

Six New Specific Records to the Flora of Basrah, Iraq

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Abstract: Six species belonging to different genera and families, new to flora of Basrah were recorded. These species were *Atriplex holocarpa* F. Muell., *Atriplex micrantha* Ledeb. (Chenopodiaceae), *Centaurium tenuiflorum* (Hoffmanns. & Link) Fritsch (Gentianaceae), *Achellia conferta* DC. (Astraceae), *Descurainia sophia* (L.) Webb ex Prantl (Brassicaceae) and *Vaccaria hispanica* (Miller) Rausch. (Caryophyllaceae). Plants were photographed, their taxonomical and ecological characters as well as their geographical distribution were demonstrated. Plants were collected, dried and herbarium specimens were prepared and deposited in Basrah University Herbarium (BSRA). Notes on habitat, flowering and fruiting times were provided. Relationships between closely related species were discussed.

Keywords: *Atriplex micrantha*, *A. micrantha*, *Centaurium tenuiflorum*, *Achellia conferta*, *Descurainia sophia*, *Vaccaria hispanica*, Basrah.

Introduction

Flora is a group of native plants in an ecosystem of a geographical region. Floral characteristics and plant biodiversity are very important for mankind because they support life in the biosphere at all possible spatial scales. They are of great importance in local and global energy balance, strongly affect soil properties and serve as wildlife habitat.

Based on vegetation characteristics and topography, Iraq is divided into four physiographic regions and seventeen districts. Basrah and its surroundings lie in two physiographic regions and includes three physiographic districts. One district, the southern Desert District (DSD) lies in Desert Plateau Region (D), and the other two districts, the Southern Marsh District (LSM) and the Basrah Estuarine District (LBA) lie in Lower Mesopotamian Region.

Studies on vegetation characteristics, species composition and plant biodiversity for these physiographic regions and districts are rare or very scanty. Al-Rawi (1964), Rechinger (1964), Rudha & Dawood (1988), Lefta (1996) and Lefta & Al-Mayah (2002) studied the genus *Atriplex* in Iraq, but they did not report *Atriplex holocarpa* to occur in Iraq. Ghazanfar & Edmonson (2016) recorded plant species occurring in Baghdad depending on Pletman specimen which was deposited in Hebrew University of Jerusalem (HUJ) without mentioning number, location or photograph for the species. Also, *A. micrantha* has not been mentioned by any of the above authors, except for Ghazanfar & Edmonson (2016) who reported this species to occur in several locations in DWD, DSD and LSM, but not in Basrah.

Rechinger (1964) in his flora of lowland Iraq and Al-Swaha (1992) in his comprehensive study on the genus *Achillea* in Iraq did not mention *A. conferta* to occur in Basrah. Townsend & Guest (1980) in Flora of Iraq, Vol. 4 mentioned the occurrence of *Descurainia sophia* in the mountain regions of MAM and MRO and in the lower Jazera DLJ and western Desert DWD but not in the DSD, LSM and LBA. For *Centaurium* (Gentianaceae), Rechinger (1964) recorded three species in Iraq and the occurrence of *C. tenuiflorum* in Baghdad was depending on Hausskn., without mentioning any specimen voucher. Ghazanfar & Edmonson (2016)

cited the same statement of Rechinger (1964) who mentioned two species of *Vaccaria* to occur in Iraq, *V. pyramidiata* Med. and *V. liniflora* (Boiss. & Haussk.) but not in Basrah. Al-Dobaissi (2017) provided a distribution map for the species of *V. hispanica* but he did not indicate the occurrence of this species in Basrah. Al-Mayah et al. (2016) did not include the above six species in their account on the ecology of flora of Basrah.

The aim of this study is to monitor vegetation and changes in plant biodiversity as well as determining species distribution in the study area.

Material and Methods

Several trips to different places of Basrah from Fao in the South to north Qurna in the North were achieved in 2019. The trips included the three physiographic districts LBA, LSM and DSD. Plants were collected, dried, mounted and deposited in Basrah University Herbarium (BSRA). Specimens were identified based on Rechinger (1964), Zohary (1966), Townsend & Guest (1980), Lefta (1996) and Ghazanfar & Edmonson (2016). Specimens were compared with authenticated material in BSRA, BUH and BAG. Ecological notes were recorded in field, plants were photographed and their locations were determined by using GPS.

