

EUPHORBIA SHEHBAZIANA (EUPHORBIACEAE), A NEW SPECIES FROM KURDISTAN IRAQ

SAKAR Y. HAMA¹ AND SAMAN A. AHMAD^{1,2,3}

Abstract. *Euphorbia shehbaziana* is described and illustrated as a new species from Kurdistan Iraq, and its distinguishing characters from its nearest relatives, *E. denticulata* and *E. craspedia*, are discussed.

Keywords: *Euphorbia*, Iraq, Gmo Mt., Kurdistan

One of us (SYH) has been involved in the past two years in intensive floristic studies of Gmo Mountain in partial fulfillment of the requirements for an M.S. degree in botany. This mountain, which is only about 6 km from the Iran-Iraq border, is part of the extensive Zagros Range that extends from eastern Turkey into SW Iran. Gmo was previously inaccessible to botanical fieldwork because of its strategic border location. We collected plants from several populations of a *Euphorbia* species that proved to represent an undescribed species, after checking floristic accounts from Iraq (Radcliffe-Smith, 1980), Iran (Rechinger and Schiman-Czeika, 1964), and Turkey (Radcliffe-Smith, 1982). It is described and illustrated below, and its relationships to nearest relatives are discussed.

Euphorbia shehbaziana S.Y. Hama and S.A. Ahmad, *sp. nov.*

TYPE: IRAQ. Kurdistan region, Sulaimani Province: Gmo Mountain, Rashakani village, mountainside, eroded place, sandy and rocky soil, 1803 m, 35°53'91"N, 45°33'26"E, 17 June 2019, S. A. Hama, S. A. Ahmad, and A. Hama 2019-1581 (Holotype: KBFH; Isotypes: SUFAH). Fig. 1.

Euphorbia shehbaziana is readily distinguished from its nearest woody relatives by having entire leaves, 3- to 5-rayed umbels, denticulate glands, bracteate male flowers, and rugose seeds.

Subshrubs or perennial herbs, glabrous throughout. *Stems* 15–50 cm tall, erect, woody except herbaceous current-year growth, 3–10 mm wide at base, many branched below, simple to the base of inflorescence; sterile shoots with dense imbricate, narrowly oblanceolate to linear-oblanceolate leaves 1.0–2.5 cm × 1–5 mm. *Cauline leaves*, glabrous, not glaucous, oblanceolate to oblong-obovate, 0.9–3.2 cm × 4–12 mm, margin entire, apex mucronate. *Inflorescence* 3- to 5-rayed umbel; involucre bracts 3–5, obovate to broadly so, 1.3–2.0 × 0.7–0.6 cm, apex mucronate, margin entire; rays ending with 3-flowered dichasial cymes subtended by minutely petioled pair of reniform bracts 0.7–1.0 × 1.2–1.6 cm; central *cyathium* sessile, two lateral *cyathia* on short stalks each subtended by 2 bracts similar to those at base of the dichasium but smaller; *cyathium* cup-shaped, 2.0–3.5

mm long, glabrous; teeth acute ca. 0.5 mm long; glands short stalked to subsessile (2–)3- to 5-toothed, teeth simple or minutely divided into 2 or 3 teeth. *Male flowers* on pedicels 0.9–2.0 mm long, surrounded by linear distally ciliate bracts 1.5–2.0 mm long; filament 0.5–0.8 mm long; anthers 0.5–0.7 mm long. *Fruit* glabrous, ovoid, (3.5–)4.5–6.0 × 2.5–4.0 mm, slightly lobed. *Seeds* gray, including caruncle 3–4 × 1.5–2.0 mm, surface rugose; caruncle 0.5–0.7 mm long, cordate, 1/6–1/8 the length of seed.

Etymology: *Euphorbia shehbaziana* is named in honor of our mentor and friend Dr. Ihsan A. Al-Shehbaz (MO) in recognition of his devotion to promoting botany in Kurdistan Iraq.

