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***Bellevalia dolichophylla* (Liliaceae), a new species from Tunisia**

**Abstract**

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A new *Bellevalia* species, growing on the cliffs of Cap Bon (Tunisia), is described and illustrated. Its chromosome number ( $2n = 16$ ), ecology and taxonomic relationships are discussed.

In the course of our taxonomic investigation of the Tunisian flora we collected some bulbs of a *Bellevalia* in the maritime cliffs at Cap Bon, to be grown in the Botanical Garden of Catania. There, the plants flowered in late winter (February to March) and proved to be quite different from the previously known taxa of this genus.

Only three *Bellevalia* species were known so far from Tunisia: *B. ciliata* (Cirillo) Nees, *B. mauritanica* Pomel, and *B. galitensis* Bocchieri & Mossa (Feinbrun 1938-1940, Cuénod 1954, Bocchieri & Mossa 1991), the first of *B.* sect. *Conicae* Feinbrun and the two others of *B.* sect. *Nutantes* Feinbrun, and on the whole very different from our plants originating from Cap Bon. By their cylindrical raceme, cylindrical perigon, erecto-patent pedicels shorter than or subequalling the flowers, leaves exceeding the stem, and ovate capsule valves rounded at the base, the latter belong to *B.* sect. *Bellevalia* (*B.* sect. *Patentes* Feinbrun). Being morphologically well differentiated from the other taxa of that section, they are here described as a new species.

***Bellevalia dolichophylla* Brullo & Minissale sp. nova.** – Typus: Tunisia, “Falesie di Cap Bon, esemplare coltivato”, 2 Mar. 1992, *Brullo & Minissale* (CAT; isotypi: CAT, FI). – Fig. 1-2.

Bulbus ovoideus, 3 × 2.5 cm. Folia 4-5, subaequilonga (ad 100 cm) et scapo longiora, lineari-lanceolata, 2.5-3.5 lata (intimo 1-2.5 cm lato excepto), margine hyalina, integra et glabra. Scapus singulus, 30-40 cm altus. Racemus cylindricus, floribus 24-28(-30). Bracteae minutae, viridi-violaceae, 1-3 mm longae. Pedicelli erecto-patuli, perigonio subaequilongi vel breviores, 8-10(-11) mm longi. Perigonium apice album, viridulum vel viridulo-violaceum, basi azureum, cylindrico-campanulatum, 11-12 mm longum, lobis tubum subaequantibus, elliptico-ovatis, 3-3.6 mm latis. Stamina petalis breviora, antheris atro-

