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A new species of *Scorzonera* (Asteraceae) from South Anatolia, Turkey

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Scorzonera yildirimlii A. Duran et Hamzaoğlu sp. nov. from southwestern Turkey is described and illustrated. It is related to *S. pygmaea* Sibth. & Sm. and *S. rigida* Aucher, from which it mainly differs in its habitus, leaves, phyllaries and features of the pappus hairs.

Key words: Asteraceae, Lactuceae, *Scorzonera*, Turkey.

Introduction

The genus *Scorzonera* L. encompasses about 160 species and being Ancient Mediterranean by origin, it is widely spread in arid regions of Eurasia and Africa. The first thorough arrangement of the genus *Scorzonera* was given by De Candolle (1805). According to his system *Scorzonera* unites perennial herbs and shrubs with simple, entire, rarely pinnatifid leaves, phyllaries always deprived of horns, seeds mainly without or with hollow pedicels. Considerable changes in the treatment of the genus *Scorzonera* were introduced by Boissier (1875) who included *Podospermum* DC. and *Epilasia* (Bunge) Benth. as sections within the genus *Scorzonera*. The most complete and much changed system was given by Lipschiz in two parts of this classical "Fragmente monographiae *Scorzonera*" (1935, 1939). The concept of the genus introduced by Lipschiz was accepted by many regional "Floras" (Chamberlain, 1975; Chater, 1976; Rechinger, 1977).

According to Chater (1976) the genus *Scorzonera* is represented by 28 species in Europe. Five European species *S. cana* (C. A. Mey.) O. Hoffm., *S. cretica* Willd., *S. hispanica* L., *S. laciniata* L., *S. mollis* M. Bieb. occur in Turkey (Chamberlain, 1975). Since the genus *Scorzonera* has been revised by Chamberlain (1975) for the Flora of Turkey, some other new taxa, such as *Scorzonera pisidica* Hub.-Mor., *S. latifolia* (Fisch. et C. A. Mey.) DC. var.*angustifolia* Prilipko ex Lipsch., *S. sandrasica* Hartvig et Strid, *S. longiana* Sümbül, *S. ekimii* A. Duran, *S. adilii* A. Duran and *S. aytatchii* A. Duran et M. Sağıroğlu (Davis et al., 1988; Güner, 2000; Duran, 2002a, 2002b; Duran et Sağıroğlu, 2002) have been added to the Flora of Turkey. Forty-six *Scorzonera* species are now known from Turkey. In this paper, the new *Scorzonera* species is described and illustrated.

Material and methods

The authors collected some *Scorzonera* specimens from Osmaniye province (above Zorkun) during an excursion in summer 2001. These specimens have been compared with the related species *S. pygmaea* and *S. rigida* in the Herbaria of Ankara University (ANK), Hacettepe University (HUB), Gazi University (GAZI) and Kırıkkale University (ADO) and with the literature (Chamberlain, 1975; Davis et al., 1988; Güner, 2000; Chater, 1976).

Seven *S. pygmaea* subsp. *pygmaea,* twenty-one *S. pygmaea* subsp. *nutans* and twenty *S. rigida* specimens have been examined in the herbaria of ANK, HUB, GAZI and ADO for this study. The study showed that the specimens collected in 2001 represent a species new to science.

A grid system was adapted for the division of the area of Turkey for the citation of specimens. This grid divided Turkey into twenty-nine squares, as shown in Fig. 2 (DAVIS, 1965). According to this grid system Osmaniye province falls within the C6 square.

***Scorzonera yildirimlii* A. DURAN ET E. HAMZAOĞLU sp. nov.** (Fig. 1).

Herba perennis. Scapus 2–8 cm longus. Folia conduplicata, glabrata, plerumque falcata. Capitulum 1 in quoque caule, 12–16 mm longum. Corolla lutea. Phyllaria externa ± glabra, 4–7 mm longum. Phyllaria interiora glabra, 10–15 mm longum. Pappus stramineus.

Subscapigerous perennial herb. Rootstock thick, cylindrical. Stems scapiform 1–3 (-4), 2–8 cm long and c. 1 mm diam., striate, base of previous leaves persistent and leafy in 1/3 of stem at below, leafy part dull white. Leaves conduplicate, glabrescent or glabrous, entire, linear or linear-lanceolate, usually falcata, greenish above, purplish below, semiamplexicaul at base, 2–7 cm long, 1.5–3 mm wide. Capitula 1 per stem, homogamous, ligulate, 12–16 mm long, 4–8 mm wide. Outer phyllaries 4–7 mm long, 0.5–1.2 mm wide, linear or linear-lanceolate, ± glabrous, c. 1/2 x inner phyllaries; inner phyllaries 10–15 mm long, 1.5–2 mm wide, linear-lanceolate, acuminate, scarious margin, greenish, glabrous. Corolla yellow, equalling or longer than involucre, 9–12 mm long,

