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Prangos turcica (Apiaceae), a new species from South Anatolia, Turkey

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Prangos turcica A. Duran, M. Sağıroğlu & H. Duman *sp. nova* (Apiaceae) is described and illustrated from Anatolia, Turkey. The species grows in mixed forest, on shady slopes and open forest in Amanos Mountains (C6 Osmaniye province). *Prangos turcica*, an endemic confined to South Anatolia, is closely related to *P. trifida* (Mill.) Herrnst. & Heyn. Diagnostic morphological characters from closely similar taxa are discussed. Habitat ecology of the species is also discussed. *Prangos turcica* is diploid with the chromosome number of 22.

Key words: Apiaceae, new species, *Prangos*, taxonomy

The genus *Prangos* has almost 28 species worldwide (Herrnstadt & Heyn 1977, Davis *et al*. 1988, Duman 2000), with a diversity centre in the Irano-Turanian phytogeographic region. Among the species of the genus only *P. ferulacea* and *P. pabularia* have wide geographic ranges. All of the remaining species are clustered around two centres: the western (Turkey to W Iran) comprising the majority of species, and the eastern (E Iran, Afghanistan to central Asia). All species are perennial hemicryptophytes (Raunkiaer 1934).

Anatolia is an important centre for *Prangos* and 13 of the 28 species grow in Turkey (Herrnstadt & Heyn 1977, Davis *et al*. 1988, Duman & Watson 1999, Duman 2000). The numbers of *Prangos* species in the neighboring countries are as follows: 16 in *Flora Iranica* (Herrnstadt & Heyn 1987), 14 in *Flora USSR* (Shishkin 1950), four in *Flora of Syria* (Post 1932) and three in *Flora Europaea* (Tutin 1968).

The genus was revised by Herrnstadt and Heyn (1972) for the *Flora of Turkey*. It included *P. bornmulleri*, and *Cachrys papillaris* is mentioned at the end of the account as an "incompletely known species" in the genus *Prangos* (Herrnstadt & Heyn 1972). Subsequently Duman and Watson (1999) transferred *P. bornmulleri* to the monotypic genus *Ekimia* as *E. bornmulleri*. A monographic treatment of *Prangos* was published by Herrnstadt and Heyn (1977), but later the problems concerning the generic circumscription were addressed by Pimenov and Tikhomirov (1983). The Iranian *Prangos* were revised by Herrnstadt and Heyn (1987). Since then, three taxa were added from Turkey (Davis *et al*. 1988, Duman 2000). In this paper, we add a further species, raising the total number of *Prangos* species known from Turkey to 13.

