

**EKIMIA, A NEW GENUS OF UMBELLIFERAE, AND
TWO NEW TAXA OF PRANGOS LINDL.
(UMBELLIFERAE) FROM SOUTHERN TURKEY**

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Studies on recent collections of mature fruiting material of *Prangos bornmuelleri* Hub.-Mor. & Reese have resolved the taxonomic placement of this enigmatic species. The new monotypic genus *Ekimia* H. Duman & M.F. Watson is proposed to include this taxon; *E. bornmuelleri* (Hub.-Mor. & Reese) H. Duman & M.F. Watson *comb. nov.* Two new *Prangos* taxa, *P. platychloenae* Boiss. ex Tchih, subsp. *engizekensis* H. Duman & M.F. Watson *subsp. nov.*, and *P. heyniae* H. Duman & M.F. Watson *sp. nov.*, are also described.

Keywords. *Apiaceae*, *Apiioideae*, new combination, SW Asia.

INTRODUCTION

Prangos bornmuelleri Hub.-Mor. & Reese (Huber-Morath, 1945: 152) is a distinctive umbellifer, and a narrow endemic restricted to a small area of Burdur Vilayet, SW Anatolia. Until recently it has been known only from the original immature type collection. However, new gatherings with mature fruits have enabled the resolution of the long-standing taxonomic problem of its generic placement.

In their treatment of *Prangos* Lindl. for the *Flora of Turkey*, Herrnstadt & Heyn (1972) included *P. bornmuelleri* at the end of the account amongst the 'incompletely known species'. They pointed out that it differed from all other species of *Prangos* by the apparently winged secondary ridges of the developing fruit, rather atypical form of the leaves, and comparatively few, very long umbel rays. They considered that the species should probably be excluded from *Prangos*, but mature fruit would be needed before it could be referred to another genus. Later, the same authors published a complete monographic treatment of *Prangos* (Herrnstadt & Heyn, 1977), and again this enigmatic species was treated as doubtful, possibly meriting generic status. Since this detailed monograph, problems in generic circumscription have been addressed by Pimenov & Tikhomirov (1983), and the Iranian elements treated in *Flora Iranica* by Herrnstadt & Heyn (1987). However, as no further material was available, nothing more could be said about the fate of the enigmatic *P. bornmuelleri*.

During fieldwork for the Turkish Endemic Plant Project in June 1993, material of an unusual umbellifer was collected. On further visits to the site in July–August 1993, July 1995 and June–July 1996, more material was gathered providing a range of specimens bearing good flowers and fully mature fruits. This material has been

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carefully compared with the holotype of *Prangos bornmuelleri* at Geneva, and judged to be conspecific. The new specimens confirm that *P. bornmuelleri* is anomalous within *Prangos* on account of the distinctively winged secondary ridges of the fruit, 3-ternate leaves and few, very long umbel rays, and fruit anatomy (see Figs 1, 2). We cannot place this unusual species within any other known genus, and therefore transfer it into the new monotypic genus *Ekimia* H. Duman & M.F. Watson. In addition to resolving this taxonomic problem, we have also identified two new taxa of *Prangos*, and these are described below.

Fruit anatomy from mericarp TS and mascerations was studied for all three plants (for methodology see Barclay & Watson, 1998). The two new *Prangos* taxa show the typical *Prangos* architecture (Fig. 3) as described by Pimenov & Tikhomirov (1983). The mesocarp is made up of two distinct layers: the outer epimesocarp of unmodified parenchymatous cells with small secretory ducts, degenerating at maturity (as in the fruit section illustrated); and the inner layer of aerenchyma, also with scattered small secretory cells. True vittae are concentrated in a ring on the innermost layer of the mesocarp. These vittae are small and numerous in TS, but the longitudinal view from a masceration (Fig. 3b) shows them to consist of long, anastomosing and short, unconnected vittae. The endosperm is characteristically indented on the commissural side. *Ekimia* has an entirely different fruit anatomy (Fig. 2b), with unilayered mesocarp (also degenerating at maturity); a more typical *Apioideae* arrangement of six large discrete vittae running unbranched for the length of the mericarp, alternating with vascular bundles; and entire endosperm.

***Ekimia* H. Duman & M.F. Watson, gen. nov.**

Affinis *Prangos* Lindl., sed collo fibroso carenti (haud bene evoluto), foliis basalibus 3-ternatis (non 3-6-pinnatisectis), umbellis omnibus hermaphroditis (non lateribus masculis), umbellis 2-4(-5)-radiatae, mericarpii jugis primariis secundariisque alatis, 9-densisime gyroso-plicatis (non laevibus vel primariis tantum 5-alatis) differt.

Type: *E. bornmuelleri* (Hub.-Mor. & Reese) H. Duman & M.F. Watson.

Similar to *Prangos* Lindl., but differs in the lack of a fibrous collar, basal leaves 3-ternate (not 3-6-pinnatisect), hermaphrodite umbels (the laterals not male), 2-4(-5)-rayed umbels, and both primary and secondary ridges of the mericarps with dense gyrose-plicate wings (Figs 1, 2).

