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# Revision of the genus *Asphodeline* (Liliaceae). II. Two new species from Turkey

ERTAN TUZLACI

## RÉSUMÉ

TUZLACI, E. (1998). Révision du genre *Asphodeline* (Liliaceae). II. Deux nouvelles espèces de Turquie. *Candollea* 53: 423-433. En anglais, résumés français et anglais.

Deux nouvelles espèces du genre *Asphodeline* de Turquie sont décrites et illustrées: *A. sertachae* Tuzlacı et *A. turcica* Tuzlacı. Le nom *Asphodeline* sect. *Appendicigera* Tuzlacı est validé.

## ABSTRACT

TUZLACI, E. (1998). Revision of the genus *Asphodeline* (Liliaceae). II. Two new species from Turkey. *Candollea* 53: 423-433. In English, French and English abstracts.

Two new species of *Asphodeline* from Turkey are described and illustrated: *A. sertachae* Tuzlacı and *A. turcica* Tuzlacı. The name of the section *Asphodeline* sect. *Appendicigera* Tuzlacı is validated.

**KEY-WORDS:** LILIACEAE – *Asphodeline* – Turkey – Taxonomy.

During the summer 1996, I made an excursion to the Toros Mountains (South Turkey) to collect fruiting material of some interesting *Asphodeline* taxa which had been gathered in flower by other collectors. The fruit is very important for the taxonomy of this genus and many *Asphodeline* species are distinguished by fruit characters as demonstrated in my previous paper (TUZLACI, 1987).

The Toros Mountains, including many isolated named mountains, is a long range lying along the Mediterranean coast of Turkey. The massif continues north-eastwards as the Anti-Toros. The dominant rock of South Anatolia is hard limestone. This area has a typical Mediterranean climate near the coast – mild, wet winters and long, hot, arid summers with almost constant drought. Throughout much of the area, snow lies in winter above 1000 m, so that the increased cold, low temperatures and drier air lead to the penetration of steppic elements from Inner Anatolia into the high mountains, where such vegetation usually predominates above the tree line (DAVIS, 1965).

As the Toros range is phytogeographically included in the Mediterranean region, many geophytes, therophytes and suffrutescent chamaephytes are characteristic of the area. Macchie, dominated by evergreen shrubs, covers much of this region below 1000-1200 m. In many places the macchie has been degraded and replaced by phrygana. Above 1000-1200 m the Mediterranean region is largely dominated by conifers. Above the tree line (at ca. 1700 m in the Toros) the

mountains of the Mediterranean region are usually dominated by various cushion communities in which spiny species of *Astragalus*, *Acantholimon* and *Onobrychis cornuta* often play a leading part (DAVIS, 1965).

Many local endemic plants (631 species) occur in the Mediterranean district of South Anatolia which is the richest floristic area in Turkey (EKIM, 1987).

As a result of this investigation, two new species are described: *Asphodeline sertachae* Tuzlacı and *A. turcica* Tuzlacı. Both species belong to *Asphodeline* sect. *Appendicigera* Tuzlacı. Our specimens are deposited in the Herbarium of the Faculty of Pharmacy, Marmara University (MARE).

In TUZLACI (1987) we propose a new infrageneric classification of *Asphodeline*. Unfortunately, a type species was not provided for the new section *Appendicigera*. This addition is made here:

***Asphodeline* sect. *Appendicigera* Tuzlacı, sect. nova**

**Type species:** *Asphodeline rigidifolia* (Boiss.) Baker

**Latin diagnosis and discussion:** in *Candollea* 42: 564. 1987.

***Asphodeline sertachae* Tuzlacı, spec. nova (Fig. 1).**

**Type:** TURKEY. C4 Antalya: Gazipaşa. Toros Mountains near Çıglık Village, 2 km above Aşarbaşı, 1820 m, 26.6.1996, E. Tuzlacı MARE 4961 (Holo-, MARE) (Map 1).

*Affinis A. tauricae* (Pallas) Kunth, sed tepalis tribus exterioribus discoloribus, extus brunneis intus albis, caule dimidio inferiore foliato, capsula manifeste transverse ruguloso, ad apicem umbilicato, planta bienni differt.