Additional specimens examined: IRAQ. Kurdistan region, Sulaimani Province, Gmo Mountain: Rashakani village, near stream, sandy and rocky soil, 1779 m, 35°53'96"N, 45°33'06"E, 17 June 2019, S. A. Hama, S. A. Ahmad, and A. Hama 2019-1592 (KBFH, SUFAH); Shaxa spi area, mountainside, timberline, wetlands, sandy soil, 1800 m, 35°53'52"N, 45°34'05"E, 20 May 2019, S. A. Hama, S. A. Ahmad, and M. Abdulla 2019-1024 (KBFH, HKS); Basne, Darui Zuberan, mountainside, near orchard, sandy and rocky soil, 1815 m, 35°89'81"N, 45°56'75"E, 25 Jun 2019, S. A. Hama, S. A. Ahmad, and M. Abdulla 2019-1654 (KBFH); Rashakani village, mountainside, near orchards, sandy and rocky soil, 1767 m, 35°53'79"N, 45°33'58"E, 17 June 2019, S. A. Hama, S. A. Ahmad, and A. Hama 2019-1467 (KBFH); Rashakani village, mountainside, eroded place, sandy and rocky soil, 1803 m, 35°53'91"N, 45°33'26"E, 17 June 2019, S. A. Hama, S. A. Ahmad, and A. Hama 2019-1564 (KBFH); Basne, Darui Zuberan, mountainside, near orchard, sandy and rocky soil, 1815 m, 35°89'81"N, 45°56'75"E, 25 June 2019, S. A. Hama, S. A. Ahmad, and M. Abdulla 2019-1658 (KBFH); Rashakani village/ Kani chankan, mountainside, eroded place, sandy and rocky soil, 1726 m, 35°53'10"N, 45°33'70"E, 12 June 2019, S. A. Hama, S. A. Ahmad, and A. Hama 2019-1422 (KBFH); Shaxa swr, mountainside, eroded place, roadside, sandy and rocky soil, 1602 m, 35°55'11"N, 45°34'36"E, 29 May 2019, S. A. Hama, S. A. Ahmad, and Z. S. Mustafa 2019-1216 (KBFH).

We would like to thank Dr. Ihsan Al-Shehbaz (MO and Board member of Kurdistan Botanical Foundation) for his advice throughout this study. We are equally grateful to Dr. Sarbagh Salih (Board member, Kurdistan Botanical Foundation) for her continuous support. We also thank Amina Hama, Mardin Abdulla, and Zaitun Sabir for their help during the fieldwork.

¹ Biotechnology and Crop Science Department, College of Agricultural Engineering Sciences, University of Sulaimani, Sulaimani, Iraq.

² Kurdistan Botanical Foundation, Sulaimani, Kirkuk Main Road, The American University of Iraq-Sulaimani, Iraq.

