



Research Article

***Fritillaria saricanense* (Liliaceae), A New Species From Eastern Anatolia, Türkiye**

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Abstract: *Fritillaria saricanense* Sonay sp. nov. (Liliaceae) was described from Elazığ province of Eastern Anatolia. It morphologically similar to *F. avzemiae*, but differs from it mainly in bulb, leaf, perigon, outer and inner perigone and style characteristics. A detailed description, comparative table, pictures and endangered category of this species are given here.

Keywords: Anatolia, Elazığ, Sarıcan, Karakoçan, New species, Taxonomy.



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1. Introduction

Fritillaria L., the second largest genus of the Liliaceae family, is distributed in the temperate regions of the Northern Hemisphere, North America, Europe, the Mediterranean region, Central Asia, China and Japan and is represented by approximately 170 species (Mancuso et al., 2012; Sonay et al., 2025; WCSP, 2025).

Türkiye ranks first in the world in terms of species and endemic species diversity of the *Fritillaria* genus, which belongs to the Liliaceae family (Tekşen, 2023). According to recent studies, it is represented by 56 species, 32 of which are endemic, in Türkiye (Sonay et al., 2025). With this, the number of species increased to 57 and the number of endemics to 33.

The proposed new species was collected by the author during botanical excursions in Sarıcan town of Karakoçan district of Elazığ in April 2022 and May 2024. As a result of the examination of the collected samples, it was concluded that the species was a new species not described in the literature and was written by the author.

2. Materials and Methods

All of the samples subject to the research are located in Karakoçan / Elazığ province. These specimens were first examined in the field in detail and photographed in large numbers to show all their characteristics. About 20 specimens collected from the site were pressed, dried and preserved in HARRAN and HUEH herbarium. All names in this article have been checked with IPNI database (IPNI, 2025). Threat category assessment of the new species was made according to IUCN criteria (IUCN 2024).

I consulted the following national floras, revisions, and papers on *Fritillaria*: Boissier (1882), Post & Dinsmore (1933), Losina-Losinskaja (1968), Rix (1984, 2001), Wendelbo (1985), Rechinger (1990), Chen & Mordak (2000), Tekşen & Aytaç (2011), Tekşen (2018), Yıldırım & Tekşen (2021); Advay et al., (2015; 2022; 2024), Advay & Tekşen (2023), Eker & Tekşen (2023), Sonay et al., (2023), Eker & Balos (2023), Advay (2024),



Advay & Rix (2024), Balos et al., (2024), Tekşen et al., (2024), Duman & Tekşen (2024), Tel (2024), Sonay et al., (2025).

3. Results and Discussion

Fritillaria saricanense Sonay, sp. nov. (Fig. 1–3, Table 1).

Type:— TÜRKİYE. Elazığ, Karakoçan district, near Sarıcan village, stony and rocky areas near the hill, 1800–2000 m, 21.04.2022, V. Sonay 2587 (Holotype HUEH!, isotype HARRAN!, HUEH!); ibid, 11.05.2023, V. Sonay 2625 (Paratype HUEH!).

Diagnose: — *Fritillaria saricanense* Sonay sp. nov., is closely related to *F. avzemiae*. Bulblets: Absent (vs. 2–3(–4) bulblets in *F. avzemiae*). Bracts; usually arranged in whorls of 3 (vs. 1–2(–3) opposite or subopposite). Leaf arrangement; perpendicular to the stem and parallel to the ground (vs. semi-erect). Basal leaf shape; cordate (vs. non-cordate). Perigon; campanulate (vs. medially constricted) and prominent style lobes (unsegmented) were highlighted as distinguishing features of the species.

