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Fritillaria tunievii (*Liliaceae*), a new species from Armenia and North-East Anatolia

Fritillaria tunievii (*Liliaceae*) — новый вид из Армении и Северо-Восточной Анатолии

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Abstract. The new peculiar species *Fritillaria tunievii* Gabrielian with twin flowers is described from Urts mountain range in Yerevan floristic region of Armenia. Revision of herbarium collections of related species revealed this species to grow also in Aragats, Aparan and Darelegis floristic regions of Armenia, and even in North-East Anatolia. Description, holotype image, distinguishing features from *F. hajastanica* (Gabrielian) Gabrielian, *F. caucasica* Adams and *F. assyriaca* Baker, the map of distribution of the species and photos of plants are enclosed.

Keywords: *Fritillaria tunievii*, Armenia, North-East Anatolia, new species, distinguishing features, distribution.

Аннотация. Новый своеобразный вид *Fritillaria tunievii* Gabrielian с двумя цветками описан с Урцского хребта, относящегося к Ереванскому флористическому району Армении. Ревизия гербарных материалов по родственным видам показала, что *F. tunievii* встречается также в Арагацском, Апаранском и Дарелегисском флористических районах Армении и в Северо-Восточной Анатолии. Для нового вида приводится описание, изображение голотипа, отличительные признаки от *F. hajastanica* (Gabrielian) Gabrielian, *F. caucasica* Adams и *F. assyriaca* Baker, карта распространения и фотографии растений в природе.

Ключевые слова: *Fritillaria tunievii*, Армения, Северо-Восточная Анатолия, новый вид, отличительные признаки, распространение.

Excellent specimens of peculiar *Fritillaria* L. plants with twin flowers were collected from Urts mountain range in Yerevan floristic region of Armenia by a famous herpetologist Boris S. Tuniev. His detailed notes and comparison with a related but well distinguished *F. hajastanica* (Gabrielian) Gabrielian growing nearby, compelled me to revise again all old and new collections, particularly from Armenia, kept in ERE Herbarium as well as to pass through the literature. To my astonishment I found that the same plants were previously collected as malformation forms from other places besides Urts mountain range. All they were determined as *F. caucasica* Adams or *F. armena* Boiss. and later as *F. pinardii* Boiss. subsp. *hajastanica* Gabrielian. Here I describe these plants as a new species and name it in honour of its collector.

Fritillaria tunievii Gabrielian, sp. nova (sect. *Fritillaria*). — Fig. 1.

Bulb globose or slightly compressed, 10–13 mm diam., without stolons or bulblets. Stems 32–40 cm tall, robust, to 4–6 mm thick, glabrous below. Leaves 6–7(8), alternate, lanceolate, tapering at apex, lower ones 8–10 cm long, 8–14 mm wide, upper ones 5–6 cm long, 2–3 mm wide. Flowers always twin, narrowly campanulate, dark violet-brown, at base 4–5 mm wide, above 7–9 mm wide, at apex more or less revolute, finely white-papillose; inside pinkish-violet, very rarely yellowish. Segments of perianth 23–32 mm long. Nectaries narrowly linear, 5–6 mm long, 1 mm wide, green. Filaments 8–11 mm long, lower part flat, upper thin, glandulose. Anthers 8–11 mm long. Ovary 16 mm long, 1 mm wide near the base, 3 mm wide at apex. Style 10–11 mm long, 0.5 mm wide at base, 1.5 mm wide at apex; tip of style distinctly incised, three-edged. Capsule three-edged, 30 mm long, 10 mm wide. Fl. IV–V, fr. VI–VII.

Holotype (Fig. 2): Республика Армения, Араратский р-н, хр. Урцский, к югу от с. Урцадзор, сев.

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Fig. 1. *Fritillaria tunievii*, Urts mountain range (photos by B. S. Tuniev).
a — habit, *b* — flowers.

склон гребня хребта, каменистая горная степь, 1850 м над ур. м., 17 V 2016, Б. С. Туниев [Republic of Armenia, Ararat District, Urts mountain range, to the S from the village of Urtsadzor, N slope of range ridge, rocky mountain steppe, alt. 1850 m, 17 V 2016, B. S. Tuniev] (ERE: barcode ERE0005792 (on the label: ERE 192248); isotypes — ERE 192249, LE).