Results

Six plant species were recorded. The following is an account on their distinguishing characters, habitats and distribution.

1- *Atriplex holocarpa* F. Muell. (Chenopodiaceae)

Distinguishing Characters: Small annual much branched plant, with unicoloured yellowish-whitish leaves. Valves connate. Fruits globular or ovoid, spongy and soft, 1-1.5 cm diam.

Habitat: Saline soils, salt flats, waste places, roadside, often with *Halocnemum strobilicium*. Alt. 20 m, Fl. and Fr. March- May.

Distribution: DSD: Before the junction of Basrah airport road, on the main road, Al-Asadi & Al-Knaany, 2001 BSRA; after the Basrah airport road junction, in salty clayey soil, Al-Mayah, Al-Asadi & Al-Knaany, 2010 BSRA; Airport road, Just after the bridge, of Basrah river, Al-Mayah, Al-Asadi & Al-Knaany, 2011 BSRA; near Basrah airport gate along the left side of Basrah airport road, Al-Mayah, Al-Asadi & Al-Knaany, 2012 BSRA; 5 km N.W. Basrah airport, towards Rumaila Al-Shimalia, Al-Mayah, Al-Asadi & Al-Knaany, 2013 BSRA; on the road to Shaiba from the junction of Basrah highway, 5-10 km north Shaiba, Al-Mayah, Al-Asadi & Al-Knaany, 2014 BSRA. (Figure 1).

2- *Atriplex micrantha* Ledeb. (Chenopodiaceae)

Distinguishing Characters: Annual plant with triangular-hesitate leaves. Valve free fruits small, 0.1-0.7 cm diam., smooth and entire.

Habitat: Date palm orchards, riversides, roadsides. 5-20 m. Fl and Fr. June- October.

Distribution: 15 km north Basrah, Basrah University, Garmat Ali, Al-Mayah, 2086 BSRA; Majidyia, 25 km N. Basrah, Al-Mayah, Al-Asadi & Al-Knaany, 2088 BSRA. (Figure 3).

3- *Centaurium tenuiflorum* (Hoffmanns. & Link) Fritsch (Gentianaceae)

Distinguishing Characters: Annual, erect herb, with 5-10 pairs of leaves below the lowermost inflorescence branch. Cymes fustigate with erect and stiff branches. Flowers pediculate with glabrous calyx and pink corolla.

Habitat: Weed in fields, gardens and near rivers. Alt. 10-50 m. Fl. and Fr. March- May.

Distribution: University of Basrah, Garmat Ali, gardens of Faculty of Science, Al-Mayah, Al-Asadi & Al-Knaany, 2002, 2003 BSRA. (Figure 2).

4- *Achillea conferta* DC. (Astraceae)

Distinguishing Characters: Perennial herb, with furrowed stem. Leaves pinnatisect with minute transverse imbricate lobes involucre bracts soon deciduous. Head ovate or globose, ligulate with few ray flowers, inflorescence densely compound corymbs, with yellow flowers.

Habitat: Sandy desert or sandy compact soil, in depressions 50-100 m Alt. Fl. and Fr. April-June.

Distribution: Rumaila near the Bridge, 55 km west by north Basrah, Al-Asadi & Al-Knaany, 2020 BSRA. (Figure 3).

5- *Descurainia sophia* (L.) Webb ex Prantl (Brassicaceae)

Annual herb with erect simple or branched stem and pinnatisect leaves. Flowers yellow or cream. Style very short. Siliqua linear.

Habitat: Roadside on sandy desert soil on hills. 15-20 m Alt. Fl. & Fr. March- May.

Distribution: University of Basrah, Garmat Ali along the road to Garmat Ali, Al-Asadi & Al-Knaany, 2023 BSRA; Al-Mayah, Al-Asadi & Al-Knaany, 2026 BSRA. (Figure 3).

6- *Vaccaria hispanica* (Miller) Rausc. (Caryophyllaceae)

Distinguishing Characters: Annual glabrous herbs. Stem divaricately branched above, leaves sessile. Inflorescence dichasial panicles. Calyx with 5 green wings without commissural veins. Petals pink without coronal scales. Styles 2.

Habitat: Roadsides, sandy gravelly soils; Alt. 25 m; Fl. March- May.