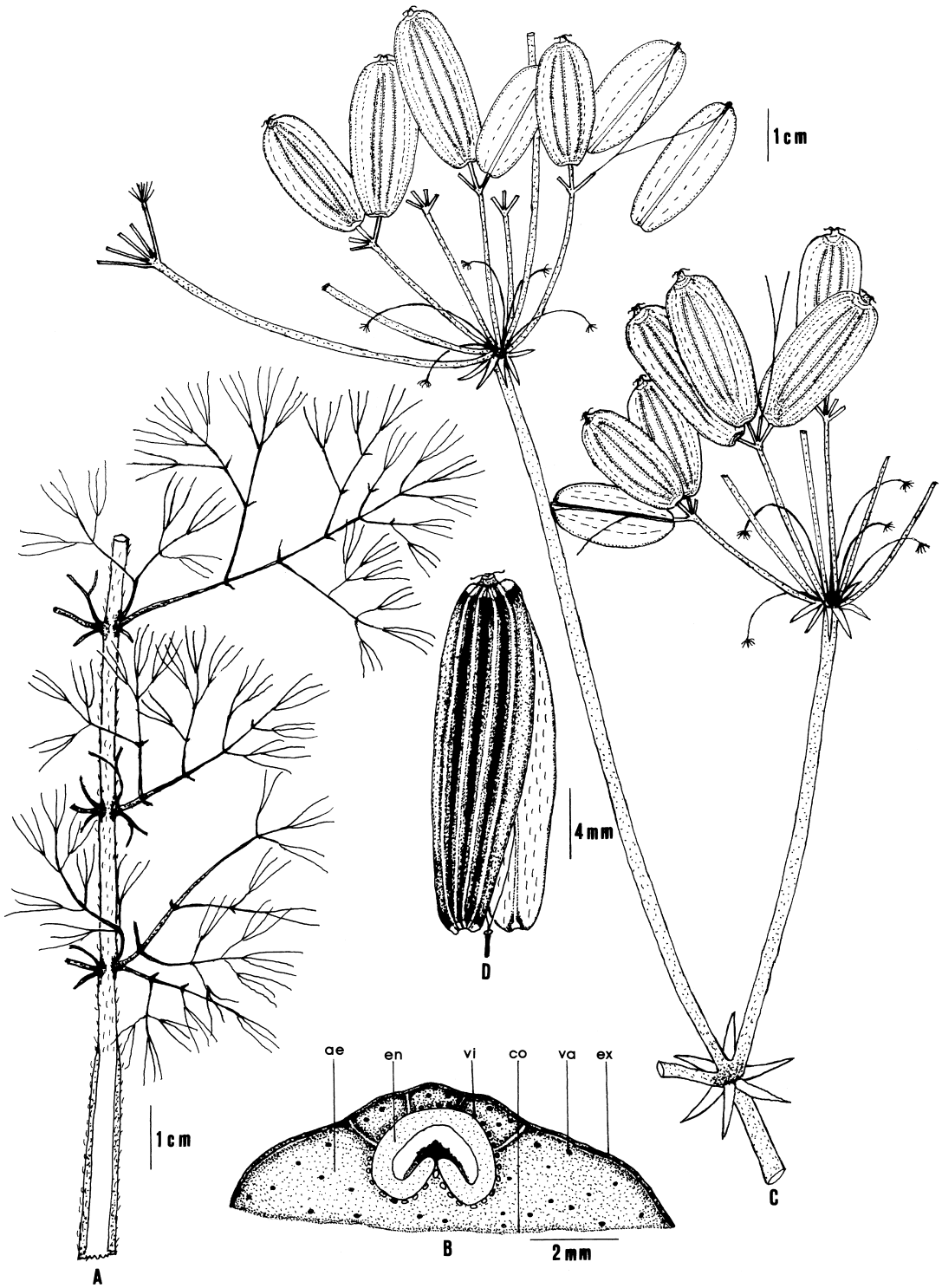

Fig. 1. *Prangos turcica* (from holotype). — **A**: Part of basal leaf. — **B**: Cross section of mericarp (ae = aerenchyma; en = endosperm; vi = ring of vittae; co = commissure; va = vascular bundle; ex = exocarp). — **C**: Fruiting umbels. — **D**: Fruit.