Paratypes. **Armenia. Aragats floristic region:** Арагац, выше Нор Амберда, травянистый склон, 2300 м, 15 V 1999, Э. Габриэлян, опред. как *F. caucasica* [Mount Aragats, higher than Nor Amberd, grassy slope, 2300 m, 15 V 1999, E. Gabrielian, sub nom. *F. caucasica*] (ERE 151719). **Aparan floristic region:** Егвард, г. Араилер [Apa], горная степь, южный склон, 1600–2100 м, 14 V 1958, Я. Мулкиджанян, Э. Габриэлян, опред. как *F. caucasica* [Yeghvard, Mount Arailer, mountain steppe, S slope, 1600–2100 m, 14 V 1958, J. Mulkidjanian, E. Gabrielian, sub nom. *F. caucasica*] (ERE 144293); там же, А. Ахвердов, Н. Мирзоева [*ibidem*, A. Achverdov, N. Mirzoeva, sub nom. *F. caucasica*] (ERE 122932); *там же,* ЮЗ склон, 1920 м, 17 V 1988, К. Таманян, опред. как *F. caucasica* [*ibidem*, SW slope, 1920 m, 17 V 1988, K. Tamanian, sub nom. *F. caucasica*] (ERE 199169); *там же,* СВ склон, 2100–2500 м, субальпийский луг, 28 V 1990, К. Таманян, Г. Файвуш, опред. как *F. caucasica* [*ibidem*, NE slope, 2100–2500 m, subalpine meadow, 28 V 1990, K. Tamanian, G. Fayvush, sub nom. *F. caucasica*] (ERE 144285). **Darelegis floristic region:** с. Ортакенд (Гладзор), 9 V 1933, А. Тахтаджян, А. Мовсесян, опред. А. Араратян как *F. armena* [vill. Ortakend (Gladzor), 9 V 1933, A. Takhtajan, A. Movsesjan, det. by A. Araratjan as *F. armena*] (ERE 1820); между Вайк и Азатек, сев. склон р. Арпа, ущелье, можжевеловое редколесье, 1400–1700 м, 19 IV 1973, В. Манакян, опред. как *F. caucasica* [between Vaik and Azatek, N slope of the Arpa River gorge, juniper woodland, 1400–1700 m, 19 IV 1973, V. Manakjan, sub nom. *F. caucasica*] (ERE 100732); Vajotz sar, 4 km to SW of vill. Karmrashen, 2400 m, 27 VI 2003, M. Barkworth, F. Smith, E. Gabrielian, A. Nersesyan, sub nom. *F. pinardii* subsp. *hajastanica* (ERE 152475).

Affinity. Boris S. Tuniev noted that on Urts mountain range *F. tunievii* grows together with *F. hajastanica* (Fig. 3), which occurs from 1000 to 1800 m and more often than the former, which grows solitary or in small groups, mainly on the northern slopes of the mountain ridge at 1750–1850 m. As only these two related species occur on Urts mountain range, the following Table focuses on the distinctive characters of these two.

Habitat. Grassy stony slopes, mountain steppes, juniper woodland, subalpine meadows, N or NE slopes, rarely S or SW slopes, at 1400–2500 m.

Distribution. Armenia: Aragats, Aparan, Yerevan and Darelegis floristic regions; Turkey: North-East Anatolia (Fig. 4).

As *F. tunievii* is more often confused with *F. caucasica* (Gabrielian, 2001), I am bringing some weighty characters to distinguish the two species. *F. caucasica* is not so robust, its stem is 15–35 cm tall, 1–2 mm diam.; leaves are always 3–4; perianth campanulate, 22–38 mm long, dark purplish-brown; filaments thread-like, 10–20 mm long, always glabrous, usually purplish; anthers 7–9 mm long; style 14–18 mm long, slender, glabrous, at apex slightly expanded, easily falling; ovary 10–12 mm long, clavate.

In Armenia, *F. caucasica* occurs at 1600–2700 m a. s. l. in the northern and central parts of the republic: in Upper Akhurian, Shirak, Aragats, Ijevan, Aparan, Sevan and Gegham floristic regions. From Dagna, Kotuts and Urts mounts and farther southeast to the border of Iran, this species is not found, and replaced by *F. armena* and *F. hajastanica*.

