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A new generic and species record *Sesuvium portulacastrum* (Aizoaceae) for the Flora of Libya

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ABSTRACT

The genus *Sesuvium* L. belonging to the family Aizoaceae, is added as a new genus and species record in the flora of Libya, represented by *Sesuvium portulacastrum* (L) L. The specimens were collected from the University of Sebha campus. The voucher specimens were deposited at the Herbarium of the Botany Department, Faculty of Science, University of Sebha.

Keywords: *Sesuvium.* Aizoaceae. Flora. Libya. Succulent. New record.

1. INTRODUCTION

The genus *Sesuvium* belongs to the family Aizoaceae and comprises 18 species of succulent plants, both annual and perennial., which are widely distributed in tropical and subtropical regions (Bohley *et al.*, 2017; Sukhorukov, 2021; Zhang *et al.*, 2024).

Aizoaceae is a small family of flowering plants, often characterized as annual to perennials herbs, rarely low woody shrubs, usually succulent or xerophytic. Leaves entire, opposite or alternate, or whorled to crowded, exstipulate or rarely stipulate. Inflorescence usually leafy, axillary or terminal., with one-to-many flowers. Flowers hermaphrodite, actinomorphic, 4- to 5-merous. Perianth simple with tepals green outside and green, white, yellow, or pink inside. Stamens range from (3) 4-5 to numerous. Ovary is usually superior, sometimes inferior, with 2 to many carpels united to form a compound ovary. Style simple or absent. Stigmas as many as carpels. Locules from one to ten, with one ovule in each. Fruit dry or berry-like, many-seeded capsule (Heywood *et al.*, 2007; Zohary, 1966; Abdul Ghafoor, 1977).
Family members grow in coastal areas of the tropics and subtropics, extending into dry, warm, temperate lands of Africa, Asia Minor, and North America.

The Aizoaceae consists of 12 genera and 170 species (Heywood *et al.*, 2007). In Libya, it was previously represented by 5 genera (*Aptenia, Aizoon, Carpobrotus, Zaleya,* and *Mesembryanthemum*) and 10 species prior to this addition (Abdul Ghafoor, 1977).

2. MATERIALS AND METHODS

Specimens were collected from the University of Sebha campus (Longitude 14° 02' 03.4" E and Latitude 27° 26' 30.7" N) (Figure 1). The collected specimens were processed following standard herbarium techniques. Plant identification at the genus

and species level was carried out at the Herbarium of the Botany Department, Faculty of Science, University of Sebha, using data from the following literature (Bittrich and Hartmann, 1987; Minué & Jocou, 2021; Zhang *et al.*, 2024). The herbarium specimen was given the voucher number 76.26.6 and deposited in the aforementioned herbarium (Fig 6).

Figure 1. Location of Sebha city Left) University of Sebha campus (Right).

3. RESULTS & DISCUSSION

***Sesuvium portulacastrum* (L.) L.** Syst. Nat., ed. 10. 2: 1058 (1759)

Synonyms

Halimus portulacastrum (L.) Kuntze in Revis. Gen. Pl. 1: 263 (1891)

Portulaca portulacastrum L. in Sp. Pl.: 446 (1753); (The Royal Botanical Gardens, Kew, 2023)

Description of species

Succulent prostrate, glabrous perennial herb, smooth. Rooting at nodes, diffusely branched with some ascending branches. Leaves simple, succulent, opposite, oblong-spathulate ,2.4- 6 cm long and 0.6 cm wide, with minute papillae, shortly petioled, petioles 5-6 mm long, margin entire. Flowers solitary, axillary, bisexual., periynous, and rosy or purple inside. Calyx 5 lobed, 13 mm long, elongating to 7 mm at maturity, sepals triangular with green apical appendages c. 1 mm; outer surface green, inner white to pale pink. Petals lacking. Stamens many, free, in 2 unequal whorls; anthers pink. Ovary compound of 3 carpels, styles 3. Fruit a broadly ovoid capsule 6-10 mm long and 5-6 mm wide, circumsessile dehiscent; Seeded many, shiny black, 1,2–1.5 mm. (Fig. 2, 3, 4, 5).

