TÜRKİYE'DE EREMURUS (LILIACEAE) CİNSİ

THE GENUS EREMURUS (LILIACEAE) IN TÜRKEİ

Ertan TUZLACI

SUMMARY

According to our taxonomical research made on the genus Eremurus (Liliaceae - Asphodeloideae - Asphodelaeae), between 1976-1982, two species are found in Turkey as indicated in previous literature: E. spectabilis Bieb. subsp. spectabilis (sect. Eremurus) and E. cappadocicus J. Gay ex Baker [sect. Ammolirion (Kar. et Kir.) Boiss.]. In this paper, their descriptions, distributions, habitats, flowering time, altitudes and variations mainly based on the examined specimens, have been represented. Furthermore, two drawings are added to the text.

ÖZET


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The genus *Eremurus* (Liliaceae - Asphodeloideae - Asphodelae) has about 50 species and is distributed mainly in the Central Asia and the Middle East (1, 2). Particularly the Central Asia is considered as a center of this genus (2). The three sections of *Eremurus* are distinguished: Sect. Eremurus, Sect. Ammolirion (Kar. et Kir.) Boiss. and Sect. Henningia (Kar. et Kir.) Baker (3).

In Turkey, *Eremurus* is represented by 2 species: *E. spectabilis* Bieb. (Sect. Eremurus) and *E. cappadocicus* J. Gay ex Baker (Sect. Ammolirion). The presence of these two species in Turkey, was mentioned in some previous revisional and basic floristic literature concerning the flora of Turkey and the genus *Eremurus* (36).

This study is mainly based on the material collected personally and the specimens kept in several Herbariums (AEF, ANK, ATA, E, ESSE, HUB, K, ISTE, ISTO). Our specimens are kept in the Herbarium of the Faculty of Pharmacy, Istanbul University (ISTE). The descriptions of the both species are mainly based on our studies and observations. In addition some basic revisional and floristic literature has been used (3-7). A few records taken from the literature, have been pointed out in the distribution of the species (8-10).

This paper is a taxonomic part of the revision of the genera *Asphodelinae*, *Asphodelus*, *Eremurus* and *Anthericum* in Turkey which was realized during 1976-1982 as a thesis.


Perennial herbaceous plants. Rhizome short, the neck often covered with membranous or fibrillose remnants of old leaves. Roots clustered, thick and fleshy, cylindric or fusiform. Leaves numerous, all basal, spirally arranged and connate to each other with their scarious bases, green or glaucous, broadly linear, carinate beneath, smooth or canaliculate. Scape (flowering stem) simple, erect, terete, smooth, leafless. Inflorescence simple raceme. Bracts membranous. Pedicels jointed or not. Flowers numerous, hermaphrodite, actinomorphic. Perianth pale yellow, greenish yellow or brownish (in Turkish claret or ± tubular; segments 3 in lower part (in Turkish 3. Stamens 3+3, all equal, dilated toward base. Anther introrse. Ovary superior, 3 celled. Stylo superior, subglobose or subglobose, transversely ribbed. Seeds hard testa, winged, 2-4 in e.

**Key to species**

1 — Scape completely greenish yellow, campanulata, capsule (6-) 7-9 mm diam.

1a — Scape puberulous or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowly tubular or narrowl

Note: In the description of lower bracts were the measurements of the species.

**Sect. Eremurus**

Syn.: sect. Eurem

Sonomy Regell, Bul

Perianth ± broadly c. consequently filaments clean.

**E. spectabilis** Bieb., Fl. Taur.

Subsp. spectabilis** (Fig.

Perennial. Plant (50-) purplish brown, fusiform, long, up to 10 mm thick. S. collar surrounded by fibri.

leaves. Leaves greenish or g: base, broadly linear, usual long, 5-30 mm broad, g: long, 5-30 mm broad, g:...
low or brownish (in Turkish plants), campanulate, infundibular
or ± tubular; segments 3+3, free, 1 - nerved above, 3 - nerved
in lower part (in Turkish plants), outer 3 narrower than inner
3. Stamens 3+3, all equal, exceeding perianth. Filaments filiform
dilated toward base. Anthers oblong to ovoid, dorsifixed near base,
introrse. Ovary superior, 3 - valved, 3 - celled, with 4 ovules in
each cell. Style filiform. Stigma minute. Fruit a loculicidal capsule,
globose or subglobose, membranous or sublignous, smooth or
transversely ribbed. Seeds irregularly acutely triquetrous, with
hard testa, winged, 2-4 in each cell.