Distribution: DSD on the highway of Basrah- Baghdad road just after the Basrah river bridge, before the junction of Basrah airport, Al-Mayah & Al-Asadi, 2023 BSRA; Al-Asadi & Al-Knaany, 2025 BSRA. (Figure 2).

Discussion

Lefta (1996) in his comprehensive study on the genus *Atriplex* in Iraq did not mention the species *A. holocarpa* to occur in Iraq, while Ghazanfar & Edmonson (2016) described *A. holocarpa* based on a single specimen collected from Baghdad by Pletman a long time ago and deposited in HUI. The present collections for this species from Basrah are new addition to confirm its existence in southern Iraq with illustration, photographs and collections for the Iraqi herbaria. The other species of *Atriplex* confirmed to occur in Basrah is *A. micrantha* which is also not mentioned by Lefta (1996), may be due to misidentification with other related species (*A. hastata*) which was excluded from the genus in Iraq by Ghazanfar & Edmonson (2016). However, Lefta (1996) mentioned *A. hastata* which is now a synonym to *A. prostrata* Boucher ex DC, which may occur in Iraq, but its occurrence in our area is very rare (Ghazanfar & Edmonson, 2016). Other species of *Atriplex* which were mentioned by Lefta (1996) to occur in Iraq are *A. lentiformis*, *A. polycarpa* and *A. rahgodoides*, but these species are not confirmed here.

Centurarium tenuiflorum is collected from Basrah for the first time in this study. Ghazanfar & Edmonson (2016) cited the location mentioned by Rechinger (1964) who reported Baghdad-Basrah (Hauskn.) without mentioning the exact locality. The species is sometimes confused with *Silene* species (Caryophyllaceae) by many collectors, therefore a photograph and illustration are given here.

The genus *Descurainia* has only one species in Iraq which is *D. sophia*. The distribution of this species is restricted to the north part of Iraq, mostly in the mountain regions and occasionally in the western desert. Collection of this species from Basrah, which is the

extreme southern part of Iraq, means an expanding to the range of distribution of this species. This may be due to the very wet seasons of the winter and spring of 2019.

The distribution of the other two species, *Achillea conferta* (Asteraceae) and *Vaccaria hispanica* (Caryophyllaceae), which are newly recorded for Basrah, are just a normal expanding of distribution for these species because they are already occur in the same physiographic district (DSD) near to Basrah.