*Planta biennis, (35-)40-65(-75) cm alta. Radices densae graciles durae. Caulis erectus, teretiusculus, sulcatus vel striatus, 5-17 mm crassus, in dimidio inferiore dense foliatus. Folia lineari-subulata, subtriquetra, margine scabrida, apice subulato-attenuata, basi late membranaceo-marginata. Racemus simplex, (18-)25-35(-40) cm longus, densus. Bractee scariosae, lanceolatae, longe acuminatae. Pedicelli fasciculati, in fructu 15-27 mm longi, ad ± medium vel supra articulati. Perigonium 15-17 mm longum, bicolor; tepala exteriora discoloris extus brunnea intus alba, linearia, 2-3 mm lata, tepala interiora concoloria, alba, ± elliptica, 3-4 mm lata. Stamina valde inaequilonga; filamenta breviora (exteriora) appendiculata. Capsula anguste oblonga, transverse rugulosa, ad apicem umbilicata, 10-13 × 6-8 mm. Semina acute trigona, 4.5-5 mm longa, ca. 3 mm lata et ca. 3 mm alta (Photos 1, 2).*

*Paratype.* – TURKEY. C4 Antalya: Esenpınar Village between Erikli and Kaşpazarı, 1600-2200 m, 20.5.1984, H. Sümbül 2898 (HUB, MARE 5255).

*Flowering time.* – May-june.

*Altitude.* – 1600-1820 m.

*A. sertachae* is similar to *A. taurica* (Pallas) Kunth but differs in its bicolored outer tepals (outside brown, inside white), less leafy stems (leafy in the lower half), transversely wrinkled and umbilicate capsule and its biennial habit. In addition, the fruits are almost hidden by the crowded bracts and bracteoles in *A. taurica*, whereas in *A. sertachae* the fruits clearly exceed the bracts and bracteoles and are easily visible.

The first specimens of *A. sertachae* had been collected by H. Sümbül in flower in 1984 and were identified by Prof. Dr. S. Erik as *A. damascena* (Boiss.) Baker subsp. *damascena* in 1985. But, the other subspecies of the same species, *A. damascena* subsp. *gigantea* Tuzlacı with leafy stems in the lower half, resembles *A. sertachae*. However it differs from *A. sertachae* in its taller (up to 170 cm), branched (or simple), looser inflorescence, longer (20-23 mm), concolorous

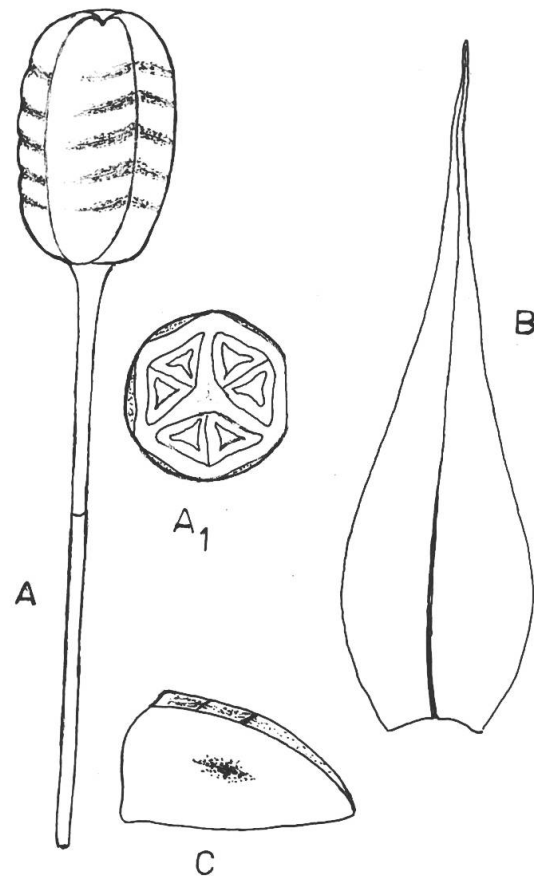
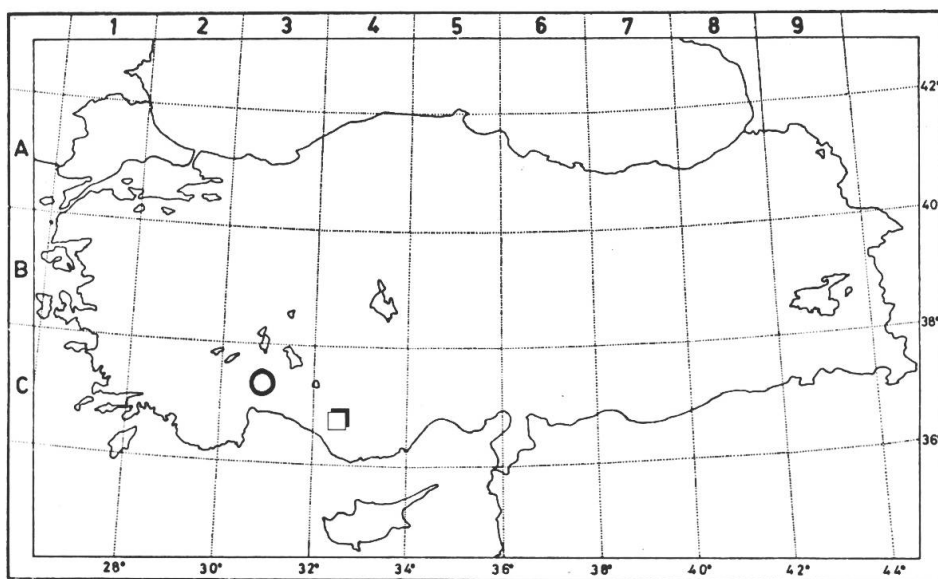