Key to species

1 — Scape completely glabrous; perianth pale yellow or
greenish yellow, campanulate or infundibular, 10-14 mm long;
capsule (6-) 7-9 mm diam., transversely ribbed. 1 - E. spectabilis

1a — Scape puberulent at least at base; perianth brownish,
± tubular or narrowly tubular-infundibular, 9-10 mm long; capsule
10-12 mm diam., smooth ............ 2 - E. cappadocicus

Note: In the description of both species below, the measurement
of lower bracts was given and the wings were included in
the measurements of the seed.

Sect. Eremurus


Perianth ± broadly campanulate; segments involute at last,
consequently filaments clearly exerted.


Subsp. spectabilis (Fig. 1).

Perennial. Plant (50-) 70-120 cm tall. Roots up to 22, fleshy,
purplish brown, fusiform, tapering towards tip, up to 20 cm
long, up to 10 mm thick. Scape erect, (4-) 5-7 mm thick, glabrous,
collar surrounded by fibrilllose or membranous remnants of old
leaves. Leaves greenish or glaucous, usually purplish brown near
base, broadly linear, usually acute or rarely obtuse, 25-40 cm
long, 5-30 mm broad, glabrous or rarely puberulent only near
apex, margins scabrid, usually ciliate towards tip. Inflorescence (12-20) 50 cm long, densely-flowered. Bracts linear-subulate, cuspitate at apex, 10-15 mm long, long or narrowly lanceolate, obtuse, sometimes slightly ciliate at apex, outer segments c. 3 mm, inner ones c. 4 mm broad, with greenish brown or greenish mid-vein. Stamens somewhat longer than perianth. Filaments (11-)12-17 mm long. Anthers ± oblong or ovoid, 2-3 mm long. Style filiform, 12-17 mm long. Stigma minute, capitate. Capsule globose, ± apiculate, (6-)7-9 mm long and broad, (4-)5-6 (-7) transversely wrinkled, perianth segments and style partly or completely persistent on fruit. Seeds 2-3 in each loculus, greyish, yellowish or yellowish brown, 4-6 mm long, 2-3 mm broad and 3-4 mm high, with c. 0.5 mm broad membranous winged.

**Flowering time:** May, June.

**Habitat:** Stony, rocky places, steppe, mountain slopes, alpine meadows, river banks, forest (Pinus nigra, Juniperus, Quercus) clearings, scrub.

**Altitude:** 1300-2750 m.

**Type:** Described from N. Caucasus, between Kuma and Sably rivers (LE).

**Distribution in Turkey:**

A2 Burcu : Uzun Dağ, Arcu-Sablayı, 30.VI.1944, M. Hellman, ISTF 37929! Ibid, Keselkinha-
yan, 4.VII.1944, M. Hellman, ISTF 4046! Ibid, on the road to Aras, 4.VII.1944, M. Hellman, ISTF 4046! A 3/4 Aranın, Karar, 1400 m, Y. Akman (ANK.) (8). A7 Giresun : Giresun-
ISTF 4046! A 3/4 Anbarı, Karar, 1400 m, Y. Akman (ANK.) (8). A7 Giresun : Giresun-
ISTF 4046! A 3/4 Anbarı, Karar, 1400 m, Y. Akman (ANK.) (8). A7 Giresun : Giresun-
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ISTF 4046! A 3/4 Anbarı, Karar, 1400 m, Y. Akman (ANK.) (8).

**General distribution:** Lebanon, Syria, Israel.

Subsp. eremerus is Wendelbo (Afghanistan greenish yellow perian (Vved.) Wendelbo (Ira times puberulent only cent!))
ERTAN TUZLACI

kuynolu, 1650 m. 12.VI.1977. A. Çetinkaya. ISTF 36019! Baraz, Murat Da., above Sığır-
Çuvaluyolu, 1650 m. 18.VI.1978. A. Çetinkaya, ISTF 3187! B3 Eskiçereli: Sâlimdinc Da. Bozan-

General distribution: Turkey, Iran, Caucasus, Crimea, Iraq, Lebanon, Syria, Israel.

