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CHARYBDIS GLAUCOPHYLLA BACCH. AND AL. (ASPARAGACEAE) NEW TO NW AFRICA

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Abstract

Charybdis glaucophylla Bacch. & al. (Asparagaceae) is here reported for the first time for the Kroumiria region (NW Tunisia) and for the entire African continent. Basic ecological and demographic information on the local population is provided, too.

Key words: Botanical investigations, Vascular flora, Kroumiria, Tunisia.

Introduction

In the framework of the extensive field surveys aiming at updating and improving the knowledge on the Tunisian vascular flora, mainly focused on the Kroumiria region (El Mokni, 2018; El Mokni *et al.*, 2010, 2012, 2013, 2014, 2015a, 2015b, 2015c; El Mokni & El Aouni, 2011a, 2011b, 2012), a small population of *Charybdis glaucophylla* Bacch. *et al.*, was found in August 2014 growing along the rocky coasts of the peninsula of Tabarka (North-Western Tunisia), which was an isolated island until the end of the World War II.

Charybdis glaucophylla was considered to be endemic to the Sardo-Corsican biogeographical province (Bacchetta *et al.*, 2012): its known distribution included seven subpopulations in Sardinia and one in Corsica. Until recent times, *C. glaucophylla* was only known for the Sulcitano-Iglesiente biogeographic sector (San Pietro Island, Pranu Sartu, Is Arenas and Monte Linas), but three small subpopulations have been subsequently found in the mountainous inland at Monte Limbara (N Sardinia) (Fenu *et al.*, 2014). The only Corsican population was discovered few years ago on the islet of Lavezzi (S Corsica) (Fenu *et al.*, 2016).

Material and Methods

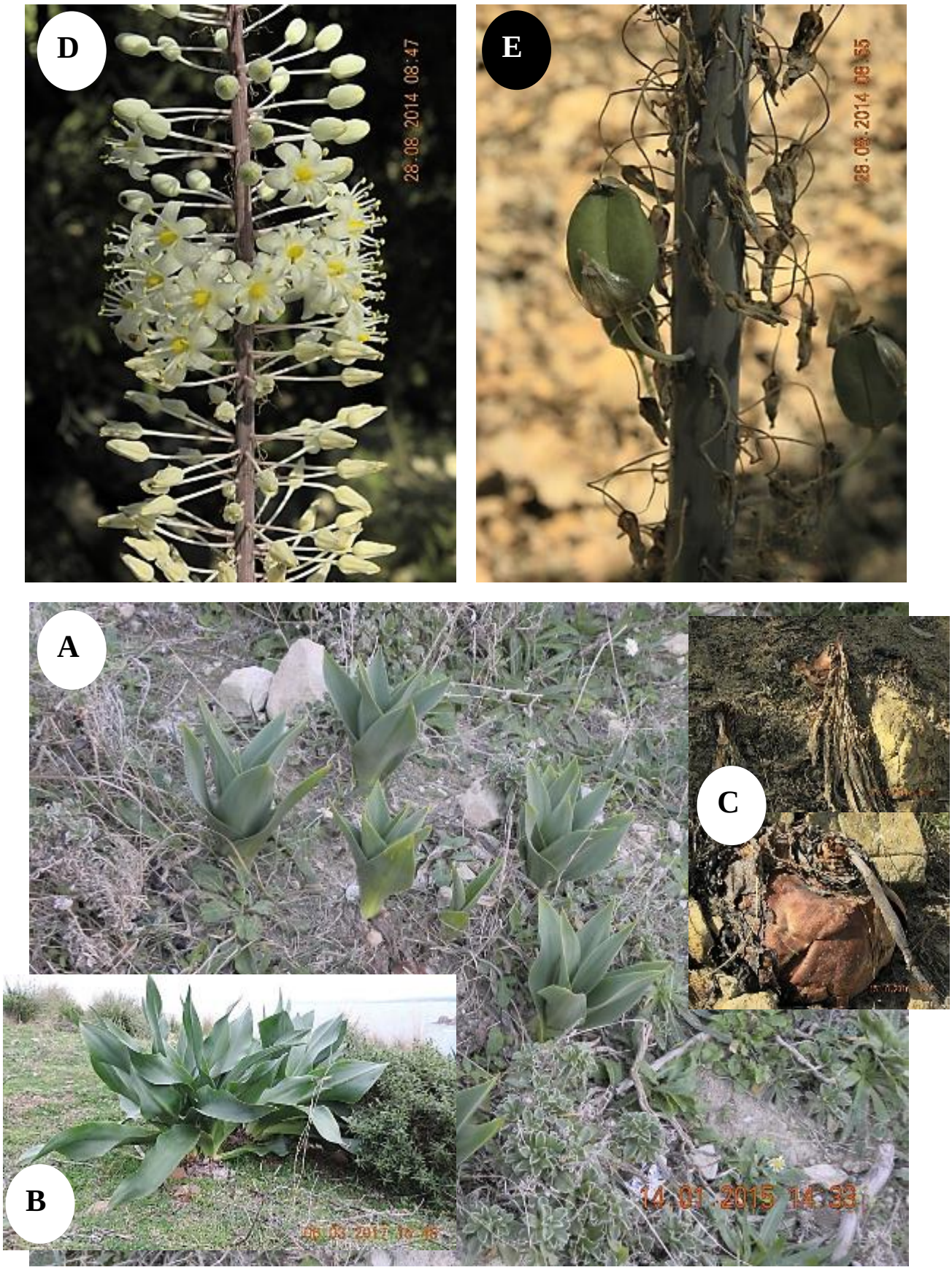
The present work is based on field surveys carried out between April 2014 and January 2019. The morphological description of local population is based on the study of more than 20 specimens whose *exsiccata* are stored in the personal collection of the first author, deposited in the Herbarium of the Faculty of Pharmacy of Monastir (not listed in Index Herbariorum, Thiers, 2019 [continuously updated]).

