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***Bassia scoparia* (Amaranthaceae s. l.) and *Sesuvium portulacastrum* (Aizoaceae), two new naturalized aliens to the Tunisian flora**

Abstract

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Bassia scoparia var. *trichophylla* (Amaranthaceae s. l.), and *Sesuvium portulacastrum* (Aizoaceae) are recorded for the first time for the non-native flora of Tunisia. A morphological description, distribution and habitat, as well as taxonomic notes, are provided for each taxon.

Key words: alien species, distribution, taxonomy, xenophytes.

Introduction

Careful field surveys during the last two decades have allowed not only the improvement of the floristic and biogeographical knowledge within the Tunisian territory (see e.g., Domina & al. 2017, Domina & El Mokni 2019; El Mokni & al. 2015, 2019) but also the discover of many species new for the non-native Tunisian flora (see e.g., Iamónico & El Mokni 2016; El Mokni & Domina 2017a; El Mokni & Domina 2017b; Iamónico & El Mokni 2017a, 2017b, 2018; El Mokni & Domina 2018; El Mokni & Verloove 2019; Iamónico & El Mokni 2019a, 2019b). In this paper, we provide further results related to the families *Aizoaceae* Martinov and *Amaranthaceae* Juss. s. l. (incl. *Chenopodiaceae* Vent. *sensu* APGIV 2016). Within the first family, the genus *Sesuvium* L. is here reported for the first time to the Tunisian flora with the species *S. portulacastrum* (L.) L., whereas for the second family (*Amaranthaceae*), the genus *Bassia* All. is currently represented by only two species in Tunisia [*B. muricata* (L.) Asch., and *B. indica* (Wight) A.J.Scott] (Sukhorukov & al. 2018). We here report for the first time *Bassia scoparia* var. *trichophylla* (Voss) L.H.Bailey as an alien naturalised to the Tunisian flora.

Materials and Methods

The work is based on extensive field surveys, analysis of literature, and examination of the specimens kept in the personal collection of one of the authors (R. El Mokni) which is

deposited in the Herbarium of the Faculty of Pharmacy of Monastir and of the personal Herbarium of El Mokni. Taxa are presented alphabetically.

Records

1. *Bassia scoparia* var. *trichophylla* (Voss) L.H.Bailey, Man. Cult. Pl. 250 (1924) ≡ *Kochia trichophylla* Voss., Deutsche Gartenrat 140: 391. 1905. ≡ *Bassia scoparia* f. *trichophylla* (Voss) S.L.Welsh., Utah Fl., ed. 3.: 113. 2003.

Lectotype: not designated.

– *Bassia scoparia* f. *trichophylla* (Voss) S.L.Welsh., Utah Fl., ed. 5: 126. 2015, isonym (Art. 6 Note 2 of ICN; Turland & al. 2018).

Bassia scoparia, a highly variable species, and several forms, varieties, and subspecies have been described during the time. Among them, var. *trichophylla* (Voss) L.H. Bailey appears to be widespread in Tunisia. It is characterized by plants appearing ovoid or obovoid (“cypresslike”) with crowded branches, and leaves narrower (Fig. 1).

Distribution and habitat

The genus *Bassia* comprises about 20 species, distributed in the western Mediterranean to eastern Asia (see e.g., Kadereit & Freitag 2011).

Bassia scoparia is a highly variable species from the morphological point of view, is native to central and eastern Europe and western Asia (see e.g., Friesen & al. 2009), and it is well naturalized as alien in Tunisia. The horticultural var. *trichophylla* is largely cultivated as ornamental throughout many regions in Tunisia and was found many times naturalized on roadsides, abandoned lands and dumps. The plant has been recorded as a weed in South and Western Australia and is declared as noxious weed in some states (Dodd & Randall 2002).

In the Mediterranean area, *B. scoparia* is reported as native to the Iberian Peninsula and as naturalized alien in France, Italy, Sicily and Malta (see e.g., Uotila 2011; Tison & De Foucault 2014; Galasso & al. 2018). The Tunisian checklist (Le Floch’h & al. 2010), the *Synonymic Index for North African Flora* (Dobignard & Chatelain 2011) and even the African Plant Database (APD 2019) did not list or precise this infraspecific taxon neither for Tunisia nor for North Africa but Uotila (2011) reported *B. scoparia* only as naturalized alien in Morocco and as casual alien in Algeria and Lybia. In the APD (2019) *B. scoparia* is accepted as a weed only for the Canary Islands, Morocco, Algeria and Lybia. Botanical surveys carried out since 2004, led to distinguish this taxon in some sporadic populations well naturalized, on ruderal coastal abandoned lands (from Monastir in the centre-east to Tabarka in the northern-west) of Tunisia.