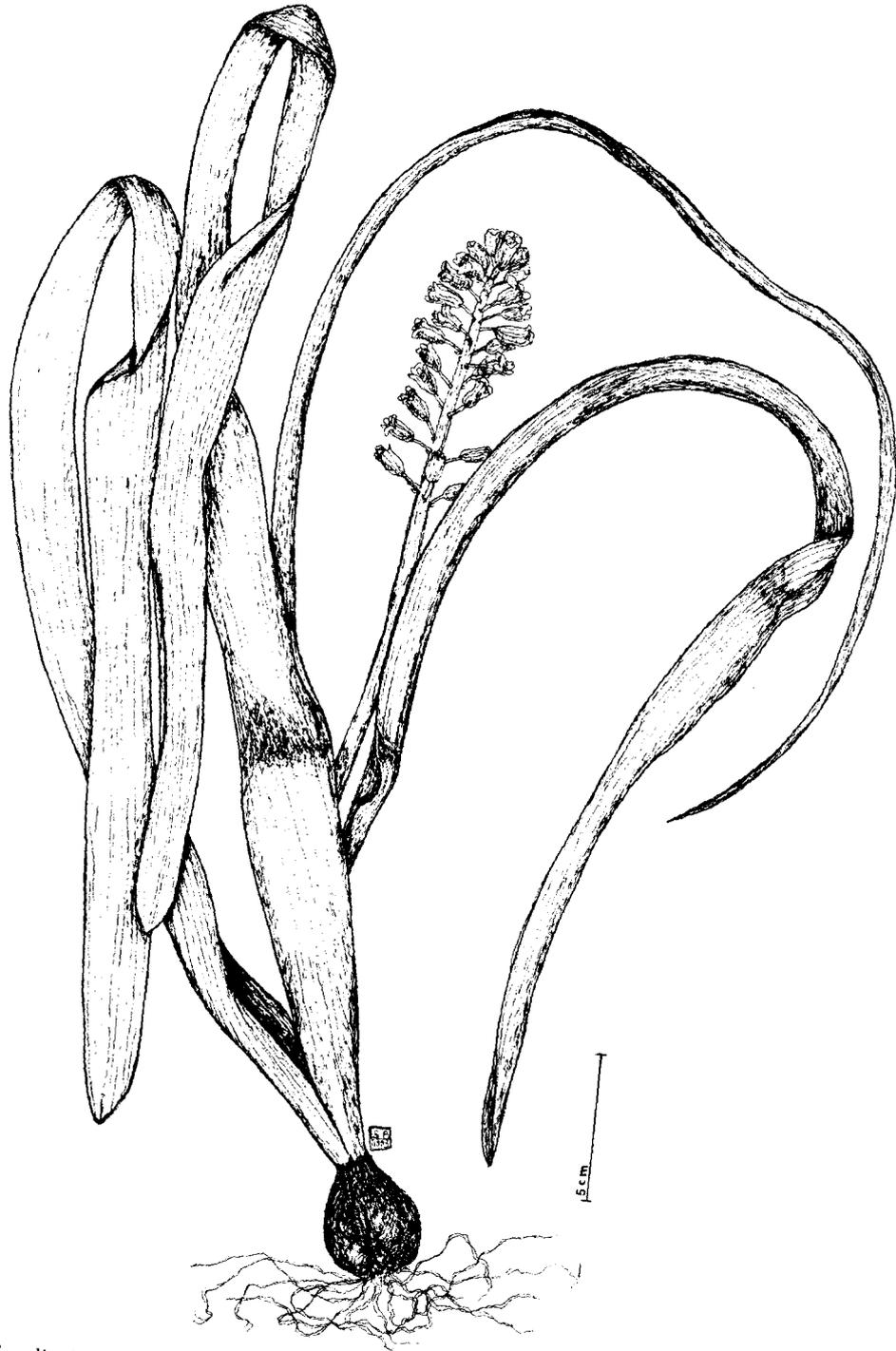


Fig. 1. *Bellevalia dolichophylla*, general habit.