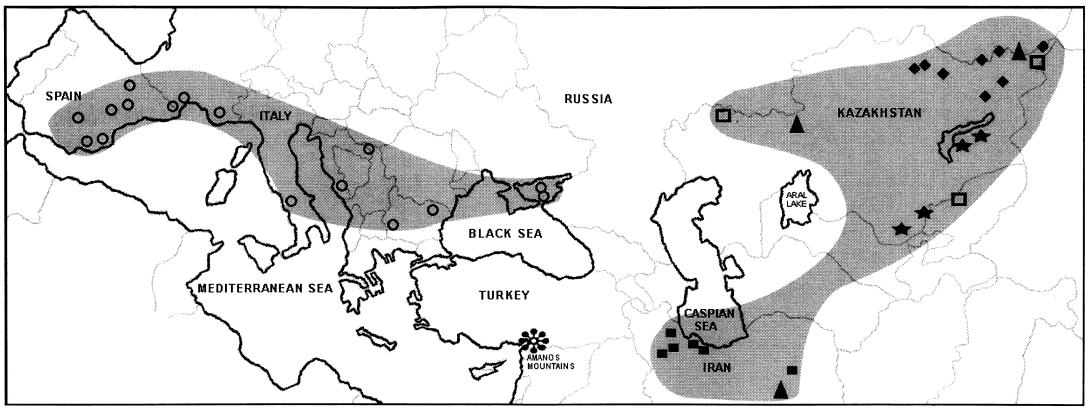

Fig. 2. Distribution of the species of *Prangos* with wingless fruits: *P. turcica* (✳), *P. trifida* (○), *P. gaubae* (■), *P. herderi* (★), *P. odontalgica* (□), *P. serpentinica* (▲), and *P. ledebourii* (◆).

The new specimens confirm that *P. turcica* is anomalous within Turkish *Prangos* on account of the wingless fruits with inconspicuous ridges, and narrowly oblong to elliptic leaves.

Prangos turcica A. Duran, M. Sağıroğlu & H. Duman *sp. nova* (Figs. 1 and 2)

Affinis P. trifidae, sed caule infra pilo (nec omnino glabro), folio 3–4-pinnato, petiolo saturate pilo (nec 6-pinnato, glabro), segmento primario 3-binato (nec segmento primario absentie), segmento ultimo 0.1–0.2 mm lato (nec 0.25–0.75 mm lato), umbella fructifera 4–8 radio (nec 10–15 radio), fructu dorsaliter compresso, anguste oblongo ad ellipsoideo, 20–30 × 10–13 mm (nec lato ellipsoideo ad globuloso, 11–20 × 6–12 mm) differt.

TYPE: Turkey. C6 Osmaniye: between Yarpuz-Yağlıpınar, 1500–1700 m, under mixed forest, shady slopes, 37°00.69´N, 36°28.83´E, 13.IX.2003 *A. Duran 6362 & M. Sağıroğlu* (holotype GAZI; isotypes KNYA, ANK, HUB).

Perennial 80–150 cm long. Thickened rootstock cylindrical-oblong, vertical, 2–4 cm diameter. Stem terete, ± with dense, short simple hairs below, glabrous above, with a well-developed fibrous collar 5–10 cm, 4–8 mm diameter at base. Lower stem slightly purplish. Basal leaves narrowly oblong to elliptic in outline, 40–70 × 10–17 cm (including petiole), petiole with a well developed sheath, lamina 3–4 pinnate; primary segments 3-paired; ultimate segments filiform, (7–)10–30(–38) × 0.1–0.2 mm, apiculate, glabrous (lower part of rachis with dense, short simple hairs); all sheaths linear to linear lanceolate, 60–170 × 6–10 mm, not inflated, papery, slightly purplish, with dense, short simple hairs; lower cauline leaves oblong to slightly ovate in outline, partly reduced to ± amplexicaule; middle and upper cauline leaves much reduced, semi-amplexicaule, lamina with few segments. Branches alternate at middle part and opposite in upper part, leaves at base of lateral branches reduced to a linear-lanceolate sheath. Flowers hermaphroditic. Central umbels 0.2–0.5 cm long in fruit or sessile, rays 6–12 and 2–5 cm long at most, when ripe rays 4–8; lateral umbels with 2–5 rays at most, sterile. Bracts 6–7, persistent, 7–15 mm long, linear-subulate, margins membranous, weakly undulate. Bracteoles 5–6, persistent, 5–10 mm long, linear-subulate, margin membranous; bracts and bracteoles sometimes united at base. Umbellules 8–10-flowered, when ripe 2–5. Pedicels 5–8 mm at most, always shorter than mature fruit. Sepals obsolete. Petals yellow, 0.5–1 mm, glabrous, with deflexed apex. Stylopodium longitudinally slightly angular-terete, with an undulate margin, not embedded in corky pericarp, mericarps always well-developed. Mature fruit compressed dorsally, narrowly oblong to ellipsoid, 20–30 × 10–13 mm, entirely wingless, slightly sulcate, dorsal ridges inconspicuous; with 4 blocks of mesocarp tissue not separated by exocarp, mesocarp always well-

developed on ventral and 3 dorsal blocks. Dorsal blocks of the mesocarp are thinner than a ventral block. Vittae numerous and set out in a row surrounding endosperm. Flowering June–July, fruiting July–September. Chromosome number: 2n = 22 (studied from holotype).