Subsp. eremurus is distinguished from subsp. regelii (Vved.) Wendelbo (Afghanistan, Central Asia) mainly by yellowish or greenish yellow perianth (not reddish!) and subsp. albiflorus (Vved.) Wendelbo (Iran, Türkmenistan) by glabrous (or some-
times puberulent only near apex) leaves (not minutely pubes-
cent!).


towards tip. Inflorescence
red. Bracts linear, subulate,
 apex. 10-15 mm long, style
infundibular
neon yellow, spreading in
linear, lanceolate, slightly
length, 4 mm broad, with yellowish or
broad or oblong or
5.5 mm long. Style filiform,
apartate, Capsule globose, ± apici-
(4) - 6(-7) transversely
partly or completely
peculiar, greyish, yellowish or
umbroad and 3.4 mm high,
ingle.
Eremurus spectabilis is one genus. The west border and the distribution of in the same area by met in its distribution areas Turanian element. But mediterranean areas in

The leaves of plant a vegetable (Antalya, used to make gum (Erz on the label of the sheet

Sect. Ammolirion (F
Syn.: Ammolirion (1842)
Perianth tubular; s ments scarcely exserted.

E. cappadocicus J. 15:281 (1876). (Fig. 2).
Syn. Asphodelus No: 2166
Perennial. Plant 45 brownish or purplish bi towards tip, up to 25 c 3-5 (-7) mm thick, pt part, collar surrounded old leaves. Leaves glauci gradually tapering tow 5-15 (-18) mm broad, gla seabrid towards apex. laxly-flowered, usually n linear-subulate, 10-14 ( minute cilia. Flower erect, jointed at the e Perianth brownish ± t 9-10 mm long; segment ments c. 1.5 mm, inner times whitish margins

Figure - 1: Eremurus spectabilis subsp. spectabilis: A. plant (x14) B. Flower (x3) C. inner tepal (x5) D. outer tepal (x5) E. fruit (x3) F. seed (x3) G. stamen (x5) H. bract (x3).
E. spectabilis is one of the most widespread species of this genus. The west border of its distribution is found in Anatolia and the distribution of the genus also reaches its western end in the same area by means of this species. It is usually abundant in its distribution areas recorded above. This species is an Irano-Turanian element. But its distribution is also extended into the mediterranean areas in Anatolia.

The leaves of plants (Turkish: Çirış) are edible and used as a vegetable (Antalya, Adana, Maraş, Bitlis) and its roots are used to make gum (Erzurum, from the note of Furse and Synge on the label of the sheet of their plants).

**Sect. Ammoliinion** (Kar. et Kir.) Boiss. Fl. Or. 5:322 (1882).


Perianth tubular; segments incurved at apex at last. Filaments scarcely exserted.

**E. cepedocicus** J. Gay ex Baker, in Jour. Linn. Soc. Bot. 15:281 (1876). (Fig. 2).

Syn. Asphodelus glaucus Aucher - Eloy, Pl. Orient Exsic, No: 2166

Perennial. Plant 45-70 (-80) cm tall. Roots up to 17, fleshy, brownish or purplish brown, ± fusiform or cylindric, tapering towards tip, up to 25 cm long, up to 10 mm thick. Scape erect, 3-5 (-7) mm thick, puberulent, at least just above the leafy part, collar surrounded by fibrillose or membranous remnant of old leaves. Leaves glaucous, usually purplish towards base, linear, gradually tapering towards base, acute at apex, 25-40 cm long, 5-15 (-18) mm broad, glabrous, margins usually smooth or slightly scabrid towards apex. Inflorescence (15-) 20-30 (-40) cm long, laxly-flowered, usually more densely-flowered towards apex. Bracts linear-subulate, 10-14 (-17) mm long glabrous or sparsely and minutely ciliate. Flowering pedicels 15-20 mm long, ascending-erect, jointed at the end (near the base of flower or fruit). Perianth brownish ± tubular or narrowly tubular-infundibular, 9-10 mm long; segments linear or linear-oblancoate, outer segments c. 1.5 mm, inner ones c. 2 mm broad with paler or sometimes whitish margins and broadly, sometimes branched, brown
or purplish brown mid-vein. Stamens somewhat longer than perianth. Filaments 11-12 (-15) mm long. Anthers obovoid, c. 1.5 mm long. Ovary globose, 1.5-2 mm long. Style filiform 11-12 (-15) mm long. Stigma minute, capitulate. Capsule globose, ± adpressed or retuse at apex, 9-10 mm long, 10-12 mm broad, smooth, sometimes perianth segments and style partly or completely persistent on fruit. Seeds 3-4 in each loculus, yellowish white, greyish or brownish yellow, 6.7 mm long, 3-5 mm broad and 4.5 mm high, with irregularly c. 1 (up to 2) mm broad membranous winged.