Description: — Perennial, bulbous plant. **Bulb** 12–15 mm long × 12–25 mm wide, globose or ovoid, bulblets absent, tunica thin. **Stem** 7–20 cm long, erect, smooth. **Leaves** 3–5 (–6) usually grow perpendicular to the stem, parallel to the ground, including bracts, sessile, glossy green, subopposite, opposite; **lower leaves** sub-opposite, lowest leaf 3.2–6.5 cm long × 1–2.5 cm wide, broadly ovate-lanceolate to broadly lanceolate, cordate, acute or pointed, leaf tips tortuous, enveloping the stem; **median leaves** 3.0–7.0 cm long × 0.7–1.5 cm wide lanceolate to linear lanceolate; **the uppermost leaf** (–1) 2–3, 20–37 mm long × 2.0–7 mm wide, usually arranged in whorls of 3, parallel to the ground, lanceolate, striate-lanceolate. **Flowers** 1–2 (–3), perigon narrow bell-shaped, no growth towards the tips, bright, purplish brown, yellowish green stripe extending from the middle to the tips (sometimes obscure on the inner tepal), forming a more distinct yellowish arch towards the edges on the inner tepals; **outer tepals** 19–25 mm long × 7–8 mm wide; broadly lanceolate to ovate-lanceolate, triangular towards the ends; **inner tepals** 17–24 mm long × 6–7 mm wide; oblong-lanceolate, triangular towards the ends; **nectaries** 1.5–2.5 × 1–1.5 mm, placed at tepal, yellowish green, ovate to linear-lanceolate; **pistil** 19–22 mm; **filaments** 8–11 mm; greenish-yellow, thin, broadened towards base, densely papillose; anthers 6–11 mm long; oblong, yellow; **style** 9–11 mm long × 2–3 mm wide, 3-part, 2.5–3.5 mm long, densely papillose, not expanding to the surface; **ovary** 6–12 mm long × 2.0–2.5 mm wide, dark glossy green; **stigma** flat, smooth. **Capsule** 33–39 mm long × 19–22 mm wide, oblong, elongate cuneate; **seeds** 6–7.5 mm long × 4.5–6 mm wide, flat, obovoid, triangulated testa light brown, foveolate-reticulate (Table 1).

Etymology:— The species epithet name comes from Sarıcan town, Karakoçan district, Elazığ province, where the species was first discovered.

Vernacular name:— Since there is no local name for the suggested species, the Turkish name “Sarıcan lalesi” is suggested. (Menemen et al., 2016).

Distribution and habitat:— *Fritillaria saricanense* is a local endemic species restricted to Karakoçan district in Elazığ province, Eastern Anatolia. It is an element of Irano-Turanian phytogeographical region (Davis 1971). It grows stony and rocky areas near the hill, northern slopes 1800–2000 m a.s.l. (Fig. 1). Species growing nearby are *Rheum ribes* L., *Astragalus gummiifer* Labill., *Tulipa armena* Boiss. *Ferula orientalis* L., and *Alyssum strigosum* Banks & Sol.

Phenology:—The first sighting of *F. saricanense* was in April. After a very short flowering period, it enters the fruiting period in May and June.

Conservation status:— Less than 200 mature individuals were observed at the type locality of *Fritillaria saricanense*, which covers (area of occupancy-AOO) an area of less than 5 km² (criteria B2). There is a serious grazing effect on the population, which may lead to a

reduction in the number of individuals in the near future. Therefore, due to its restricted population, a single locality, and estimated decrease in the area of occupancy, habitat quality and number of mature individuals, the species may be classified as “Critically Endangered” (CR) (criteria B2ab [i, ii, v]) (IUCN, 2024).

Taxonomic Relationships:— *F. saricanense* is morphologically similar to *F. avzemiae*, but differs from it mainly in bulb, leaf, perigon, inner and outer tepal and style characteristics (see Figs. 1–3 and Table 1).



Figure 1. *Fritillaria saricanense* sp. nov. (A-B) Habitat; (C-H) Habits; (I) Early period fruit.

