



A NEW SPECIES OF GENUS *STACHYS* L. (LAMIACEAE) IN IRAQ

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Abstract

Stachys multicaulis Benth submitted as a new record in Iraq for the first time. The species mentioned in flora Iranica but it was not collected in Iraq till 2015 when it has been seen and collected from the Persian foothill (FPF) east of Baghdad, near Derbendikhan Lake. The morphological characteristics, habitat and geographical distribution have been provided.

Keywords : Lamiaceae, *Stachys multicaulis*, Iraq, new species, new record

Introduction

Stachys L. (Lamiaceae, Lamioideae) is a large genus consist about 300 species (Metcalf & Chalk, 1950; Harley *et al.* 2004). Widely distributed, sub cosmopolitan, the main distribution center is the temperate regions in the Mediterranean and southeast of Asia, while the second distribution center is North Africa and North and South America (Bhattacharjee, 1980). The local name of *Stachys* is Betony that means the Chinese artichoke (Metcalf & Chalk, 1950). The name *Stachys* derived from the Greek language "An ear of corn, generally a plant" and sometimes it named Lamb's ear or Lamb's tongue and in Persian language named Sonbolehe noghrehi or Zabanehe bare (Asnaashari *et al.*, 2010). It is also named Clingman's hedge-nettle (Dolan, 2004). The study found that Lennaeus, 1753 describe 8 species of *Stachys* grow in Europe; two of them grow in Iraq. Boissier, 1879 mentioned 84 species grow in the east; ten of them were in Iraq. Post, 1897 described thirty one species grow in Syria, Palestine and Sena; four of them grow in Iraq. The plant is endemic species to Zagros mountain range in Iran (Salmaki, 2012), while it is absent in flora of Turkey. Jamzad, *et al.* (2009) found Bicyclogermacrene, spathulenol, germacrene and caryophyllene oxide are the predominant compounds in the oil of *S. multicaulis*, and Tavili, A. 2019 found that cultivation of this wild species will reduced the essential oil components. Bhattacharjee (1980) mentioned that *S. multicaulis* resembles to *S. pilifera* and *S. aucheri*, and all within the section Aucheriana. There are other studies for *Stachys* in Iraq but either one mentioned *S. multicaulis*, for example, Nabelek (1933) describe five species distribute in north of Iraq (MAM and FAR districts). Al-Salihy (1983) mention four species on Jabal Pera Magroon and Khalaf (1980) mention two species in Jabal Sijar in north of Iraq. While Hamodi (1988) in his thesis he described 20 species distributed in Iraq, but no mentioned of the previous species. While Rechinger, (1982) mentioned it in flora Iranica and he submitted it distribution in northern area of Iraq at 500 m. alt. While Al-Musawi (1990) designed a taxonomic key for all species that he found through his survey in Iraq, but he did not include *S. multicaulis*. A systematic study of genus *Stachys* in Iraq for the same author (Al-Zubaedy *et al.*, 2013)

described 21 taxa except *S. multicaulis*, the authors did not found it during the survey at that time; till 2015 it has been collected by a scientific researcher- mention in the acknowledgment- and kept it in the National Herbarium of Iraq (BAG) as a new species for *Stachys* without identifying or any description for it at that time. The study aims to re-examine the plant and submit the taxon that belongs to for the first time in Iraq.

Material and Methods

The plant was collected by a scientific researcher from University of Garmian in Iraq. It was collected in 2015, from the Iranian foothill (FPF) district east of Baghdad, north Diala city- south of Halabcha city, in Glijall village down of Derbendikhan lake; the current study examined the specimen by dissecting microscope, identified, compared with reference herbarium specimens of (BAG) represent other species of *Stachys*, and with specimens of GBIF organization gallery- on line that were collected from Iran only (GBIF gallery, 2020). Acceptance of its binomial scientific name checked with the World check list organization (WCSP.org. 2019) and with International plant names index (IPNI.org. 2019).

Results and Discussion

The plant found growing in Pesian foothills districts only, it is endemic in this region on the Iranian side (Rechinger, 1982; Salmaki, 2012), so it obviously it enters the Iraqi land from there; the study resumed that there is no extension for this species because it was not seen in any other area and disappear for a period of time in Iraq. Flowering and fruiting in June- July. Comparing the morphological characteristics with those of Salmaki (2012) study and of flora Iranica; the plants in Iraq are a little bit larger (longer and wider) perhaps due to the environmental differences. The cushion- forming was less density (number of stems are less) than the plants in Iran. There were two types of trichomes, aglandular (short simple and long simple) and there were glandular (stalked, sub- sessile and sessile), the trichomes are

sparse on all vegetative parts of the plant. The acceptance of the binomial scientific name was confirmed by the World check list organization (WCSP.org, 2019) and with International plant names index (IPNI.org, 2019). This species is within section *Aucheriana* and that is the first record for the existence of this section in Iraq. The species can be easily distinguished from other species distributed in Iraq from its cushion form, erect muticauline, remote inflorescence, sparsely trichomes and its one unique location.

Taxonomic treatment: (Fig. 1)

- *Stachys multicaulis* Benth. In D.C. Prodr. 12: 486 (1848).
- *Stachys multicaulis* is an accepted name (Salmaki, 2012; Govaerts, 2003)
- Synonym: non- as far as the study search.

Perennial green erect- ascending herb, 24-30 cm., cushion- shape, lower parts of stem are woody, branched at lower nodes, trichomes 1 mm. length, sparse on stem, leaves, calyx and lower parts of stamen and corolla tube. Cauline leaves elliptic, apex acute, base attenuate, margin entire, 17-

23 mm. x 2- 5 mm. sessile or sub- sessile, floret leaves elliptic, 6- 11 mm. x 2- 4 mm. Verticillasters of bi- floret, remote. Pedicels short \pm 1 mm. long. Calyx green, 5 united sepals, campanulate, 10- 11 mm. x 3- 7 mm., calyx teeth \pm 5 mm. x 2 mm., triangular, straight, apex acute, spinescent, sessile glandular trichomes on margin, entire, calyx tube \pm 6 mm. x 5.5 mm. sparsely covered with short simple trichomes. Corolla yellow, 20- 22 mm. x 3- 6 mm. bilabiate (calyx teeth are sub- equal to corolla lobes); corolla tube 7 mm. x 4 mm. upper corolla lip 10- 11 mm. x 7- 8 mm.; lower corolla lip 9- 11 mm. x 6- 7 mm. (fig. 2).

Specimen kept in: (BAG) not numbered yet.

Habitat: clay- limestone soil.

Distribution: Endemic in Flora Iranica, so that it seen in the foothills of the Iranian hills. N 34° 58.855, E45° 48.587 Altitudes: 777m. near village (Gliejall) down Derbendikhan lake.

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Fig. 1: *Stachys multicaulis* Benth. Specimen (BAG)



a- *Stachys multicaulis* in nature



b- flower



c- bi- floret



d- bilabiate corolla



e- unequaled calyx



f- elliptic opposite leaves

Figure 2: *Stachys multicaulis* Benth
.a: whole flower, b: bi- floret, c: bilabiate corolla, d: unequaled calyx, f: elliptic opposite leaves (scale: 5mm.)

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