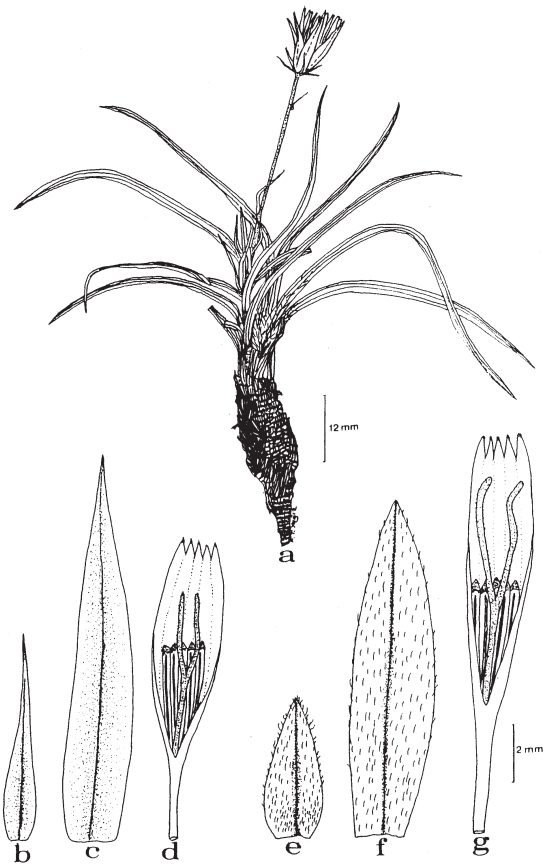

Fig. 1. *Scorzonera yildirimlii* A. DURAN et HAMZAOĞLU: a – habit, b – outer phyllary, c – inner phyllary, d – corolla; *S. pygmaea* subsp. *nutans*: e – outer phyllary, f – inner phyllary, g – corolla.

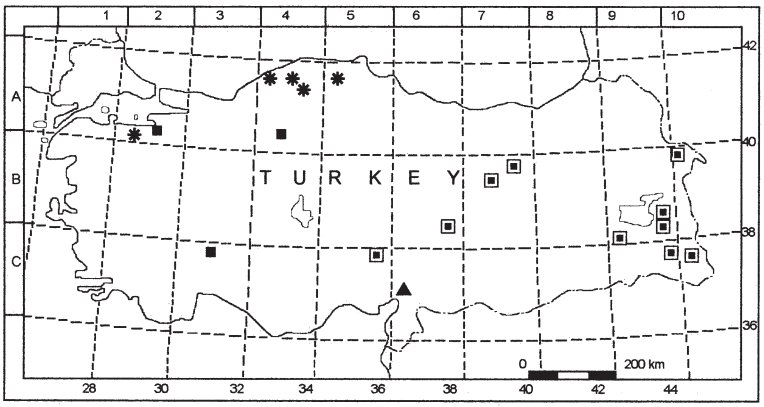

Fig. 2. Distribution map of *Scorzonera yildirimlii* (▲), *S. pygmaea* subsp. *pygmaea* (■), *S. pygmaea* subsp. *nutans* (∗), and *S. rigida* (⊡) in Turkey.

Table 1. A comparison of *Scorzonera yildirimlii* with the relevant species.

Characters	*Scorzonera yildirimlii*	*Scorzonera pygmaea*	*Scorzonera rigida*
Habitus	not cushion-forming, with 1-3 scapiform stems	cushion-forming, with numerous scapiform stems	cushion-forming, with numerous scapiform stems
Leaves	glabrescent or glabrous, semi-amplexicaule, conduplicate, usually falcate, at base purplish	Sparsely lanate, ± amplexicaule, not conduplicate, straight, at base not purplish	±pubescent, amplexicaule, not conduplicate, straight, at base not purplish
Stem	leafy 1/3 at below, leafy part dull white	all leaves basal, completely greenish	all leaves ± basal, completely greenish to yellowish
Outer phyllary	±glabrous, 4-7 mm long, linear to linear-lanceolate	pubescent, 3-5 mm long, ovate-lanceolate	sparsely pubescent, 2-5 mm long, lanceolate
Inner phyllary	glabrous, acuminate	pubescent, acute	sparsely pubescent, acute
Lobes of ligule	c. 0.5 mm long	0.5–1.5 mm long	0.5–1 mm long
Branches of style	c. 3 mm long	c. 5 mm long	c. 4 mm long
Pappus	straw coloured	pink-tinged	yellow
Hairs of pappus	barbellate and plumose below, barbellate above	plumose below, barbellate above	entirely barbellate

ligules 5 toothed, lobes c. 0.5 mm long; style branches filiform, c. 3 mm long per branch, papillose, obtuse, shorter than ligule. Achenes immature, c. 6 mm long, cylindrical, slender, glabrous; pappus 10–13 mm long, straw coloured, pappus hairs barbellate and plumose below, barbellate above. Fl. 6–7, alpine steppe, 1900–2000 m a.s.l.
Type: Turkey. C6 Osmaniye: Amanos Dağı, Zorkun Yaylasından 5 km sonra, Keldazı tepesi, 1950 m a.s.l., 36°58.95′N, 36°24.22′E, 5.VII.2001, A. Duran 5765 & E. Hamzaoğlu (holotype: ADO, isotypes: GAZI, ANK, HUB, YILDIRIMLI).
Paratypes: Turkey. C6 Osmaniye: Amanos Dağı, Zorkun Yaylasından 5 km sonra, Keldazı tepesi, 1900-2000 m a.s.l., 36°58.95′N, 36°24.22′E, 4.VII.2003, A. Duran 6284 & M. Sağıroğlu (ADO, GAZI).