DISTRIBUTION AND HABITAT ECOLOGY: *Prangos turcica* is an endemic species restricted to Amanos Mountains (Osmaniye province), South Anatolia, and of East Mediterranean element. It grows in mixed forest, shady slopes and in clearings of forest with *Dryopteris filix-mas*, *Pinus nigra*, *Abies cilicica*, *Cedrus libani*, *Juniperus oxycedrus*, *Rosa canina*, *Crataegus monogyna*, *Rubus* sp., *Ferula elaeochytris*, *Cirsium amani*, *Carlina oligocephala*, *Quercus cerris*, *Fagus orientalis*, *Ostrya carpinifolia*, and *Populus tremula*, at 1500–1650 m altitude.

Fruits of *Prangos* are, as a rule, conspicuously large and have a thick layer of mesocarp. The fruits can be separated into three anatomical groups: in sect. *Prangos* there are five separate blocks of mesocarp tissue with vascular bundles; in sect. *Intactae* the five blocks of mesocarp are not separated by the exocarp and vascular bundles usually surround each block; and in sect. *Meliocarpoides* the mesocarp is continuous and not separated into blocks (Herrnstadt & Heyn 1977). The fruit anatomical features of *P. turcica* are very similar to those in the section *Intactae*, but its mesocarp has four blocks, and the two ventral blocks are not separated clearly from each other (Fig. 1).

Only six species in sect. *Intactae* have a wingless fruit: *P. trifida*, *P. gaubae*, *P. herderi*, *P. odontalgica*, *P. serpentinica* and *P. ledebourii*. Except for the European *P. trifida*, the others are distributed mainly in central Asia, some of them being endemic to small areas. *Prangos trifida* is distributed in the north Mediterranean region (Fig. 2). The other species with wingless fruits grow in Iran, Kazakhstan, Turkistan and Kyrgyzstan. *Prangos turcica* forms an important link between Europe and Asia in the distribution areas where the species have wingless fruits.

Prangos turcica is closely related to *P. trifida*. It differs from the latter in having the stems with short, simple hairs below (not entirely glabrous), leaves 3–4 pinnate, petiole and the lower part of rachis with dense, short simple hairs, pri-

Table 1. A comparison of *Prangos turcica* with *P. trifida* and *P. odontalgica*.

Character	*Prangos turcica*	*Prangos trifida*	*Prangos odontalgica*
Stems	80–150 cm long, short simple hairs below	50–100 cm long, entirely glabrous	up to 35–65 cm long, short and long hairs
Leaves	narrowly oblong to elliptic in outline, 3–4 pinnate, petiole and the lower part of rachis densely hairy	triangular to ovate in outline, 6 pinnate, petiole and rachis glabrous	ovate in outline, ca. 5 pinnate, petiole and rachis hairy
Primary segments	present (3 pairs)	absent	absent
Ultimate segments	filiform, 10–30 × 0.1–0.2 mm, apiculate	linear to filiform, 5–50 × 0.25–0.75 mm, mucronata	± linear, 2–3 × 1.5 mm, obtuse
Bracts	7–15 mm long, persistent	up to 11 mm long, often caducous	5 mm long, often caducous
Bracteoles	5–10 mm long	6–7 mm long	3 mm long
Fruiting umbels	4–8 rays, 2–5 cm long	10–15 rays, 4–7 cm long	5 rays, 5–8 cm long
Pedicels	5–8 mm long at most	5.5–10 mm long	10–22 mm long
Fruits	compressed dorsally, narrowly oblong to ellipsoid, 20–30 × 10–13 mm	broadly ellipsoid to globular, 11–20 × 6–12 mm	narrowly ellipsoid-cylindrical, 10–15 × 5–6 mm
Mesocarp	3 dorsal blocks thinner than ventral block	fine developed all blocks	± fine developed all blocks