³ Author for correspondence: samanchnaraye@gmail.com

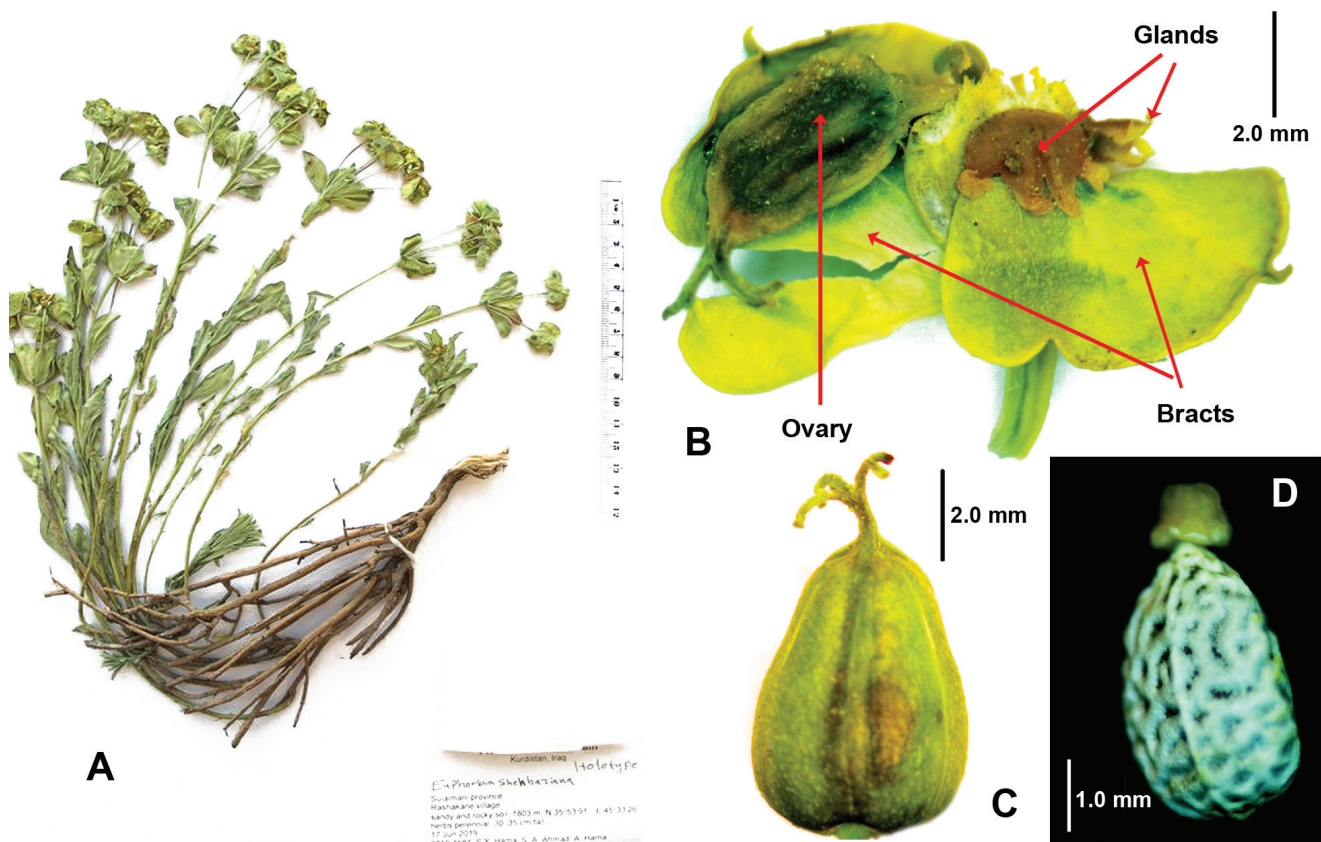


FIGURE 1. *Euphorbia shehbaziana* S.A. Hama & S.A. Ahmad. **A**, plant; **B**, cyathium; **C**, fruit; **D**, seed with caruncle. Photographs by Saman A. Ahmad based on the holotype.

Euphorbia shehbaziana is most closely related to *E. denticulata* Lam. and *E. craspedia* Boiss., which it resembles in having glabrous leaves, woody lower stems, and denticulate nectar glands. However, it differs from both of them in having ciliate bracts (vs. no bracts) between male flowers, entire (vs. denticulate) cauline leaves, 3- to 5-rayed (vs. 5- to 17-rayed) pseudumbels, and denticulate versus

pectinate glands. It also differs from *E. denticulata* by having umbels 3- to 5-rayed (vs. 5- to 7[-9]-rayed), smaller fruits 3.5–6.0 mm (vs. ca. 8 mm), and ovoid rugose (vs. quadrangular-ovoid and tubercled-regulose) seeds. From *E. craspedia*, the novelty differs by having 3- to 5-rayed (vs. 8- to 17-rayed) umbels and smaller seeds 3–4 (vs. ca. 5) mm long that are rugose (vs. tuberculate).

LITERATURE CITED

- RADCLIFFE-SMITH, A. 1980. Euphorbiaceae. Pages 309–362 in C. C. TOWNSEND AND E. GUEST, EDS., *Flora of Iraq*. Vol. 4(1). Ministry of Agriculture and Agrarian Reform, Baghdad.
- . 1982. *Euphorbia*. Pages 566–630 in P. H. DAVIS, ED., *Flora of Turkey and the East Aegean Islands*. Vol. 7. Edinburgh University Press, Edinburgh.
- RECHINGER, K. H., AND H. SCHIMAN-CZEIKA. 1964. *Euphorbia*. Pages 1–46 in K. H. RECHINGER, ED., *Flora Iranica*. Vol. 6. Akademische Druck- u. Verlagsanstalt, Graz.