



Notes on distribution of two ornamental *Portulaca* (Portulacaceae) in Bangladesh

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Abstract

In this paper, the distribution of *Portulaca pilosa* L. and *Portulaca umbraticola* Kunth of *Portulaca* genus in Bangladesh has been described. Both of the species were exotic and introduced by the gardeners or nurseryman in Bangladesh. They have been cultivated long before in roof top gardens to in front gardens as ornamental ground covering herbs. Morphological description along with update nomenclature, habitat, information on flowering and fruiting time, mode of propagation, uses, global distribution, photographs and identification key were provided to identify easily.

Keywords: *Portulaca pilosa* L., *Portulaca umbraticola* Kunth, Rajshahi

Introduction

According to Angiosperm phylogeny group (APG) classification third version (2009) [2], the Family *Portulacaceae* is become a monotypic family and comprising 152 species (POWO). It is distributed throughout the tropical and subtropical region but the highest diversity shown in arid regions of South America, Africa and Australia and very few species found in Asia and temperate Europe (Gilbert and Philips, 2000). In Bangladesh, three species were reported earlier and they were *Portulaca grandiflora* Hook., *Portulaca oleraceae* L. and *Portulaca quadrifida* L. (Ahmed *et al.*, 2009 [1]; Mahmudah *et al.*, 2017 [12]; Rahman and Hassan, 2017 [15]; Rahman and Uddin, 2018 [16]; Rahman *et al.*, 2018 [17]; Uddin and Hassan, 2018 [18]; Khanam *et al.*, 2020 [10]; Hossain *et al.*, 2021 [7]; Khan *et al.*, 2021a [8], Khan *et al.*, 2021b [9]; Rahman, 2021 [14]; Hossain *et al.*, 2022 [6]; Khatun *et al.*, 2022) [11]. Among them *Portulaca grandiflora* Hook. is a popular cultivated species for its showy flower. During the exploration for documentation of plant species of Rajshahi city area, first author collected two interesting herbaceous species, one from natural sunny habitat on road side and another from roof top garden. After a detail study, first one was identified as *Portulaca pilosa* L. and latter one was identified as *Portulaca umbraticola* Kunth. Both species were from *Portulaca* genus of *Portulacaceae* family. These two species was distinguished from the other species described from Bangladesh. Therefore, the new finding represents the first record for Bangladesh.

Materials and Methods

The specimens, collected during the field studies in Rajshahi city in 2019 and 2022, were checked with the related literature; online flora (Flora of China; Flora of North America) and previously deposited specimen of portulaca genus in Bangladesh National Herbarium, Dhaka. The voucher specimens were housed at department of botany, Abdulpur Government College, Natore, Bangladesh and Bangladesh National Herbarium (DACB). The up-to-date nomenclature has been cited based on "Plants of the world online (<http://www.plantsoftheworldonline.org>)". Data

about the habitat and the occurrence of both are based on personal observations in the field.

Description

1. *Portulaca pilosa* L., Sp. Pl. 1: 445. 1753.

Vernacular name: Khude ghas phul, Pink purslane, Shuggy purslane, Hairy pigweed.

Description

Annual or short-lived perennial herbs. Stems succulent, not articulated, diffuse, much branched; leaf axils densely pilosa. Leaves alternate; petiole absent; leaf blade linear-cylindrical, slightly flattened (hemispherical in section), apex acute. Flowers small less than 1.5 cm in diameter, in terminal clusters of 2-4 or more, surrounded by 4-8 involucre leaves and dense woolly hairs, involucre leaves similar to the stem leaves but slightly larger. Sepals 2, oblong, apex acute or acuminate. Petals 5, red-purple, broadly obovate, connate at the base, apex obtuse or slightly retuse with a central apiculum. Stamens 15-20; filaments red, free. Style short, stigma 3-5 lobed. Capsule cylindrical-ovoid, dehiscent the middle and lid a round dome. Seeds minute, numerous, black.

Habitat: Open grounds, sandy soils, roadsides or cultivated in garden or pot.

Flowering and fruiting: May-September

Mode of propagation: Seed and Stem cutting

Use: Not known

State of Occurrence: Occasionally

Specimens examined: Rajshahi: Rajshahi city, Rajpara (along main road), 16 vii 2020, M Tarikul Hasan, TH 1357 (Dept. of Botany, Abdulpur Govt. College, Natore); Horogram Bazar, 15 vii 2019, M Tarikul Hasan, TH 1225 (Dept. of Botany, Abdulpur Govt. College, Natore).

Global distribution: Native to Central to Northern Africa, West Europe and Meddle East to South Asia.



