

Article

## New record species of *Gypsophila* L. in Iraq

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### Abstract

*G. tuberosa* is a newly recorded species from the Caryophyllaceae family for Iraqi flora, collected from the Arbil district from May to August. Morphological descriptions with macro and micro features illustrated with plates and dimensions, the species is related to *G. pallida* and distinguished from calyx properties, especially the presence of large prominent druses crystals.

**Keywords:** Caryophyllaceae, *Gypsophila*, Iraq, New record, *pallida*.

### Introduction

*Gypsophila* L. (baby's breath) is one of the largest and most polymorphic genera for the family Caryophyllaceae<sup>21</sup>, represented by more than 150 species native to Europe, Asia and North Africa, as well as many newly recorded species from Iran and Turkey as *G. alvandica*, *G. pseudopallida*, *G. yazdiana*, *G. torulensis*, *G. os-mangaziensis*, *G. Mayer*, *G. turcica*<sup>3, 9, 17, 4, 14, 13</sup>.

*Gypsophila* is a predominant Eurasian genus; it grows in the north of temperate parts of the Old World between 30-60 latitudes<sup>6</sup>. Most genus species are distributed in a distinct geographical area, considered the center of genus diversity, including the Black Sea region, Caucasia, Turkey, northern Iran, and northern Iraq<sup>5</sup>. The genus was first described by<sup>18</sup>, who mentioned more than 150 species, but he did not include the species *G. tuberosis* Hub.-Mor. Later, it was described for the first time in materials of the flora of Turkey<sup>15</sup>.

*Gypsophila* in Iraq is represented by 14 native wild species and a single cultivar, *G. elegans*, and from reviewing different Iraqi references, there was no mention of *G. tuberosis*.<sup>19, 1, 20, 11</sup>. At the same time, it is considered a native species for east Turkey, especially Erzincan<sup>12</sup>.

### Materials and Methods

In different field trips, a number of specimens were collected between 2018 and 2020, then were studied in detail and carefully compared with preserved genus herbarium samples from each Baghdad University Herbarium (BUH) and National Herbarium of Iraq (BAG); the morphological study was conducted by determination of shapes, textures, dimensions and colors for vegetative and reproductive parts. The epidermal study was done by peeling vegetative and reproductive parts and staining with safranin 0.5% (Aldobaissi *et al.* 2016).

The taxonomic keys used for specimens distinguished were the keys of Flora Turkey<sup>15</sup> and Iraqi flora<sup>11, 7</sup>.

## Results

### *Species morphological description*

Perennial plant with woody stock and numerous erect or ascending stems 35-65 cm., glabrous, yellow to whitish yellow, leaves lanceolate to linear-lanceolate with acute apices, opposite arranged, 10-30x5-10 mm, the basal cauline leaves were the largest, glabrous, green and with three primary veins but single prominent one. The inflorescence is dichasial, branched, panicle with many flowers; Bracts pair scarious lanceolate with acuminate apex up to 2mm. Pedicels capillary and extended 3-13mm. Characterized by multicellular giant glandular hairs, can be noticed easily (plate 1-C ), flowers minutes and numerous, calyx campanulate white with green midrib, glabrous and characterized by giant prominent druses crystals, with lanceolate acute teeth 2.5-3.5 x 1.5mm; corolla white polypetals, linear retuse 3-3.5x1mm.; Androecium with 10 free stamens 5.5-6.5 mm characterized by short androphore, pistil with globular light green ovary and 2 white styles with oblique papillated stigmatic ends. Fruit unilocular globular capsule, 4 valved 1.5-2 mm. Seeds auriculate compressed on both sides, reddish brown tuberculate with obtuse tubercles 1.5 mm.