Fig. 1. – *Asphodeline sertachae* Tuzlacı. **A**, fruit (A<sub>1</sub>, median cross-section) (×2); **B**, lower bract (×2); **C**, seed (×5).



Map 1. – Distributions of *Asphodeline sertachae* Tuzlacı (□) and *Asphodeline turcica* Tuzlacı (○) in Turkey.

white tepals, typical cylindric capsules, smooth valves. *A. damascena* subsp. *gigantea* is distributed in lower (600-1100 m), steppic places in South East Anatolia (TUZLACI, 1983).

The mountains surrounding the locality of the Sümbül specimens, are very steep and there is a large plateau at ca. 2200 m (Photo 3). *A. taurica*, which is widespread in Turkey, is abundant on this plateau.

I collected specimens of *A. sertachae* in a neighbouring valley not far from the first locality. I observed plants on the south slope in the upper part (1600-1820 m) of the mountain: they are abundant in the meadows on very steep slopes and in the upper altitudes of the distribution area. I also saw a few specimens of *A. taurica* growing with *A. sertachae*, but only at ca. 1820 m. However, as explained above, they can be easily distinguished from each other in the field. At the lower altitudes in the forest (consisting of *Pinus nigra* and *Abies cilicica*), *A. sertachae* is somewhat rare.

*A. sertachae* is the only species of *Asphodeline* with tepals that are brown on the outside, and is the only species with strongly bicolored tepals in sect. *Appendicigera*, though this character sometimes may occur as pale pinkish/white (but never brown/white) in the other species of this section. But the two colours of the tepal are not distinguishable on dried specimens which appear as completely brown.

The inflorescence is generally simple, although some abnormal branched plants (as seen in other *Asphodeline* species) were observed in the field.

This beautiful species is named after my wife, biologist Dr. Sertaç Tuzlacı who has supported me during my studies on the genus *Asphodeline*.

***Asphodeline turcica* Tuzlacı, spec. nova** (Fig. 2).

**Type:** **TURKEY. C3 Antalya:** Gebiz, west of Bozburun Mountain, Boğaz Ağızı, Sanlı Belı, 1470 m, 28.6.1996, *E. Tuzlacı MARE 5000* (Holo-, MARE) (Map 1).

*Affinis A. anatolicae* Tuzlacı, *sed capsula angulato, ad apicem tricornuto, minimo, planta perenni differt.*

*Planta perennis, (50-)70-120(-140) cm alta. Radices densae graciles durae. Caulis erectiusculus, teres, 4-15 mm crassus, in dimidio inferiore foliatus. Folia lineari-subulata, subtriquetra, margine ± scabrida, apice subulato-attenuata, basi late membranaceo-marginata. Racemus simplex vel 1-6-ramosus, (23-)35-60(-75) cm longus, laxis. Bractee scariosae, lanceolatae, longe acuminatae. Pedicelli fasciculati, in fructu 15-20(-30) mm longi, ad medium vel infra aut supra articulati. Perigonium album, 15-20 mm longum. Stamina valde inaequilonga: filamenta breviora (exteriora) appendiculata. Capsula angulata, ad apicem tricornuta, 7-8×7-9 mm. Semina acute trigona, 4-5 mm longa, ca. 3 mm lata et ca. 3 mm alta* (Photos 4, 5).