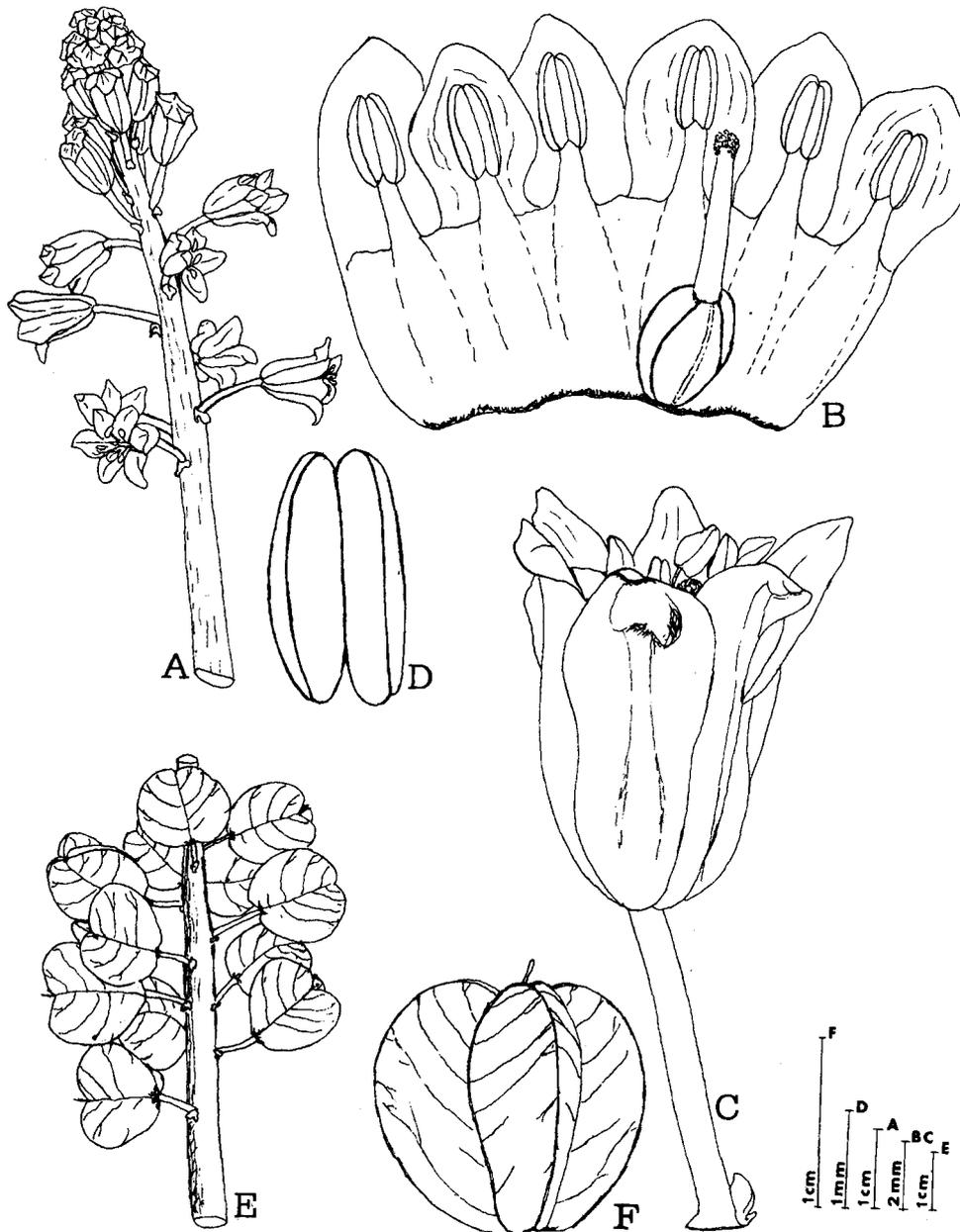


Fig. 2. *Bellevalia dolichophylla*, details. – A, inflorescence at anthesis; B, opened flower; C, flower in lateral view; D, anther; E, inflorescence at the fruiting stage; F, capsule.

violaceis 2.5 mm longis, filamentis albis basi sejunctis. Racemus fructifer cylindricus, pedicellis patulis 8-11 mm longis. Capsulae valvae obovatae, apice retusae, 13-15 mm longae. Semina subglobosa, nigra, pruinosa, 3 mm diametro.

Bulb ovoid, 3 × 2.5 cm; outer tunics coriaceous, dark brown. Leaves 4-5, of about equal length (up to 100 cm) and exceeding the scape, strongly canaliculate, linear-lanceolate, the 3-4 outer ones 2.5-3.5 cm wide, the innermost narrower (1-2.5 cm wide), all with an entire and glabrous, translucent margin and hooded at the tip. Stem solitary, 30-40 cm long, greenish, tinged with violet in the upper part. Raceme cylindrical, 24-28(-30)-flowered. Bracts minute, greenish violet, 1-3 mm long. Pedicels erecto-patent, about equal to or slightly shorter than the perigon, 8-10(-11) mm long. Flower buds white with a greenish-violet tinge. Perigon white, greenish or greenish-violet at distally but tinged blue at the base, turning squalid when dry, cylindrical-campanulate, 11-12 mm long; lobes subequal to the tube, elliptic-ovate, 3-3.6 mm wide, more or less rounded apically. Stamens shorter than the perigon; anthers dark violet, 2.5 mm long; filaments white, separated at the base, about equal to the anthers in length. Ovary ovoid, bluish lilac with whitish keels, 3.5-4 × 2.5 mm; style white or tinged with blue, c. 5 mm long; stigma capitate, white, papillose, shining. Fruiting raceme cylindrical, with pedicels 8-11 mm long, patent. Capsule obovate, 13-15 × 12-15 mm; valves obovate and retuse at the tip, prominently veined. Seeds subglobose, black, pruinose, 3 mm in diameter.