This genus is named in honour of the eminent Turkish botanist Professor Tuna Ekim (Biology Department, Gazi University), who is expert on the flora of Turkey and has done so much to encourage students in systematic research on Turkish plants.

***Ekimia bornmuelleri* (Hub.-Mor. & Reese) H. Duman & M.F. Watson, comb. nov.**
Figs 1, 2.

Basionym: *Prangos bornmuelleri* Hub.-Mor. & Reese, Candollea 10: 152, t. 6. (1945).
Type: [Turkey. C2 Burdur] Pisidien, Dirmil-Tefenni, 34km nach Dirmil, 26km vor Tefenni. Trift, Rand eines Weizenackers, 1000m, 9 vi 1938. *H. Reese, J. Renz & A. Huber-Morath* 5668 (holo. G, Herb. Hub.-Mor.).

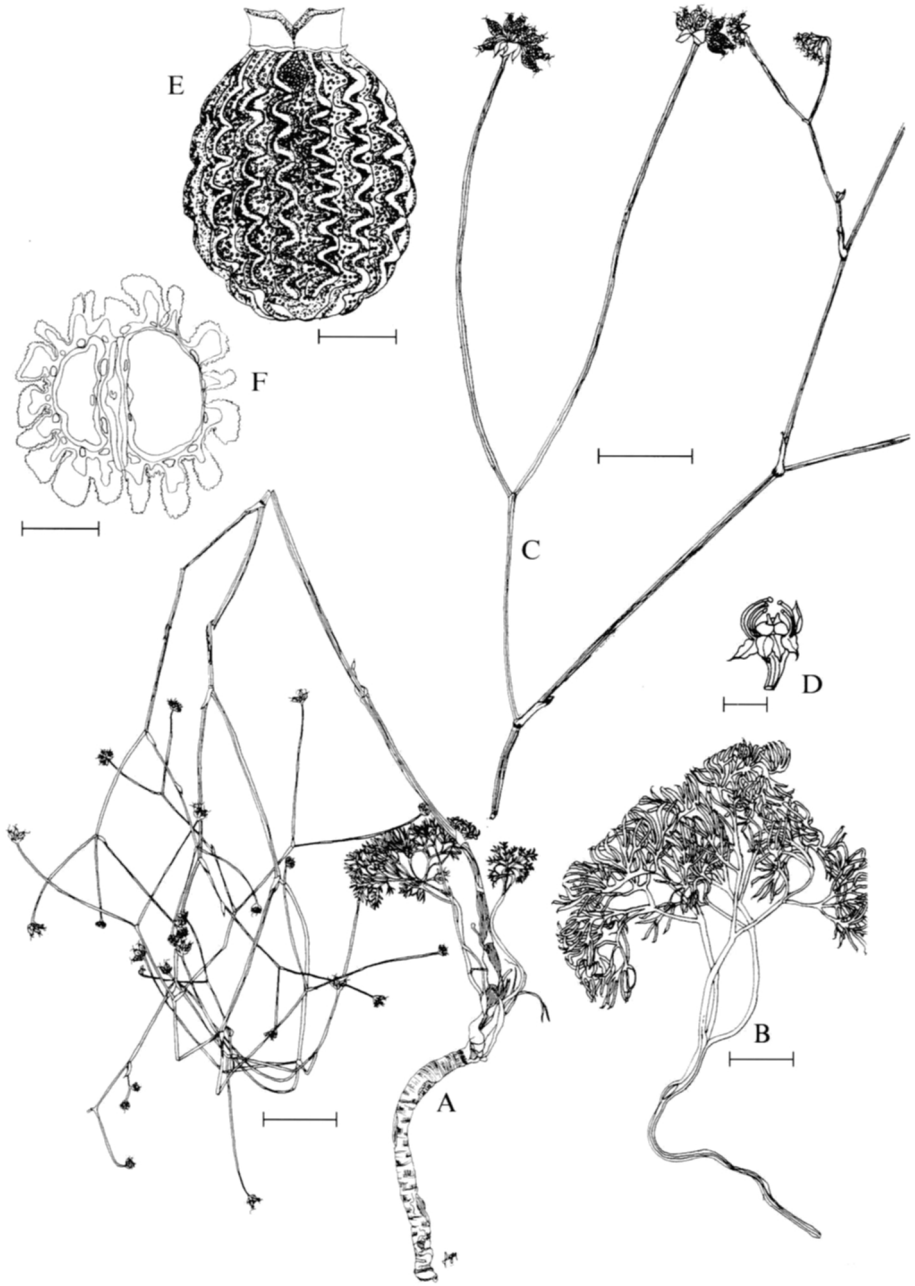


FIG. 1. *Ekimia bornmuelleri*: A, whole plant from a herbarium specimen (scale 5cm); B, leaf (scale 2cm); C, inflorescence (scale 2cm); D, flower (scale 1cm); E, fruit (scale 1mm); F, TS of fruit (scale 1mm).