Figure 2: The plant habit.

Figure 3: leafy braches.

Figure 4: Flowering braches.

Figure 5: The flower.

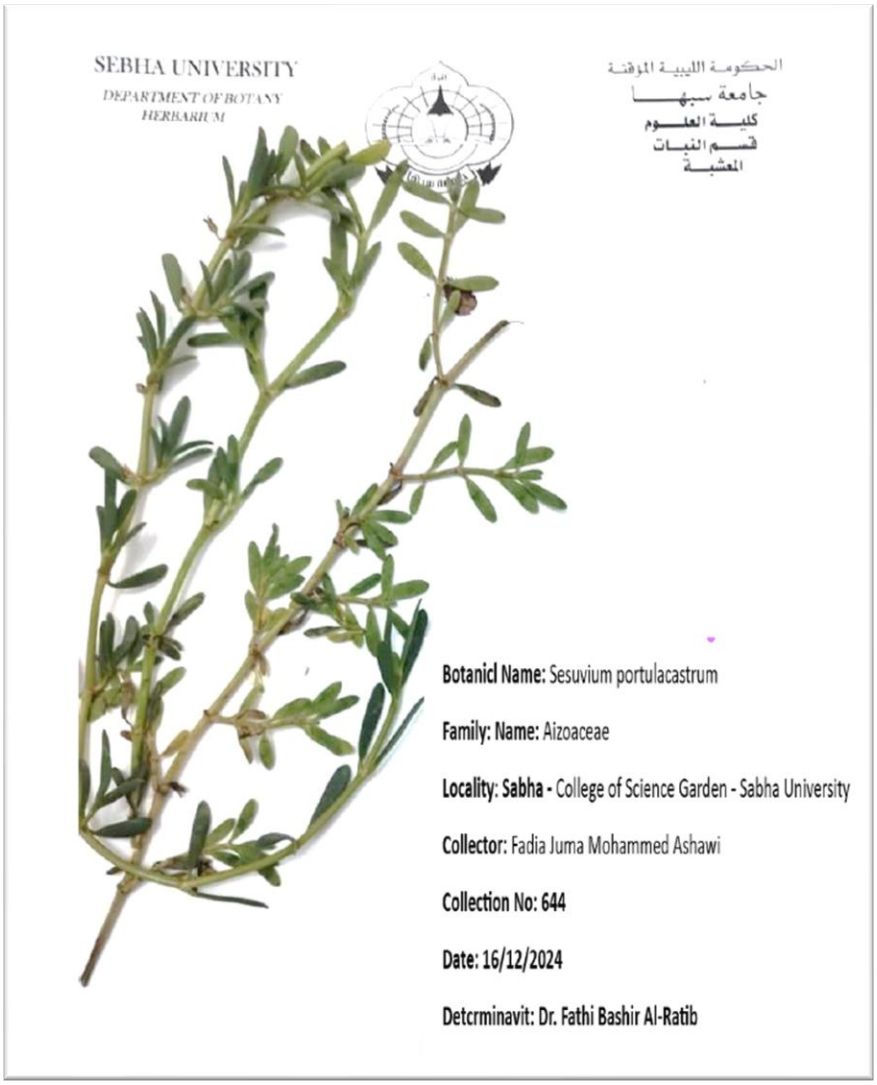

Figure 6: Herbarium specimen of *Sesuvium portulacastrum*.

Based on detailed morphological characters, the plant specimens were identified and confirmed as *Sesuvium portulacastrum* using numerous references from adjacent and global floras, including that of Saudi Arabia (Thomas *et al.*, 2014) and the United Arab Emirates (Böer *et al.*, 2019) as well as references concerned with global taxonomic revisions of the genus *Sesuvium* (Hartmann & Gerbaulet, 2017; Sukhorukov, 2018). These references provided important information for distinguishing the genus *Sesuvium* and closely related taxa. The species is widely distributed in tropical and subtropical regions of the world (Fig 7). It is a facultative halophyte adapted to sandy and saline habitats. In north Africa, it has been recorded in Morocco (Greuter *et al.*,1984; Fennane *et al.*,1999; Dobignard & Chatelain 2011; APD 2019), and recently recorded in Tunisia (El-Mokni & Iamonico, 2019) and Egypt (Heneidy, *et al.*, 2024).