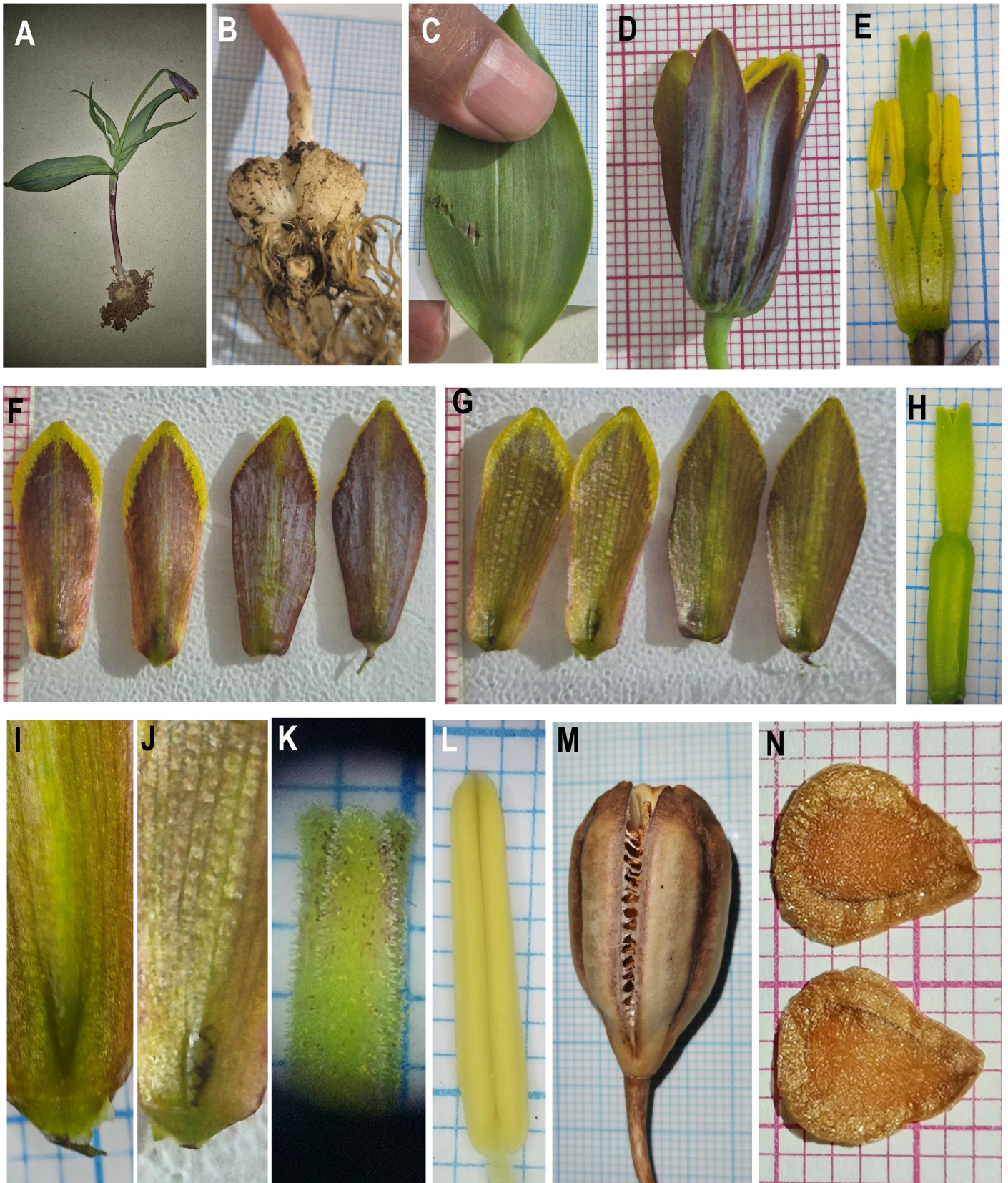


Figure 2. *Fritillaria saricanense* sp. nov. (A) Freshly collected herbarium material; (B) Bulb; (C) Lowest leaf; (D) Perigon; (E) Pistil and stamens; (F) Outside of inner tepal-inner tepal-outer tepal-outer tepal respectively; (G) Outside of inner tepal-inner tepal-outer tepal-outer tepal respectively; (H) Pistil; (I-J) Nectaries; (K) Style (L) Anther; (M) Capsule; (N) Seed.