**Paratypes.** – **TURKEY. C3 Antalya:** Gebiz, Bozburun Mountain, Boğaz Ağızı, 23.7.1949, *P. H. Davis 15498* (E). Gebiz, above Pınargözü, 1280 m, 16.6.1983, *H. Çakırer & G. Çakırer ISTE 50926* (ISTE). Gebiz, Bozburun Mountain, Boğaz Ağızı, Göğalan, 1500 m, 17.6.1983, *H. Çakırer & Çakırer ISTE 51024* (ISTE). Gebiz, west of Bozburun Mountain, Boğaz Ağızı, Sanlı Belı, 1250 m, 28.6.1996, *E. Tuzlacı MARE 4980* (MARE).

*Flowering time.* – June-july.

*Altitude.* – 1250-1550 m.

*A. turcica* Tuzlacı resembles *A. anatolica* Tuzlacı from South West Turkey. It differs from *A. anatolica* in its smaller, angled, 3-horned fruits and perennial habit. However, the two species may be easily confused especially in herbarium specimens collected in flower. The specimens previously collected in the same place by P. H. Davis (1949) and H. and G. Çakırer (1983) were cited under *A. anatolica* in our previous publications (TUZLACI, 1983; MATTHEWS & TUZLACI, 1984; TUZLACI, 1985, 1988) mainly for their characteristic stems (leafy in the lower

half). When I went to the same area to collect fruiting material, I noticed that the fruit was very different from those of the other *Asphodeline* species. Furthermore, the plant is perennial (that is, it bears some basal rosettes which produce flowering stems the following year. It is sometimes very difficult to determine this in herbarium specimens if there are no rosettes, but it is easy in the field). *A. turcica* is more slender and shorter than *A. anatolica*.

In appearance *A. turcica* also resembles *A. globifera* J. Gay ex Baker which is absent from South West Turkey. It differs from *A. globifera* mainly in its angled (not globular), 3-horned fruits, more leafy stems, more rigid leaves and branched inflorescence.

*A. turcica* was observed in the surrounding of Sanlı Beli (west of Bozburun Mountain) between 1250 and 1550 m, but its presence may be possible on the slopes above 1550 m (Photo 6). The plants are particularly widespread at Sanlı Beli (Sanlı Pass, 1450-1500 m) and to the north of this locality where the forest trees are sparser than on the other side. The south slope is densely covered by forest mainly consisting of *Pinus nigra*, and in this area *A. turcica* is not common. It is observed only along the forest road and in some forest clearings. I also noted that the outside of the outer tepals are pale pinkish in some specimens growing in shady places on the south slope.

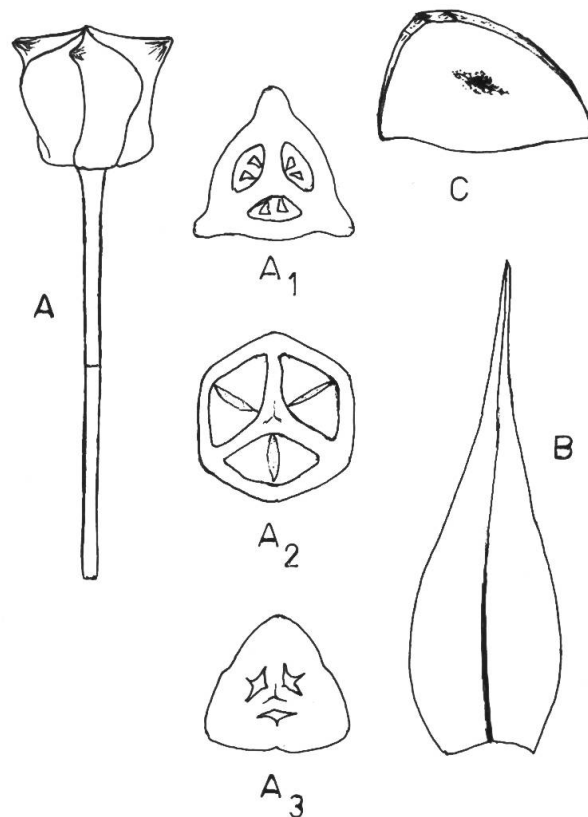


Fig. 2. – *Asphodeline turcica* Tuzlacı. A, fruit (A1, apical cross-section; A2, median cross-section; A3, basal cross-section) (×2); B, lower bract (×2); C, seed (×5).



