

## SCROPHULARIA KOLLAKII (SCROPHULARIACEAE), A NEW SPECIES FROM KURDISTAN, IRAQ

SAMAN A. AHMAD<sup>1,2</sup>

**Abstract.** *Scrophularia kollakii* (Scrophulariaceae), a new species from Kurdistan Iraq, is described, and its distinguishing characters from nearest relatives are discussed. It is easily separated from *S. olympica* by its taller (30–75 vs. 20–30 cm) stems, 4–12-flowered (vs. 3-flowered) cymes, lanceolate (vs. linear to narrowly oblong), shorter (1–2 vs. 1.7–5 mm) bracteoles, scarious and usually purplish or dark yellow (vs. pale brown) margin of calyx, dark pink corolla 7–9 mm (vs. ca. 6 mm), and dark pink (vs. dark purple) upper corolla lip 3.5–5 mm (vs. 3 mm). It differs from *S. sosnowskyi* by having usually purplish or dark yellow (vs. white) scarious margin of calyx, dark pink (vs. greenish yellow with upper lip purple or violet) corolla, and obcordate (vs. obovate) staminode.

**Keywords:** Scrophulariaceae, *Scrophularia*, Azmar-Goizha Mountains, Kurdistan, Iraq

During the past two years, the Kurdistan Botanical Foundation conducted extensive floristic study in Azmar-Goizha Mountain (Kurdistan, Iraq). This mountain, which is part of the extensive Zagros Mountain Range, overlooking Sulaimani City and occupying an area of about 250 km<sup>2</sup> between 35°29' to 35°42'N and 45°26' to 46°33'E.

During recent studies in Hawraman region (Ahmad, 2013a), the present author discovered four new species to science (Ahmad, 2013b–c, 2014a–b) and 18 species new to the flora of Iraq (Ahmad, 2013d). Among those was *Scrophularia sulaimanica* S.A.Ahmad (Ahmad, 2014b). The present botanical survey of the Azmar-Goizha Mountain also yielded several novelties and additions to the flora of Iraq, including the following species of *Scrophularia* L.

**Scrophularia kollakii** S.A.Ahmad, *sp. nov.* TYPE: IRAQ, Kurdistan, Sulaimani Province, Azmar Mt., on the road to Khamza village, dry sandy place, grassland, slope 25–35%, sun exposure SE to NW, 1570 m, 35°38'57"N, 45°27'20"E, 25 April 2015, S. A. Ahmad A. Hama, S. Babarasul, & S. R. Fayaq 15–1227 (Holotype: KBFH; Isotype: KBFH). Fig. 1.

The new species is easily separated from *S. olympica* by its taller stems (30–75 vs. 20–30 cm), 4–12-flowered (vs. 3-flowered) cymes, lanceolate (vs. linear to narrowly oblong), shorter (1–2 vs. 1.7–5 mm) bracteoles, scarious and usually purplish or dark yellow (vs. pale brown) margin of calyx, dark pink corolla 7–9 mm (vs. ca. 6 mm), and dark pink (vs. dark purple) upper corolla lip 3.5–5 mm (vs. 3 mm). It differs from *S. sosnowskyi* by having usually purplish or dark yellow (vs. white) scarious margin of calyx, dark pink (vs. greenish yellow with upper lip purple or violet) corolla, and obcordate (vs. obovate) staminode.

*Herbs* perennial, glandular. *Stems* 30–75 cm tall, several to many from woody caudex, erect to ascending, solid, terete or subterete at base, becoming quadrangular upwards,

glabrous, glandular. *Basal leaves* forming a rosette, petiole 1–4 cm; lamina ovate to ovate-oblong, 2–4 × 1–2 cm, crenate, sparsely to densely glandular; lower and middle cauline leaves ovate to oblong-lanceolate in outline, usually opposite, deeply incised to pinnatifid, 1.5–3 × 0.7–1.5 cm, sparsely to densely glandular; upper cauline leaves alternate, lanceolate, slightly pinnatifid, double serrate, 1–5 × 1–2 cm. *Thyrse* branched, 20–45 cm; cymes 4–12-flowered, alternate, glabrous; peduncle 0.5–1.5 cm; lowermost bracts leafy, short petiolate, ovate, 10–15 × 2–4 mm, becoming elliptic upwards; bracteoles lanceolate, 1–2 × 0.4–0.7 mm; flowering pedicels slender, 1–5 mm, substantially longer than subtending bracteoles; fruiting pedicels of central flower somewhat thick, angled, 3–7 mm, sparsely glandular. *Calyx* lobes suborbicular to broadly reniform, 3–5 × 3.5–5 mm, glabrous; scarious margin undulate, lacerate, 1–1.6 mm wide, usually purplish or dark yellow; corolla urceolate, 7–9 mm, dark pink; lateral lobes pinkish, truncate; upper lip emarginate, 3.5–5 mm, lobes suborbicular; lower lip pinkish, obtuse; corolla tube white, ca. 3 mm; staminode subsessile, obcordate, 0.4–0.5 × 0.4–0.6 mm, slightly exerted from corolla throat; filaments of fertile stamens ca. 3.5 mm, glandular; anthers 1–1.5 mm; ovary ovate, 1–2.5 × 1.5–2 mm, glabrous; style 1.4–2 mm, glabrous. *Fruit* globose, 2-lobed, 3.5–5 mm in diam., glabrous; seeds oblong, black, slightly curved, ca. 2 × 1 mm, transversely sulcate.