Results and Discussion

Charybdis glaucophylla (Bacchetta *et al.*, 2012), has been described from a specimen collected from the Island of Santo Pietro near the SW coasts of Sardinia. Its recent inclusion in the genus *Drimia* (Raus, 2016) is still controversial.

Description: (Fig. 1): Geophyte with large ovoid bulb, 5-8 × 6-10 cm, with outer tunics coriaceous and brown in colour, the inner ones whitish. Leaves (5-)6-9 in number, glaucous-pruinose, rigid, oblanceolate, (16-)22-28(-34) × (3-)4.5-8(-10) cm, obtuse to acute, cucullate and apiculate at the apex. Stem 28-35 cm long, greenish, tinged with violet in the upper part. Raceme cylindrical, greenish, (10-)20–40(-57) cm long, with 150-200 flowers. Pedicels erect-patent, 12-18 mm long, longer than perigonium, extending in fruiting plants. Flower buds white, sometimes tinged with pink, 7-8 mm long. Perigonium white, stellate, 15-16 mm in diameter; lobes 7-7.5 × 3.4-3.8 mm, oblong to oblong-elliptic, the inner ones rounded, the outer ones obtuse, midrib purplish. Stamens subequal or shorter than the perigonium; anthers greenish, 3.0-3.2 mm long; filaments white, subulate, 3.5-4.2 mm long. Ovary ellipsoid, green (yellowish in the Tunisian population), 2.6-2.8 × 1.9-2 mm; style white, 2.2-3.2 mm long; stigma capitate, white, papillose. Fruiting raceme linear-cylindrical. Capsule trigonous, ellipsoid, 8.5-10 × 6-7.5 mm, truncate at the base. Seeds oblong, black, shining, 4.3-5 × 2-2.3 mm (Bacchetta *et al.*, 2012).

Phenology: Flowering from late July to August (Fig. 1D), fruiting from August to September (Fig. 1E), foliation from January to May (Figs. 1A & B).



Source: Photographs taken by the First Author in Tabarka (Kroumiria, North-Western of Tunisia)

Fig. 1. Some images of *Charybdis glaucophylla* Bacch. *et al.* (Photos: R. El Mokni). A & B: habit during the foliation period; C: large ovoid bulbs with outer brown coriaceous tunics; D: cylindrical flowering raceme with hundreds of flowers; E: fruiting raceme with trigonous capsules.