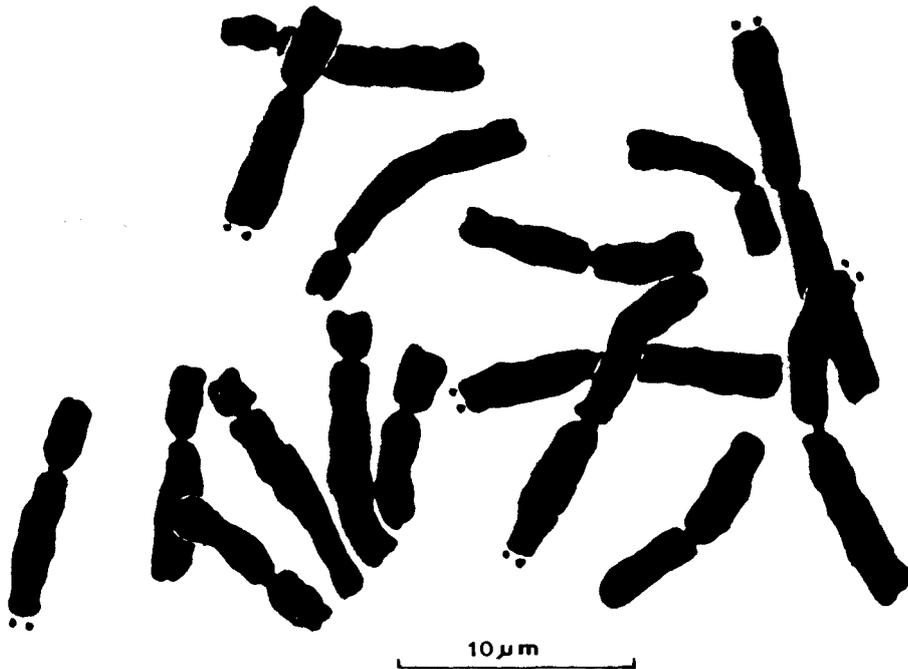


Fig. 3. Chromosome complement ( $2n = 16$ ) of *Bellevalia dolichophylla*.

*Ecology.* – *Bellevalia dolichophylla* is a chasmophyte confined to maritime cliffs. At the type locality it grows together with other rupicolous, mostly endemic plants such as *Dianthus rupicola* subsp. *hermaeensis* (Coss.) O. Bolòs & Vigo, *Brassica atlantica* (Cosson) O. E. Schulz, *Sixalix farinosa* (Coss.) Greuter & Burdet, *Sedum tuberosum* Coss. & Letourn., *Centaurea papposa* Coss., and *Calendula suffruticosa* Vahl; but also with some halophytes of rocky coasts, such as *Bubonium maritimum* (L.) Hill, *Daucus gingidium* L., *Lotus cytisoides* L., *Crithmum maritimum* L., and *Anthyllis barba-jovis* L. By its floristic and ecological peculiarities, this community belongs to the alliance *Anthyllidion barbae-jovis* described by Brullo & De Marco (1989) as belonging to the class *Crithmo-Limonietea* Br. Bl. 1947.

*Karyology.* – The chromosomes of *Bellevalia dolichophylla* were studied, using the Feulgen squash technique as specified in Brullo & al. (1991), on root tips of bulbs originating from the type locality. The species shows the tetraploid chromosome complement  $2n = 16$  (Fig. 3), which, according to literature data, is quite common in the genus (Bothmer & Wendelbo 1981). Its karyotype is characterized by 6 metacentric, 6 submetacentric and 4 subtelo-centric chromosomes; with three pairs bearing microsatellites (Fig. 4), so that the chromosome formula is:  $2n = 4x = 2m + 4m^t + 4sm + 2sm^t + 4st$ . On the whole, the species shows a remarkably uniform chromosome set and a karyotype arrangement of a diploid type.

