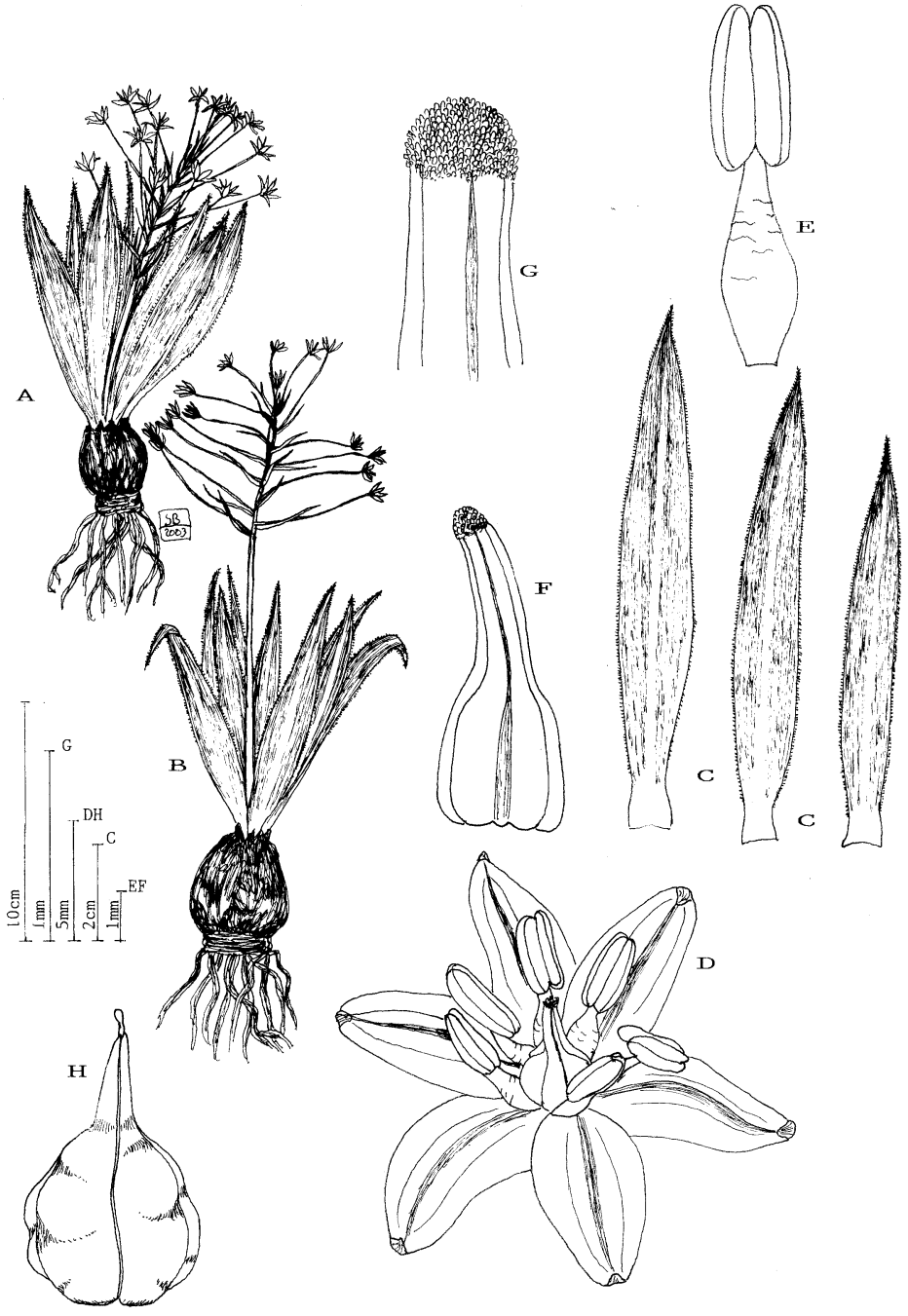

Fig. 4. *Oncosetma cupani* (Guss.) Speta. **A-B:** habit; **C:** leaves; **D:** flower; **E:** stamen; **F:** ovary; **G:** stigma; **H:** capsule.