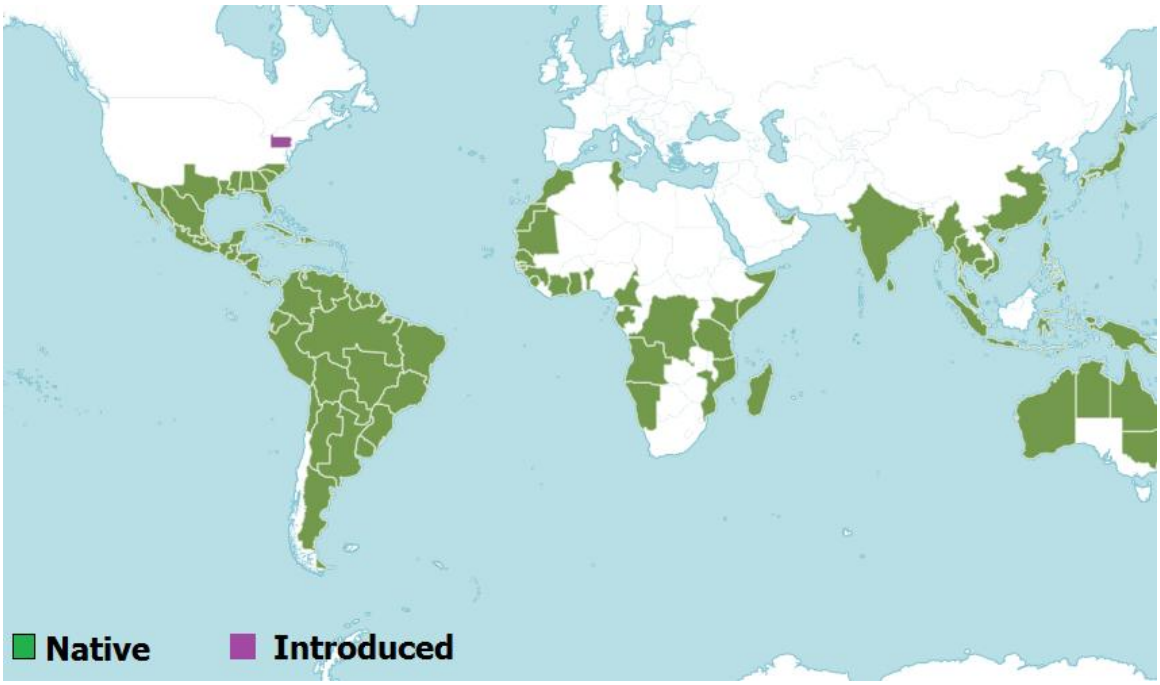

Figure 7: Global distribution of *Sesuvium portulacastrum,* (The Royal Botanical Gardens, Kew, 2023)

4. CONCLUSION

Sesuvium portulacastrum is reported here for the first time in Libya as a new genus and species record. The specimens were collected from the University of Sebha campus in a relatively small area with small populations. Therefore, its distribution in Libya is very restricted, and it is rated as a very rare genus and species.

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Authors contribution

Fadia Eshawi collected the plant specimens, Fathi Rateeb identified the plant specimens, Mohammed Makhlouf constructed the article and submitted the manuscript to the journal.

Informed consent

Not applicable.

Conflicts of interests

The authors declare that they have no conflicts of interests, competing financial interests or personal relationships that could have influenced the work reported in this paper.

Ethical approval & declaration

In this article, as per the plant regulations followed in the Department of botany, Faculty of science, University of Tripoli, Libya; the authors observed a new generic and species record *Sesuvium portulacastrum* (Aizoaceae) for the Flora of Libya. The ethical guidelines for plants & plant materials are followed in the study for species observation, identification & experimentation.

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Data and materials availability

All data associated with this study are presented in the paper.

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