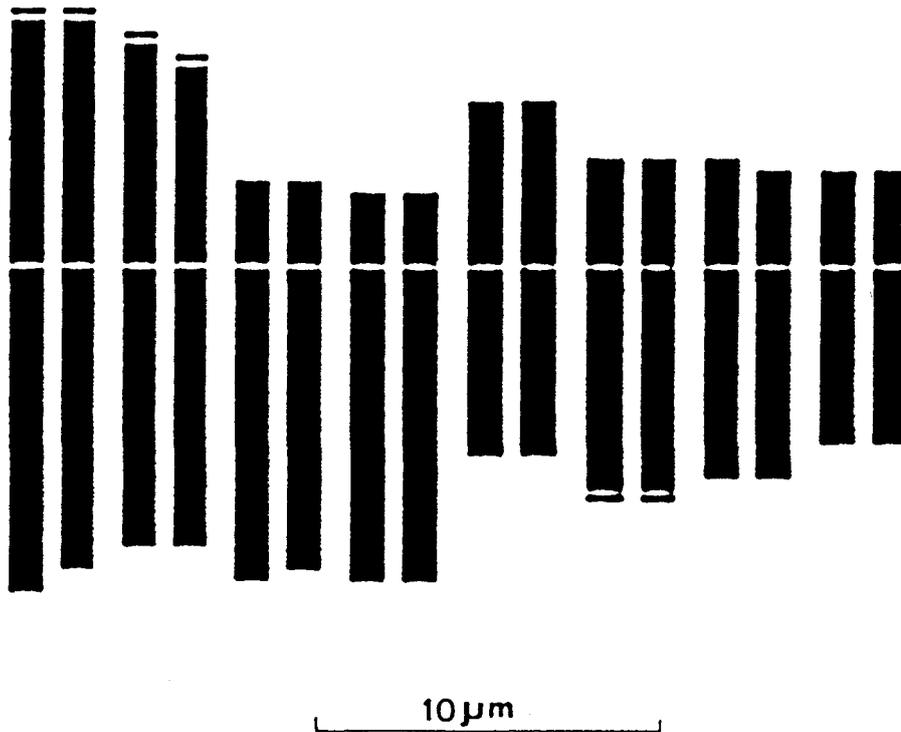


Fig. 4. Karyogram of *Bellevalia dolichophylla*.

*Relationships.* – From the taxonomic point of view, *Bellevalia dolichophylla* seems to be a quite isolated species that shows some affinity only with taxa of *B. sect. Bellevalia*, *B. romana* (L.) Rchb. in particular. Both species are characterized by canaliculate leaves with glabrous margins, flowers that are white or slightly tinged with blue, violet anthers, and a cylindrical fruiting raceme with erecto-patent pedicels. However, they are well distinct by their respective chromosome number and some morphological features. *B. romana* is a diploid with  $2n = 8$ , occurring in southern France, Corsica, Italy, Sicily, Malta, Dalmatia, and Greece (Feinbrun 1938-1940) and characterized by leaves up to 40 cm long and 5-15 mm wide, a stem 15-30 cm high, pedicels up to 20 mm long, a 8-10 mm long perigon with lobes as long as or longer than the tube and an acutish tip, and a capsule with elliptical valves that are rounded apically. Besides, *B. romana*, a species of meadows and cultivated fields, is ecologically well differentiated from *B. dolichophylla*.

Its remarkable morphological features and its confinement to a cliff habitat which it shares with numerous rare chasmophyte taxa considered to be remnants of an old Tertiary flora, make us presume that *Bellevalia dolichophylla*, too, is of old origin. It may perhaps best be considered as a palaeopolyploid (and probably allopolyploid) endemic.

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#### References

- Bocchieri, E. & Mossa, L. 1991: Une nouvelle espèce de l'île La Galite en Tunisie: *Bellevalia galitensis*. – Bot. Hron. **10**: 809-812.
- Bothmer, R. von & Wendelbo, P. 1981: Cytological and morphological variation in *Bellevalia*. – Nordic J. Bot. **1**: 4-11.
- Brullo, S. & De Marco, G. 1989: *Anthyllidion barbae-jovis* alleanza nuova dei *Crithmo-Limonietaea*. – Arch. Bot. Ital. **65**: 109-120.
- , Pavone, P. & Salmeri, C. 1991: Cytotaxonomical notes on *Allium dentiferum* Webb & Berthelot, an unknown species of the Mediterranean flora. – Bot. Hron. **10**: 785-796.
- Cuénod, A. 1954: Flore analytique et synoptique de la Tunisie. Cryptogames vasculaires, gymnospermes et monocotylédones. – Tunis.
- Feinbrun, N. 1938-1940: A monographic study on the genus *Bellevalia* Lapeyr. (caryology, taxonomy, geography) (continued). – Palestine J. Bot., Jerusalem Ser. **1**: 42-54, 131-142, 336-409.

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