Taxonomic remarks

The hitherto known taxa belonging to the genus *Oncostema* usually show a big size, with stems up to 50 cm tall, very broad leaves (2-6 cm wide) and big inflorescence (up to 100-flowered). The only species having a small size, as *Oncostema maireana*, is *O. cupani*, a rare Sicilian endemic. In fact, these two species are characterized by small bulbs (max 4-5 cm in diameter), leaves 7-13 cm long and 5-16 mm wide, scape up to 20 cm tall, inflorescence max 40-flowered, but meaningful differences allow to differentiate them very well. In particular, *O. maireana* is characterized by leaves obtuse at apex, dense inflorescence (35-40-flowered), tepals pink¬lilac, 13-15 mm long, stamen filaments 10-11 mm long, 1.5-2 mm wide, anthers green-cerulean, 4-4.5 mm long, pistil 9.5-10 mm long, stigma ca. 1 mm in diameter, with long papillae, capsule 15-16 mm long; while *0. cupani* differs in having leaves acute to apiculate, lax inflorescence (15-20-flowered), tepals white-

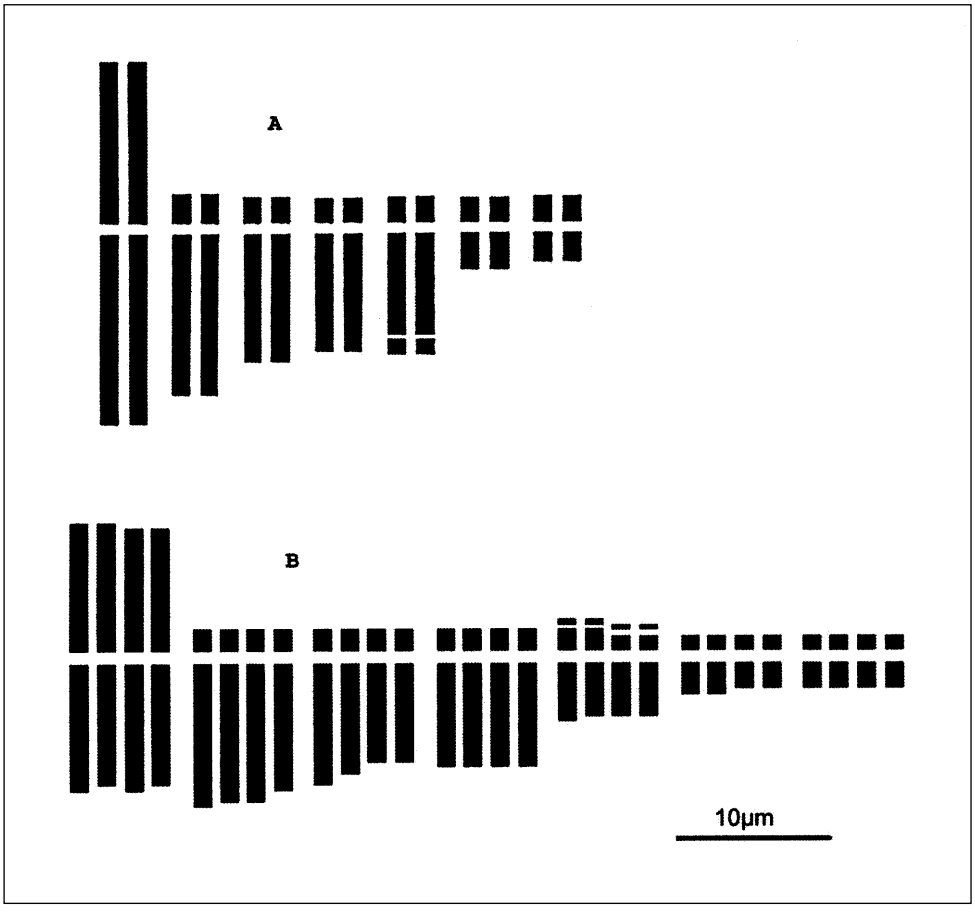

Fig. 5. Karyogram of *Oncostema cupani* (A) and *O. maireana* (B).

violet to cerulean-violet, 9-10 mm long, stamen filaments 4-5 mm long, 1.3-1.5 mm wide, anthers dark violet, 3.3-3.5 mm long, pistil 6-6.5 mm long, stigma ca. 0.5 mm in diameter with short papillae, capsule 11-12 mm long (Fig.4).

Also from the karyological point of view there are some differences since *O. cupani* has a chromosome complement diploid with 2*n*=14 (Maugini 1956; Ferrarella & al. 1978), while *O. maireana* is tetraploid with 2*n* = 28, showing some differences in the karyotype, mainly regarding the subterminal satellited chromosomes (Fig.5). In fact, in *O. maireana*, they have a microsatellite in the short arm, while in *O. cupani* they show a macrosatellite in the long arm. As already emphasized by Battaglia (1951), for its karyotype *O. mairena* can be considered as a autotetraploid species, arising from a diploid ancestor. Besides, *O. mairena* being circumscribed to secondary habitat, even quite specialized, probably is a neo-endemism.

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