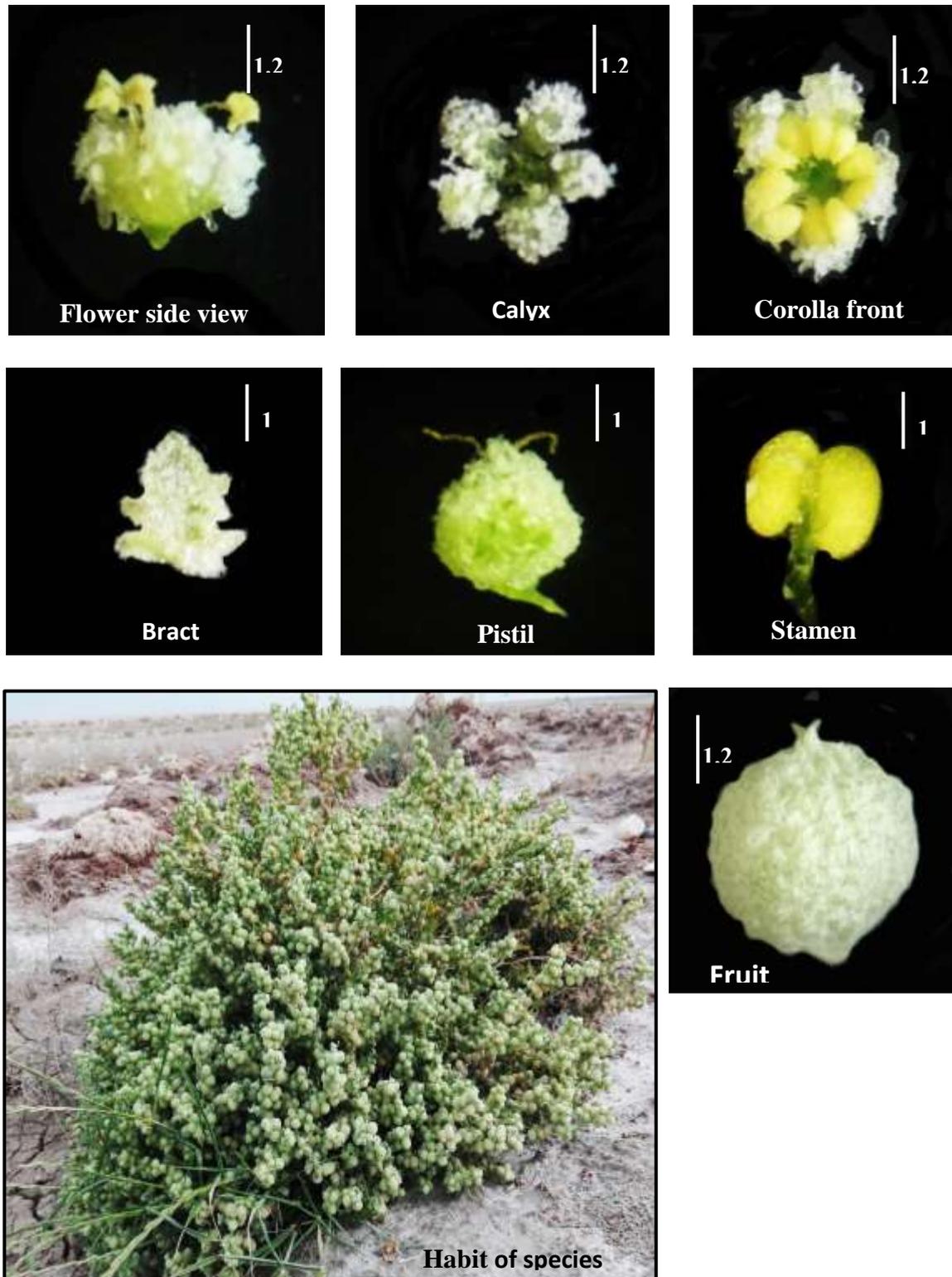


Figure 1: *Atriplex holocarpa* (scale: 1 cm).



Figure 3: Species habit and habitat.

References

- Al-Dobaissi, I.A.R.M. (2017). Morphological and anatomical investigation on the genus *Vaccaria* Wolf. (Caryophyllaceae) in addition to its geographical distribution in Iraq. IOSR J. Pharm. Biol. Sci., 12 (5): 40-45.
- Al-Mayah, A.A.; Al-Edani, T.Y. & Al-Asadi, W.M. (2016). Ecology and flora of Basrah. Jeekor in Beirut-Lebanon: 686 pp.
- Al-Rawi, A. (1964). Wild plants of Iraq with their distribution. Tech. Bull. No. 14. Directorate General of Agricultural. Government Press, Baghdad: 162-164.
- Al-Sawah, D.A. (1992). The genus *Achillea* L. in Iraq. Ph. D. Thesis, Coll. Sci., Univ. Baghdad: 188 pp. (In Arabic).
- Ghazanfar, S.A. & Edmondson, J.R. (2016). Flora of Iraq, Vol. 5, Part 1. Ministry of Agriculture, Baghdad: 485 pp.
- Hamza, S.M. (2012). Study of morphological and anatomical genera of family Zygophyllaceae in Iraq. M. Sc. Thesis, Coll. Sci., Univ. Basrah: 229 pp (In Arabic).
- Lefta, A.H. & Al-Mayah, A.A. (2002). Morphological study of the genus *Atriplex* (Chenopodiaceae) in Iraq. Basrah J. Agric. Sci., 15 (1): 141-150.
- Lefta, A.H. (1996). Systematic study of the genus *Atriplex* L. (Chenopodiaceae) in Iraq. Ph. D. Thesis, Coll. Sci., Univ. Basrah: 180 pp. (In Arabic).
- Rechinger, K.H. (1964). Flora of Lowland Iraq. Carmer Verlag, Wein: 746 pp.
- Rudha, T.J. & Daoowd, W.H. (1988). Geographical distribution of wild vascular plants of Iraq. National Herbarium of Iraq: 52 pp.
- Townsend, C.C. & Guest, E. (1980). Flora of Iraq. Vol. 4, Part 1 & 2, Ministry of Agriculture, Baghdad: 1199 pp.
- Zohary, M. (1966). Flora Palaestina, Part 1, Isr. Acad. Sci. Human., Goldberg's Press, Jerusalem: 246-329 pp.