**Eponymy:** This novelty is named after Mr. Fayaq Kollak of Sulaimani city in recognition to his financial support of the Azmar-Goizha project.

**Distribution:** Known thus far only from Azmar Mt., where it is restricted to a small area near the road to Khamza Village.

**Additional specimen examined:** Paratype: Azmar Mt., 1570 m, 35°38'57"N, 45°27'20"E, 07 Nov. 2015, S. A. Ahmad & S. R. Fayaq 15-1448 (KBFH).

I am profoundly grateful to Dr. Ihsan A. Al-Shehbaz (MO and Board member of Kurdistan Botanical Foundation) for his advice and help throughout this study. I am equally grateful to Dr. Sarbagh Salih (President, Kurdistan Botanical Foundation) for her continuous support and to Mr. Fayaq Kollak for providing funds for the fieldwork. The help and editorial advice of Dr. Gustavo A. Romero are much appreciated.

<sup>1</sup> Faculty of Agriculture, University of Sulaimani, Sulaimani, Iraq

<sup>2</sup> Kurdistan Botanical Foundation, Sulaimani, Kirkuk Main Road, The American University of Iraq-Sulaimani, Iraq; saman.ahmad@kurdistanbotanical.org; www.kurdistanbotanical.org



FIGURE 1. *Scrophularia kollakii* S.A.Ahmad. **A**, plant; **B**, part of inflorescence. Scales: A = 5 cm; B = 1 cm.

**IUCN Red List Category:** *Scrophularia kollakii* is extremely rare; its IUCN Red List category (IUCN 2001) remains uncertain and is currently assessed as Data Deficient (DD).

A comparison of the above novelty with all known species of *Scrophularia* from SW Asia, especially in Turkey, Iran, and neighboring countries (e.g., Grau, 1981; Lall and Mill, 1978), clearly showed that it is not very closely related to any known species. *Scrophularia kollakii*, is somewhat related to Anatolian-Caucasian *S. olympica* Boiss. and Anatolian-endemic *S. sosnowskyi* Kin.-Nath.. From the

former, it differs by the taller 30–75cm (vs. 20–30cm) stems, 4–12 flowered (vs. 3-flowered) cymes, lanceolate (vs. linear to narrowly oblong) bracteoles 12 mm (vs. 1.7–5 mm), scarious and usually purplish or dark yellow (vs. pale to brown) margin of calyx dark pink (vs. pale brown to pink) corolla, 7–9 mm (vs. ca. 6 mm), and dark pink (vs. dark purple) upper corolla lip. From *S. sosnowskyi*, the new species differs by having usually purplish or dark yellow (vs. white) scarious margin of calyx, dark pink (vs. greenish yellow with upper lip purple or violet) corolla, and obcordate (vs. obovate) staminode.

#### LITERATURE CITED

- AHMAD, S. A. 2013a. Vascular plants of Hawraman region in Kurdistan Iraq. 326 pp. Ph.D. dissertation, Faculty of Agricultural Sciences, Sulaimani University, Iraq.
- . 2013b. *Ferula shehbaziana* (Apiaceae), a new species from Kurdistan, Iraq. Harvard Pap. Bot. 18: 99–100.
- AHMAD, S. A. 2013c. *Onosma hawramanensis* (Boraginaceae), a new species from Kurdistan, Iraq. Harvard Pap. Bot. 19: 201–202.
- . 2013d. Eighteen species new to the flora of Iraq. Feddes Rept. 124: 65–68.
- . 2014a. *Petrorrhagia sarbaghia* (Caryophyllaceae), a new species from Kurdistan, Iraq. Willdenowia 44: 35–38.
- . 2014b. *Scrophularia sulaimanica* (Scrophulariaceae), a new species from Kurdistan, Iraq. Kew Bulletin 69: 9509.
- GRAU, J. 1981. *Scrophularia*. Pages 213–284 in K. H. RECHINGER, ED. Flora Iranica, Vol. 147. Akademische Druck- u. Verlagsanstalt, Graz.
- IUCN. 2001. IUCN Red List Categories and Criteria, Version 3.1. Second edition. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom. <http://www.iucnredlist.org/technicaldocuments/categories-and-criteria/2001-categories-criteria> (accessed August 14, 2015).
- LALL, S. S. & MILL, R. R. 1978. *Scrophularia*. Pages 603–647 in P. H. DAVIS, ED. Flora of Turkey and the East Aegean Islands. Vol. 6: University Press, Edinburgh.