S. yildirimlii is endemic for Turkey. It is found in the Amanos Mountains (Osmaniye province, Zorkun). Mediterranean (mt.) element.

This species is only known from the type locality and has to be classified as *Critically Endangered* (CR) category according to the new IUCN categories (2001).

Ecology

Scorzonera yildirimlii grows in alpine serpentine steppe with *Alyssum oxycarpum* Boiss. et Bal., *Hesperis* sp., *Thurya capitata* Boiss. et Bal., *Silene* spergulifolia (Desf.) M. Bieb., *Genista albida* Willd., *Cytisopsis dorycniifolia* Jaub. et Spach subsp. *dorycniifolia, Hypericum* sp.,*Ferula elaeochytris* Korovin, *Salvia tomentosa* Mill., *Salvia cryptantha* Montbret et Aucher ex Benth., *Anthemis* sp., *Centaurea* sp., *Onosma* sp., *Allium* sp.

Discussion

S. yildirimlii is closely allied to some species in being subscapigerous and herbaceous, and having entire leaves. It differs from the similar species especially in its conduplicate leaf feature.

S. yildirimlii is related to *S. pygmaea* and *S. rigida*. *S. pygmaea* is especially widespread in Northwest Anatolia and is endemic (Fig.2). *S. rigida* grows in East and South-East Anatolia, Northwest Iran, Georgia, Armenia and Lebanon. The main differences among the four taxa are given in Table 1.

S. yildirimlii is a plant with a single stem, rarely 2–3 stems. whereas *S. pygmaea* and *S. rigida* are with numerous (cushion-forming) stems. *S. yildirimlii* grows in alpine serpentine steppes, whereas *S. pygmaea* and *S. rigida* are found in limestone rocks, screen and alpine steppes.

Chromosome counting of *S. yildirimlii* has not been carried out, but the chromosome number of the related species are $2n = 12$ in *S. rigida* and $2n = 14$ in *S. pygmaea* (NAZAROVA, 1997).

Specimens examined. — *Scorzonera pygmaea* SIBTH. & SM. subsp. *pygmaea*: Turkey. A2 Bursa: Uludağ, P. QUÉZEL, 1968 (ANK, 3 specimens); A4 Ankara: Çubuk, Karagöl, ca. 1700 m a.s.l., 5.VI.1974, S. ERIK 531 (ANK, 2 specimens); C5 Konya: Ereğli, Aydos Dağı, Kayasaray, Sayıntaş mevkii, 2500 m a.s.l., 15.VII.1977, S. ERIK 2602 (HUB, 2 specimens) — *S. pygmaea* SIBTH. & SM. subsp. *nutans* (Czeczott) D. F. Chamb.: Turkey. A2 Bursa: Uludağ, 2400–2500 m a.s.l., 28.VII.2001, Y. MENEMEN 512 & E. HAMZAOĞLU (ADO, 7 specimens); A4 Kastamonu: Ilgaz Dağı, Küçükhacet tepesi, ca. 2400 m a.s.l., 29.VII.1982, Y. AKMAN 12178, E. YURDAKULOL & M. DEMIRÖRS (ANK, 3 specimens); A4 Karabük: Keltepe, ca. 1950 m a.s.l., 12.VII.1984, M. DEMIRÖRS 1263 (ANK, 2 specimens); A4 Çankırı: Ilgaz Dağı, TRT vericisi civarı, 2000 m a.s.l., 21.VII.2001, A. DURAN 5818 & Y. MENEMEN (ADO, 9 specimens).— *S. rigida* AUCHER: Turkey. B9 Bitlis: 10 km S.E. of Pelli, 2600 m a.s.l., 8.VII.1954, D. 22544 & Q. POLUNIN (ANK, 3 specimens); B9 Van: Başkale, İspiriz Dağı, 3200 m, 31.VII.1954, D. 23763 & Q. POLUNIN (ANK, 2 specimens); C10 Hakkari: Cilo Tepe, 3700 m a.s.l., 9.VIII.1954, D. 24216 & Q.POLUNIN (ANK, 7 specimens); B9 Van: Çatak, Kavuşşahap Dağı, 3100 m a.s.l., 23.VII.1954, D. 23142 & Q.POLUNIN (ANK, 2 specimens); B9 Van: Gevaş, Artos Dağı, 2286 m a.s.l., 31.VII.1954, D. 22681 & Q. POLUNIN (ANK, 4 specimens); B9 Van: between Van-Hoşap, 40^{th} km, steppe, 22.VIII.1993, Y. ALTAN 5562 (GAZI, 2 specimens).

Etymology

The species is named in honour of the eminent Turkish botanist Prof. Dr. Şinasi YILDIRIMLI (Biology Department, Hacettepe University) who is an expert on the Flora of Turkey.

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