Taxonomic notes

The delimitation of infraspecific taxa within *Bassia scoparia* remains highly critical and their taxonomic value is subject to questioning (see e.g. Gudžinskas & Sukhorukov 2004).

Examined specimens (new records)

TUNISIA: Bizerta (Route Corniche, NE Tunisia), 37°17'23" N, 09°52'08" E, 4 m a.s.l., 18 December 2016, R. El Mokni s.n.; Nabeul (Hammamet-South, CE Tunisia), 36°24'12"

N, 10°35'31" E, 8 m a.s.l., 11 December 2016, *R. El Mokni s.n.* (Herb. Univ. Monastir); Monastir (Route Khénis, CE Tunisia), 35°43'31" N, 10°49'04" E, 5 m a.s.l., 22 November 2016, *R. El Mokni s.n.* (Herb. Univ. Monastir); Jendouba (Tabarka, NW Tunisia), 36°56'57" N, 08°46'34" E, 3 m a.s.l., 05 Mai 2017, *R. El Mokni s.n.* (Herb. Univ. Monastir); Mahdia (Touristic zone, CE Tunisia), 35°30'07" N, 11°04'02" E, 01 m a.s.l., 05 February 2019, *R. El Mokni s.n.* (Herb. Univ. Monastir).

2. *Sesuvium portulacastrum* (L.) L., Syst. Nat., ed. 10(2): 1058. 1759. \equiv *Portulaca portulacastrum* L., Sp. Pl. 1: 446. 1753.

Lectotype (designated by Wijnands 1983: 175): [icon] *Portulaca corassavica Angusto longo lucidoque folio* in Hermannus (1968 : 212, image available at <https://bibdigital.rjb.csic.es/viewer/13586/?offset=#page=310&viewer=picture&o=bookmark&n=0&q=>).

Distribution and habitat

The genus *Sesuvium* comprises perennial and annual herbs with glabrous or papillate stems and sub-opposite, sessile or short-petiolate leaves, axillary pink or mauve flowers with five perianth lobes, five to numerous stamens and circumscissile capsule containing several or numerous black seeds completely or partially (in perennial species) covered with a translucent or whitish one-layered aril, and with a crustaceous



Fig.1. *Bassia scoparia* var. *trichophylla* in the Tabarka region (NW Tunisia) (photo R. El Mokni).



Fig. 2. *Sesuvium portulacastrum* in the Monastir region (CE Tunisia) (Photo R. El Mokni).

seed coat (Sukhorukov & al. 2017).

Sesuvium portulacastrum is an herbaceous (Fig. 2), perennial, psammophytic, dicotyledonous and facultative halophyte belonging to *Aizoaceae* (Lonard & Judd 1997; Lokhande & al. 2009). This species grows on the coastlines and it is widely distributed as a pioneer strand species on tropical and sub-tropical shores (Lonard & Judd 1997). It grows naturally in the sub-tropical, Mediterranean, coastal and warmer areas around the world (Ramani & al. 2006). Concerning North Africa, this species is currently recorded only in Morocco (see e.g., Greuter & al. 1984; Fennane & al. 1999; Dobignard & Chatelain 2011; APD 2019). It is here reported for the first time from Tunisia where it occurs as one of the floristic corteges of halophytic plants within salty water of non-permanent rivers in Medenine region (south-eastern of Tunisia) and ruderal coastal plants of Monastir's region (centre-eastern of Tunisia).

Examined specimens (new records)

TUNISIA: Medenine (Route Amra, south-eastern of Tunisia), 33°21'33.23" N, 10°30'06.30" E, 77-78 m a.s.l., 18 December 2016, R. El Mokni s.n. (Herb. Univ. Monastir); Monastir (Route Sousse, centre-eastern of Tunisia), 35°46'12.54" N, 10°47'14.79" E, 3 m a.s.l., 19 June 2017, R. El Mokni s.n. (Herb. Univ. Monastir).

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