Table 1. Distinguishing characters between *Fritillaria saricanense* and *F. avzemiae* (Sonay, Balos, M. Yalçın, M. Keskin & Tekşen, 2025).

		<i>Fritillaria saricanense</i>	<i>Fritillaria avzemiae</i>
Bulb (long mm x wide mm)		12–15 mm long × 12–25 mm wide	10–15 mm long × 12–18 mm wide
Bulblet		absent	1–3 (–4)
Stem		7–20 cm long	5–17 cm long
Leaves	Number	3–5 (–6)	4–5 (–6)
	Lowest leaves	3.2–6.5 cm long × 1–2.5 cm wide	3.5–7 cm long × 0.6–2 cm wide
	Type	broadly ovate-lanceolate to broadly lanceolate, cordate, acute or pointed, leaf tips tortuous, enveloping the stem.	broadly ovate, elliptic ovate, acute or acuminate
	Median leaves	3–7 cm long × 0.7–1.5 cm	3–6.5 cm long × 0.4–1 cm wide
Bract	Type	lanceolate to linear lanceolate	oblong, lanceolate, caudate
	Number	(–1) 2–3	1–2 (–3)
	Uppermost leaves	2–3.7 cm long × 0.2–0.7 cm wide	1.8–4.5 cm long × 0.3–1 cm wide,
	Type	usually arranged in whorls of 3, parallel to the ground, lanceolate, striate-lanceolate	lanceolate to linear-lanceolate
Flowers	Number	1–2 (–3)	1–2 (–4)
	Color	perigon narrow bell-shaped, no growth towards the tips, bright, purplish brown, yellowish green stripe extending from the middle to the tips (sometimes obscure on the inner tepal), forming a more distinct yellowish arch towards the edges on the inner tepals	waxy, purplish-brown, with a middle, yellowish-green stripe extending towards the tips, yellow at the apical (inner tepal)
	Inners tepal	17–24 mm long × 6–7 mm wide, oblong-lanceolate, triangular towards the ends	14–24 mm long × 5–7 mm wide, linear to linear lanceolate, obtuse
	Outers tepal	19–25 mm long × 7–8 mm wide, broadly lanceolate to ovate-lanceolate, triangular towards the ends	14–24 mm long × 4.5–6.5 mm wide; lanceolate to linear lanceolate, obtuse
	Nectaries	1.5–2.5 × 1–1.5 mm, ovate to linear-lanceolate placed at tepal base	1.5–2.5 mm long × 0.5–1 mm wide, ovate to linear, placed at tepal base
	Flament	8–11 mm long	5–12 mm long
Anthers		6–11 mm long	5–8 mm long
Style		9–11 mm long × 2–3 mm wide, 3-lobed, lobe lengths 1–3.5 mm	5–9 mm long × 2–3 mm wide, 3-lobed, lobe lengths maximum 0.5 mm.
Capsule		33–39 long × 19–22 mm wide	37–43 mm long × 10–12 mm wide
Seed		6–7.5 mm long × 4.5–6 mm wide	3.5–4.5 mm long × 2.5–3.5 mm wide