Fig 1: A. *Portulaca pilosa* L. plant; B. Flowering twig; C. Flower; D. Sepal; E. Leaf; F. Stamens and G. Pistils.

2. *Portulaca umbraticola* Kunth, F.W.H. von Humboldt et al., Nov. Gen. Sp. 6: 72. 1823.

Vernacular name: Portulaca, Wing pod Purslane.

Description

Annual, prostrate to sub-erect, glabrous succulent herbs, roots fibrous. Leaves obovate, alternate, fleshy, spatulate, or sometimes lanceolate, flattened, apex rounded to truncate. Flowers larger, 2-7 flowered cymes in terminal clusters, sessile cluster subtended by 2-5 leaved involucre, involucre leaves similar to the stem leaves. Petals yellow, pink, orange or multicolored, spatulate or obovate, petals slightly curve outside. Stamens 20-25, sub-equal, shorter than style. Stigmas 2-5 fid. Capsule obovoid, surrounded by expanded membranous wing, dehiscing horizontally.

Habitat: Sunny open grounds, Sandy soil.

Flowering and fruiting: March- October

Mode of propagation: Stem cutting

Use: Cultivated for its showy flower

State of Occurrence: Commonly cultivated in garden.

Specimens examined

Rajshahi: Rajshahi city, Horogram Bazar, 14vii 2019, M Tarikul Hasan, TH 1220 (Dept. of Botany, Abdulpur Govt. College, Natore).

Dhaka: Mirpur, Rainkhola, 10 v 2022, M Sultana, DMS 4602 (DACB).

Global distribution: Native to Southern part of America, Bolivia, Brazil Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica, Louisiana, Mexico, Nicaragua, Paraguay, Peru, Venezuela

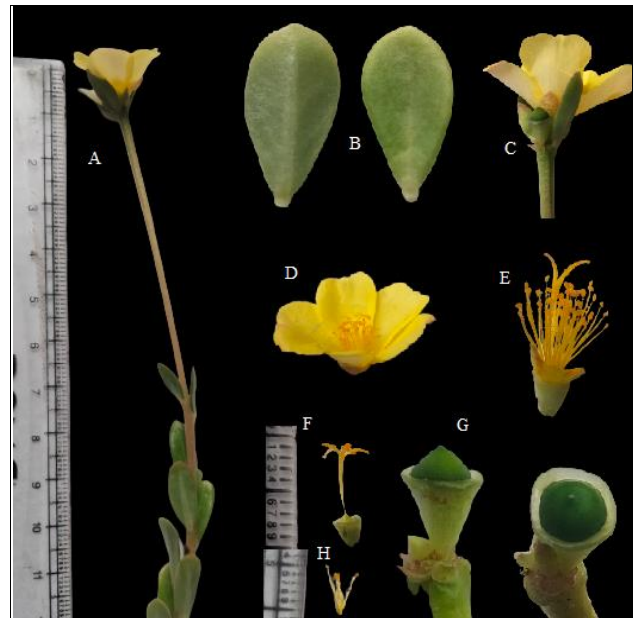


Fig 2: A. *Portulaca umbraticola* Kunth plant; B. Leaves; C. Flowering twig; D. Flower; E. Reproductive part; F. Pistils. G. Pod with membranous wing and H. Stamens.

Discussions

Described two species are mainly utilized in gardens and rooftop garden as ornamental ground cover plant. During the field survey, *Portulaca pilosa* L. has been discovered occurring in the road side on sunny open area. Probably, *P. pilosa* escaped from nearby gardens and where, originally was introduced as ornamental exotic plants. *P. pilosa* produce numerous minute seeds and these seeds are germinating easily. It is also propagated easily by stem cutting. On the other hand, *P. umbraticola* produce their fruit and seeds but at present the spread of this species entirely depends on stem cutting. Both of the species were exotic and introduced by the gardeners or nurseryman in Bangladesh long before. *P. umbraticola* was introduced earlier but *P. pilosa* escaped from the cultivation fast and naturalized. On the other hand, *P. umbraticola* was commonly cultivated in gardens, rooftop or balcony gardens but both were overlooked. The findings of this study can contribute to further taxonomical investigations on both the species and family *Portulacaceae*. Based on the morphological data a key is presented below:

Key to the species:

- 1 Leaves blade terete-subulate, Flowers small, less than 1.5 cm in diameter, Capsules not encircled by expanded membranous wing..... P. pilosa
- + Leaves blade flattened, Flowers more than 2cm in diameter, Capsules encircled by expanded membranous wing P. umbraticola

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