mary segments 3-paired, (not 6-pinnate, petiole and rachis glabrous, primary segments absent), bracts and bracteoles generally persistent (not mostly caducous), fruits compressed dorsally, narrowly oblong to ellipsoid, 20–30 × 10–13 mm (not broadly ellipsoid to globular, 11–20 × 6–12 mm), three dorsal blocks less thickened than ventral block (not with all blocks well-developed). The diagnostic characters of *Prangos turcica* from the fairly similar species *P. trifida* and *P. odontalgica* are provided in Table 1.

Prangos turcica is also close to *P. ferulacea* (Herrnstadt & Heyn 1972, 1977, Davis *et al.* 1988, Duman & Watson 1999). The latter is readily distinguished from *P. turcica* by the glabrous stems and leaves, leaves up to 6-pinnatisect, primary segments absent, lobes 0.5–1.5 mm wide, fruiting umbels 7–15, ellipsoid to globose fruits, wing up to 3 mm wide, and chromosome numbers 2n = 44 and 66 (Herrnstadt & Heyn 1977). *Prangos turcica* has 2n = 22, which is the basic number of the genus *Prangos* (Fig. 3). In the sect. *Intactae* the chromosome number of the related species *P. gaubae* and *P. odontalgica*, both with wingless fruits, is also 2n = 22. The other species have 2n = 22, 44 and 66 chromosome numbers. *Prangos ferulacea*, the most variable and widespread species in the genus, is a polyploid and has 2n = 44 and 66 (Herrnstadt & Heyn 1977, Davis *et al.* 1988, Özhatay *et al.* 2000).

The Amanos mountain range is a botanically interesting area, occupying an intersection of the Mediterranean phytogeographical region and the Anatolian Diagonal. The area is very rich in local endemic plants. The concept of the Diagonal was first proposed by Davis (1971), who defined it as an oblique belt running from the north-east southward to the Anti-Taurus: it was then divided into two areas, with one branch to the Amanus (Amanos Dağları), and the other to the Cilician Taurus (Davis 1971). Thirty-three per cent of the total species growing in Turkey are found in the Diagonal, and 5% are more or less restricted to it. One explanation for the present richness of the species is neo-endemism and distribution patterns of the plants related to the Diagonal (Ekim & Güner 1986).

Additional specimens examined (paratypes): — **Turkey**. C6 Osmaniye: between Yarpuz-Yağlıpınar, 1500–1700 m, 37°00.69´N, 36°28.83´E, 6.VII.2001 *M. Sağıroğlu* 1768 & *A. Duran* (GAZI), 6.VII.2003, *M. Sağıroğlu* 2399 & *A. Duran* (GAZI).

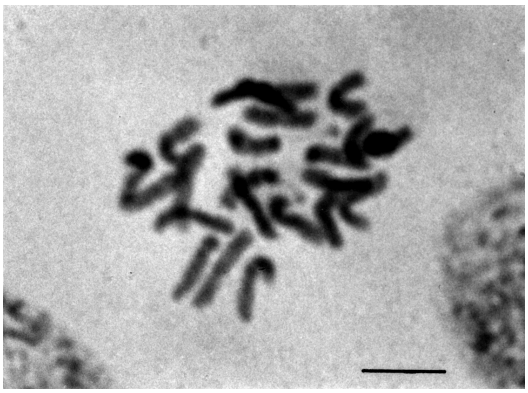

Fig. 3. Somatic metaphase chromosomes of *Prangos turcica*. Scale bar = 2.5 µm.

Representative specimen examined of *Prangos trifida*: — Cultivated in the Botanical Garden of the Moscow University, 15.VII.1980 *L.P. Tomkovich s.n.* Origin: Ukraine, Crimea Peninsula (ISTE).

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