**Flowering time:** May, June.

**Habitat:** Arid, open places, steppe, stony, rocky slopes.

**Altitude:** 1000-1450 m.

**Synonym:** Cappadocia meridionalis, Aucher-Eloy 2166, 2332.

**Distribution in Turkey:**

*By Malaty: (Şan?)*: Derecide to Gürün, 1000-1050 m., Hub. Nov. 19392. Siyaz : 22 km. W of Divriği, 1400 m., Sorga 70-24-17 30 km. from Divriği to Kanzal, 1400 m., 6.VII.1982. H. Bager, H. Malster, ESSE 1932 (ISTE 49989)! *By Erzincan*: 1 km W of Tercan, 1340 m., Hub.-Mor. 11337. Near Tercan, Karasu valley, 1440 m., 23.VII.1978, E. Tuzlaci, ISTE 41111! 1 km from Tercan to Erzincan, 1400 m., 18.VII.1979, E. Tuzlaci, ISTE 42594! 3 km from Tercan to Erzincan 1400 m., 31.VII.1983, N. and E. Özhatay, ISTE 51952!

**General distribution:** Turkey, N. Iraq

It is very close to *E. inderiensis* (Stev.) Boiss. (Iran, Afghanistan, Central Asia). This species is distinguished from *E. cappadocicus* by taller (up to 120 cm) and thicker (up to 10 mm) scape, puberulent leaves, long ciliate bracts, longer perianth (10-16) mm, broader perianth segments (up to 2 mm), smaller capsule (8-10 mm diam.). *E. cappadocicus* is an Irano-Turanian element.

Indumentum of flowering stem is variable. Scape is densely puberulent up to inflorescence on the specimens collected from Siyaz (ESSE 1932, ISTE 49989) and on the other specimens collected from Erzincan the stems are usually hairy in lower half or only just above the leafy part.

It is abundant in near Tercan (Erzincan).
somewhat longer than petals. Anthers oblong-ovoid, c. 11.2 mm long. Style filiform 11-12 mm long. Capsule globose, ± oblate. 12 mm broad, 10-12 mm long. Style partly or completely included within fleshy white, yellowish white, fleshy, 2.5 mm broad and 4.5 mm long, pedicel 2 mm broad membranous sheath.

s, Aucher-Eloy 2166, 2332.


q (Stev.) Boiss. (Iran, Afghanistan) distinguished from *E. cappadocius* by thicker (up to 10 mm) acts, longer perianth (10-16 mm), smaller capsule and an Irano-Turanian element.

Scape is densely hairy in lower half or only variable. Scape is densely hairy in lower half or only variable. Scape is densely hairy in lower half or only variable.

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**Figure 2**: *Eremurus cappadocius*: A. plant (3/4) B. flower (3) C. inner tepal (3) D. outer tepal (3) E. fruit (3) F. seed (3) G. bract (3) H. stamen (3).
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REFERENCES


Plants are widely used in folk medicine, though scientifically. However, plants are used by all societies as a source of medicine as well as for other purposes.

Bitkiler: Übri ve diğer larda yaygın olarak kul-lanılan bitkisel kaynaklı ilaçlar önemli doğal kaynakları olduğunu gibi dünyada da yazımızda 43 bitkinin amaçlarla kullanılış sı listesi.

Bitkiler çeşitli özel sanayi alanlarında ön-erin insanlar tarihinde ilk geçmiştir.

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