Photo 1. – *Asphodeline sertachae* Tuzlacı.



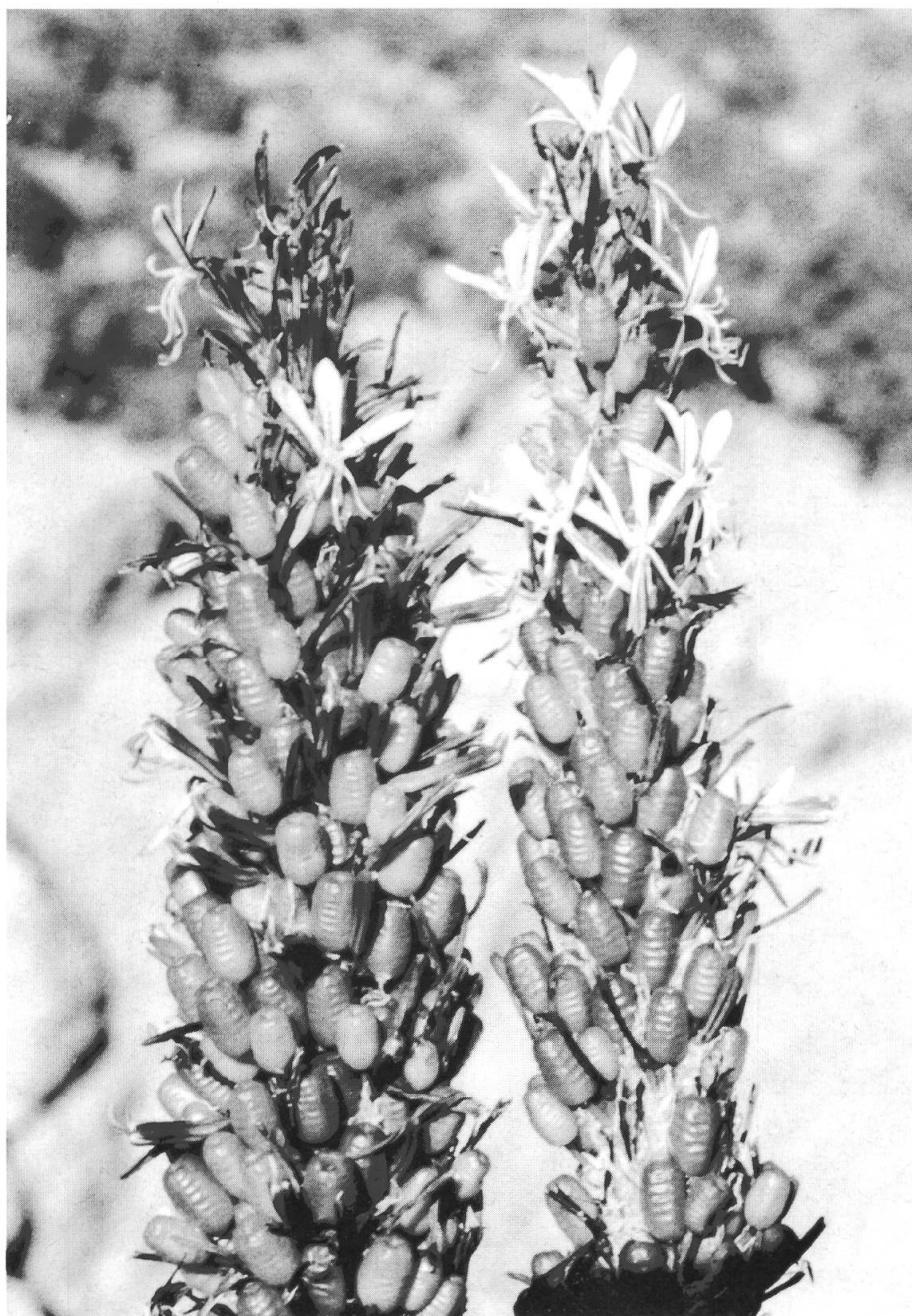


Photo 2. – *Asphodeline sertachae* Tuzlacı (inflorescence).