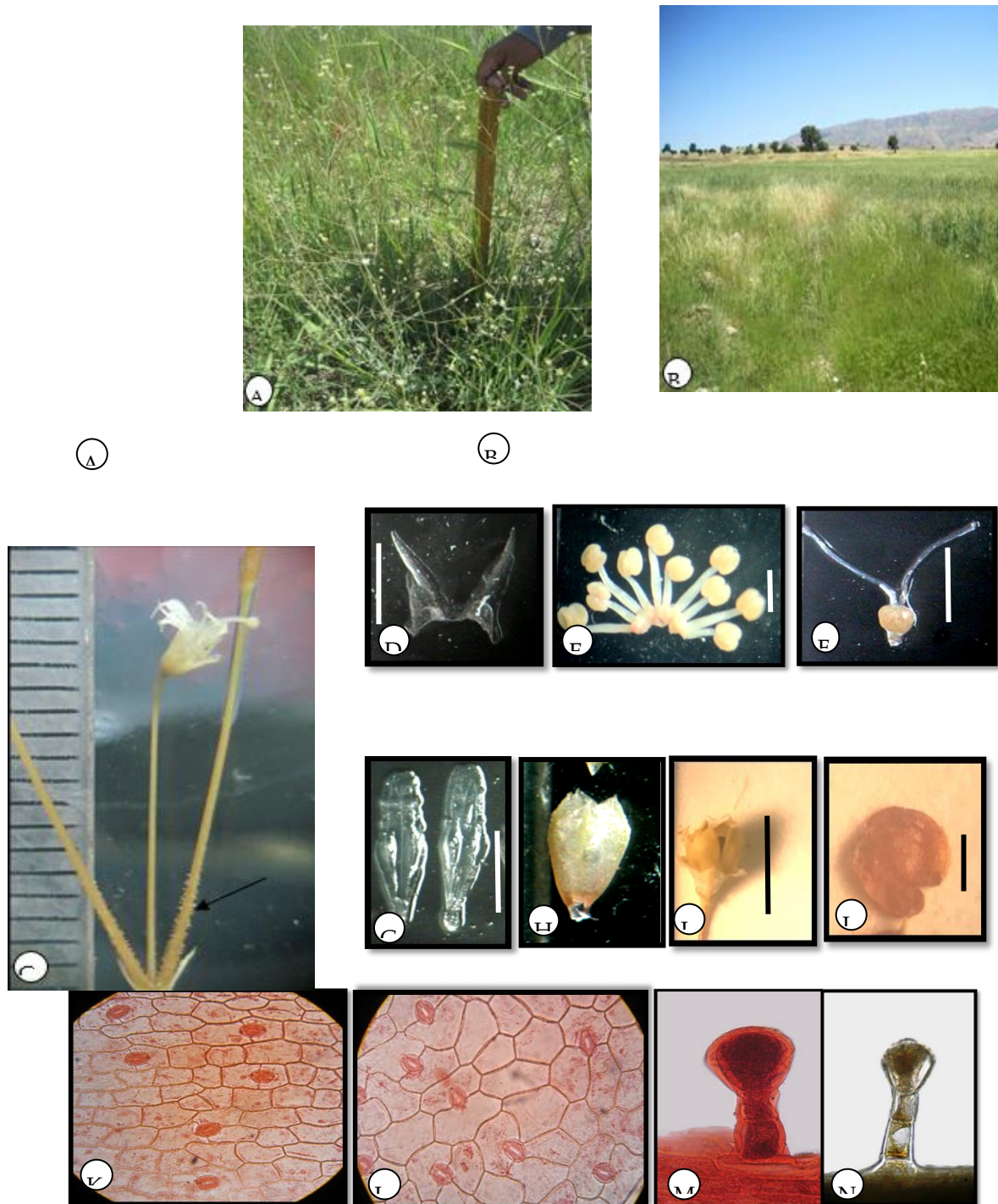


Figure 1. morphology and epidermis of *Gypsophila tuberculosa*, A: plant habit in field, B: habitat, C: flower and inflorescence, D: bracts, E: stamens, F: Pistil, G: corolla, H: calyx, I: fruits, J: seed, K: stem epidermis, L: leaf epidermis, M, N: pedicel glandular trichomes.

### Discussion

From the previous features, the most related species to *G. tuberculosa* is *G. pallida*, and it differs in calyx features, which are characterized by big prominent druses crystals and acute apex. As mentioned previously, by <sup>15</sup>.

Epidermal study reveals that all plant body is glabrous except the bases of flower pedicels, which are characterized by mega glandular hairs composed of multicellular-uniseriate stalk 2-3 cells (91-119x52-62 $\mu$ m.) and unicellular glandular head

(52-70x50-65µm). and this kind of glandular trichome is similar to the trichomes of *G. pallida* which is different in its location as mentioned by <sup>8</sup> who refers to glandular trichomes in stem of *G. pallid*. This resemblance returns to the affinity between the species <sup>15</sup>.

### Conclusions

Specimens of the species were collected from loamy to clay soils in river bank sides near cultivated fields in the steppes region near Tusika village in Arbil District (FAR), and from revising of native locality for the species, this habitat is considered as a distinguishing feature.

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