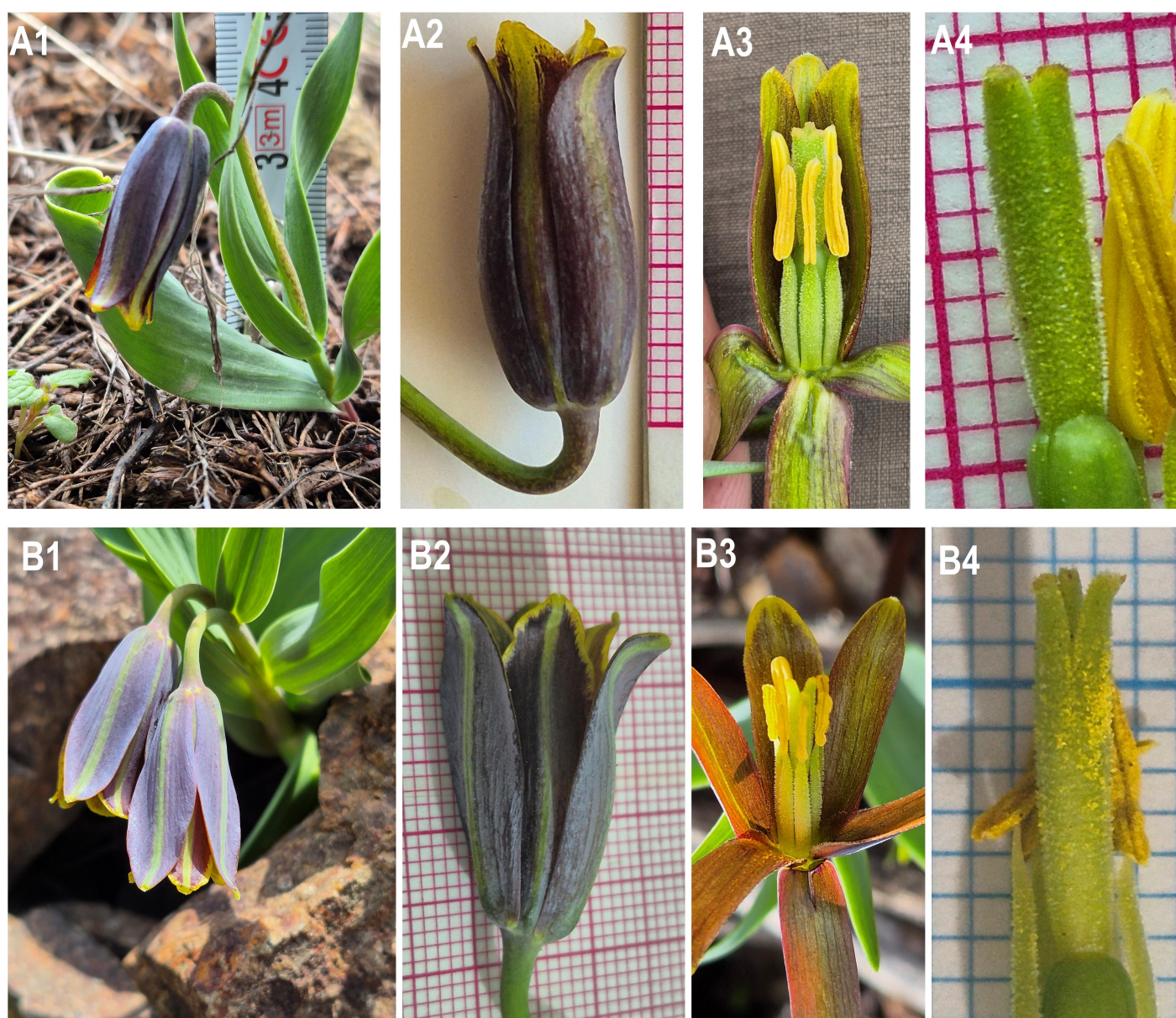


Figure 3. Morphological comparison of *F. avzemiae* (A1–A4, from the holotype) and *F. saricanense* (B1–B4); (A1 and B1) Habit; (A2–B2) Perigon; (A3–B3) Inside of perigone with pistil and filament; (A4–B4) Stylus.

Conflicts of Interests

Authors declare that there is no conflict of interests

Financial Disclosure

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Statement contribution of the authors

This study's experimentation, analysis and writing, etc. all steps were made by the author.

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