Additional notes concerning the Tunisian population: *Charybdis glaucophylla* is easily distinguishable from the other sister species (i.e. *D. aphylla*, *D. hesperia*, *D. maritima*, *D. maura*, *D. numidica* and *D. pancration*) by its several peculiar morphological and phenological traits, such as the leaf morphology (the leaves are very long, glaucous, narrowly lanceolate and acute; Fig. 1B) and the life-cycle. In fact, the leaves develop in winter (January), while in the other species of the *D. maritima* group they usually start growing during early autumn, just after flowering. Moreover, *D. glaucophylla* shows early flowering (July-August) and the dormancy period between flowering and leaf growth lasts four months (Bacchetta *et al.*, 2012).

The population of Tabarka counts approximately 100 individuals forming small, scattered tufts distributed over an area of 50×100 m, i.e. approximately 5000 m^2. It grows on the sandstones and clays of the Numidian Lithological Unit (dating back to Oligocene-lower Miocene), together with *Achyranthes sicula* (L.) All. (new record for the region of Kroumiria), *Anthyllis barba-jovis* L. (local population is the biggest in Tunisia), *Ampelodesmos mauritanicus* (Poir.) T. Durand & Schinz, *Aristolochia navicularis* E.Nardi, *Urginea fugax* (Moris) Stearn, *Barnardia numidica* (Poir.) Speta (endemic to Lybia, Tunisia, Algeria and Balearic Islands) *Calendula suffruticosa* Vahl *s.l.*, *Daucus carota* L. subsp. *hispidus* (Ball) Heywood, *Hyoseris taurina* (Pamp.) Martinoli, *Hyoseris radiata* L.,

Limbarda crithmoides (L.) Dumort., *Odontites discolor* Pomel subsp. *ciliatus* (Pomel) Bolliger (Tunisian-Algerian endemic), *Pallenis maritima* (L.) Greuter, *Senecio leucanthemifolius* Poir. subsp. *leucanthemifolius*, *Sixalix farinosa* (Coss.) Greuter & Burdet (Tunisian-Algerian endemic), *Sonchus asper* L. subsp. *glaucescens* (Jord.) Ball, etc.

As for as the risk assessment of local population is concerned, despite its small size and the intense grazing affecting the area, but there is no evidence of a recent decline and considering that the species is poisonous, it should be considered as Least Concern according to IUCN classification scheme, thus confirming the recent evaluation carried out by Fenu *et al.*, (2016). However, further investigations in order to find any new populations and to better assess the medium- and long-term demographic trends are needed.

Our discovery confirms the outstanding richness of the coastal area of North-Western Africa in terms of endemic taxa. Taking into account both the poor knowledge on the current distribution of rare and endemic plant taxa and the huge overgrazing pressure on these areas, decision-makers should urgently individuate wide protected areas along the coasts of Morocco, Algeria and Tunisia in order to protect their biological heritage.

Examined specimens: (new records to the flora of Tunisia): Tunisia. Tabarka, on sandstone rocky coastal lands, very long, glaucous, narrowly lanceolate and acute leaves, 36°57'46.39'' N, 08°45'32.28'' E, 5 to 35 above sea level (Fig. 1).

Specimina visa: TUNISIA: Jendouba, Tabarka-Dzira (= Island of Tabarka), North-Western Tunisia, 36°57'46.39'' N, 08°45'32.28'' E, 5 and 35 m a.s.l., 03 October 2012, *R. El Mokni s. n.* (Herb. Univ. Bizerta); *ibidem* 18 Mar 2013, *R. El Mokni s. n.* (Herb. Univ. Bizerta); *ibidem*, 11 Oct 2016, *R. El Mokni s. n.* (Herb. Univ. Monastir); *ibidem*, 06 Marsh 2017, *R. El Mokni s. n.* (Herb. Univ. Monastir); *ibidem*, 06 January 2019, *R. El Mokni s. c.*

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