Photo 3. – Upper part of the Toros Mountains in Gazipaşa. The distribution of *Asphodeline sertachae* Tuzlacı is in the area near the border of the tree belt.



Photo 4. – *Asphodeline turcica* Tuzlacı.

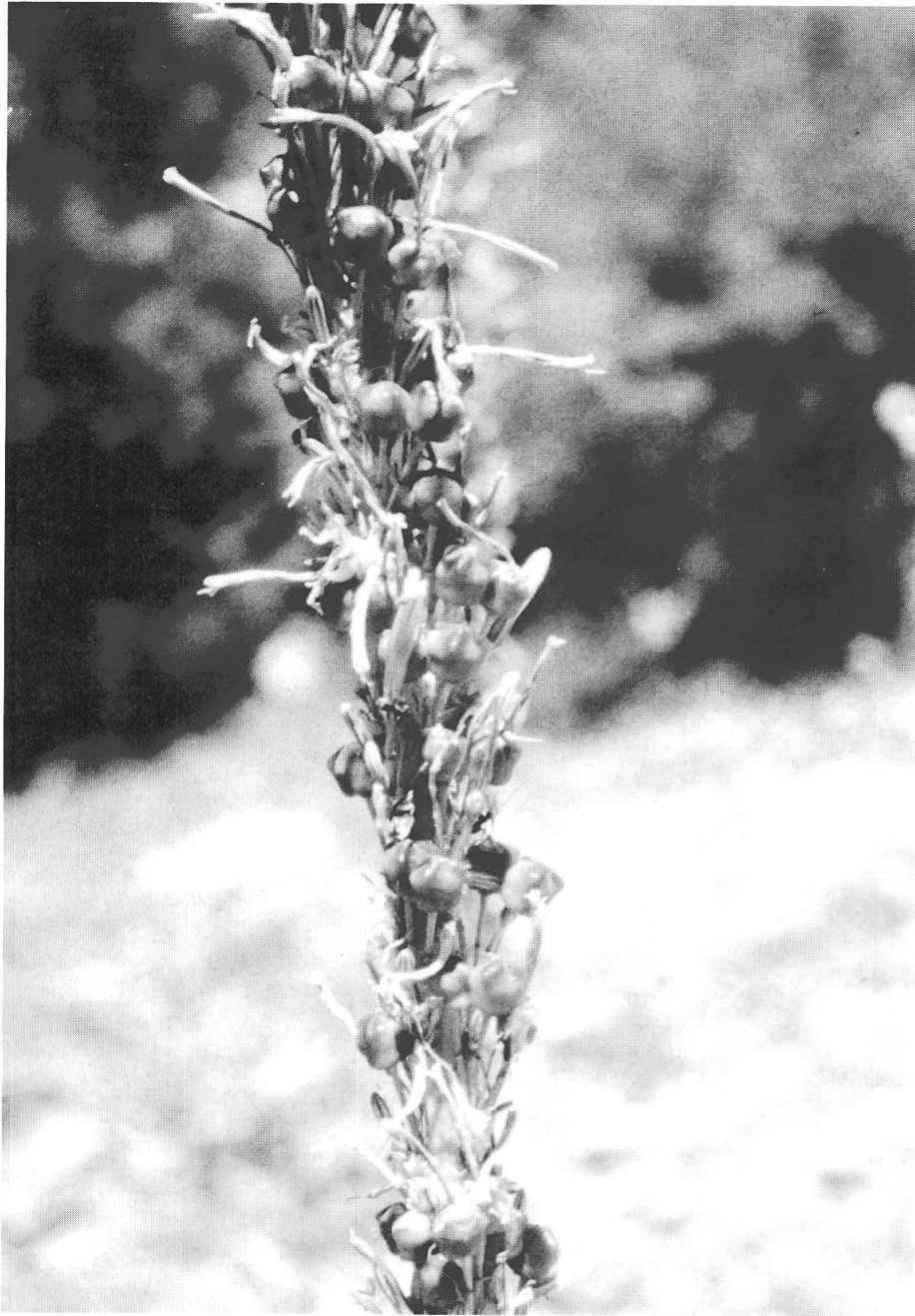


Photo 5. – *Asphodeline turcica* Tuzlacı (inflorescence).



Photo 6. – Bozburun Mountain (a view from Sanlı Pass).

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