In “Flora Iranica” (Rechinger, 1990: 73) it was indicated as *F. caucasica* for North-West Iran: “M. Qareh Dag prope Aliabad 20 km SW Kaleybar,



Fig. 2. Holotype of *Fritillaria tunievii* (ERE0005792).

Table. Diagnostic characters of *Fritillaria hajastanica* and *F. tunievii*

Character	*F. hajastanica* (Gabrielian, 2016)	*F. tunievii*
Bulb	6–8(10) mm diam.	10–13 mm diam.
Stem	15–20 cm tall, to 1–2 mm diam.	32–40 cm tall, robust, to 4–6 mm diam.
Leaves	always 3, alternate	always 6–7(8), alternate
Flowers	solitary	twin
Perianth	conical-campanulate	narrowly campanulate
Segments of perianth	16–20 mm tall	23–32 mm long
Colour of external segments	pinkish-purplish	dark violet-brown
Colour of internal segments	pinkish or pale greyish-lilak	pinkish-violet, very rarely yellowish
Tips of segments	whitish, finely papillose, not revolute	light violet, finely papillose, revolute
Nectaries	3–4 mm long, 0.3 mm wide	5–6 mm long, 1 mm wide
Filaments	10–15 mm long, flat, densely white-glandulose	8–11 mm long, usually densely violet-glandulose
Anthers	7 mm long	8–11 mm long
Ovary	5–8 mm long, 2 mm wide	16 mm long, near the base 1 mm wide, at apex 3 mm wide
Style	11–17 mm long, 0.5 mm wide, slender, finely white-glandulose	10–11 mm long, 0.5 mm wide at base, 1.5 mm wide at apex, finely violet-glandulose
Tip of style	indistinctly incised	distinctly incised, three-edged
Capsule	obovate, 16–20 mm long	smoothly three-edged, 30 mm long, 10 mm wide



Fig. 3. *Fritillaria hajastanica* among cushions of *Gypsophila aretioides*, Urts mountain range (photo by B. S. Tuniev).

2300–2500 m, Lamond 4934! In Rech. 44325! W Winak, in declivibus versus fl. Araxes, substr. schistoso-arenac., 1300 m, Renz in Rech. 50073! In jugo 20 km S Ahar versus Tabriz, 1700 m, Wdb. & Assadi 19294!". The Table 60 represents the plants collected by J. Renz (№ 50073), and instead of *F. caucasica* there are absolutely other plants depicted, with rather big bulb, nine very narrow long tapering leaves, very long and narrow lower leaf, and very short flowers.

In "The Bulb Book..." (Rix, Phillips, 1981: 78–79), there is a photo which looks absolutely the same as *F. tunievii*. It was collected by E. M. Rix (№ 1641) from "Turkey Agri (= Mount Ararat), Tahir Dag, stony slopes, 2400 m". Rix considered this plant as a hybrid between *F. assyriaca* Baker × *F. caucasuca*, and noticed that "Hybrids are rare in *Fritillaria*, but this form is frequent in NE Turkey around Erzurum and Kars. It is usually found near the parents, but often growing in separate colonies". The plant in this photo is extremely similar to the specimens collected by B. S. Tuniev from Urts mountain range and to other plants collected earlier. On the same pages there is the image of *F. assyriaca* (= *F. canaliculata* Baker), which looks as quite a different plant.

According to the description of *F. assyriaca* (Rix, 1984: 300–301), it is rather doubtful that this species could be one of the parents of *F. tunievii*. The bulb of the



Fig. 4. Distribution of *Fritillaria tunievii*.

latter has no stolons or bulblets. Stems during flowering are much taller (32–40 cm), robust, thick, while the stems of *F. assyriaca* are 4–20 cm long, not robust, thinner, glabrous, never papillose below. Leaves are neither linear nor canaliculate, flowers are not greenish-brown, etc. According to Rix, *F. assyriaca* is native of Eastern Turkey, Northern Iran, Northern Iraq and probably of Armenia. However, this species does not occur in Armenia.

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