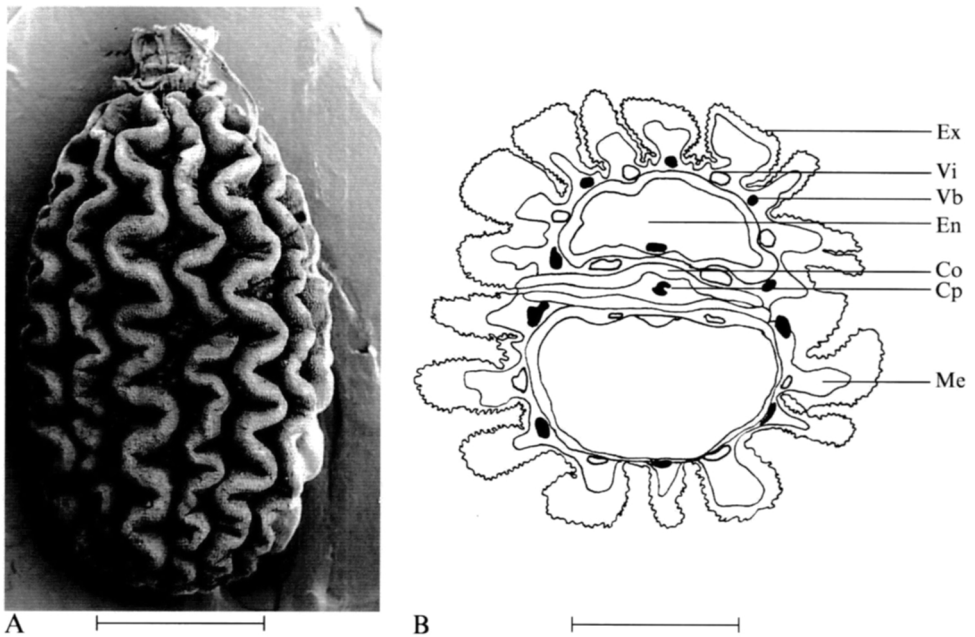


FIG. 2. *Ekimia bornmuelleri*: A, SEM of mericarp (scale 2mm); B, TS of fruit (scale 1mm). Co, commissure; Cp, vascular bundle of carpophore; Ed, endosperm; Ex, exocarp; Me, mesocarp (degenerates at maturity); Vb, vascular bundle; Vi, vittae.

Glabrous, glaucous perennial. *Root* fusiform to cylindrical, vertical, fleshy, to 20 × 3cm. *Stems* dichotomously branched, slender, 60–120cm; branches up to 60cm long, virgate, arranged in a spreading corymb, finely striate, with a glaucous bloom. *Basal leaves* numerous, glaucescent; lamina up to 10 × 10cm, herbaceous (not rigid) very finely 3-ternately divided, ultimate segments filiform, 3–10 × 0.5mm, very acute; petioles thick and flexuous up to 15cm long, broadening to a sheath at base. *Upper stem leaves* much reduced to semi-amplexicaule lanceolate sheaths, 1.2 × 0.4–0.7cm, mucronate to cuspidate, parallel-veined with membranous margins, with a glaucous bloom. *Umbels* 2–4(–5)-rayed; rays 4–12cm, sub equal. *Bracts* 0–3, very similar to upper stem leaves, 4–8 × 2–3mm, lanceolate, cuspidate, purplish with a hyaline margin, 8–10-nerved. *Bracteoles* 5–7, up to 6 × 4mm, broadly elliptic or orbicular, cuspidate, membranous, purplish, 5–8-nerved. *Flowering umbellules* small, 0.5–1cm across, 10–15-flowered, bracteoles equal to or slightly shorter than flowers. *Pedicels* glabrous to papillose, up to 3mm in fruit. *Calyx* teeth minute, persistent in fruit. *Petals* 1.5 × 0.7–0.8mm, broadly elliptic or orbicular with an inflexed tip, pale whitish yellow suffused red, glabrous. *Filaments* about equaling the petals, greenish yellow or reddish, spreading widely but incurved at apex; anthers 0.6–0.8mm, yellow. *Fruits* 3–5 × 2.5–4mm, ovoid-oblong, symmetrical, primary and secondary ridges both winged. *Mericarps* with 9 gyrose-plicate wings, wings 0.5–0.7mm broad; dorsal vittae

4. commissural vittae 2, vittae running unbranched the full length of the fruit; stylopodium undulate at the margin. *Styles* divaricate, 2-3mm.

Distribution and ecology. Endemic to SW Turkey (a small area of Burdur Vilayet, SW Anatolia), and part of the E Mediterranean floristic element. Serpentine slopes in *Quercus* scrub; 1000-1250m. Flowers June to July, fruits July to August.

Additional specimens examined. TURKEY. C2 Burdur: Yeşilova, S of Salda lake, 1150m, serpentine rocky slopes to sandy places, 11 vii 1993 *H. Duman* 5071 with *F.A. Karaveliogullari* (E. GAZI); *ibid.* 1150m, 22 viii 1993, *H. Duman* 5269 with *F.A. Karaveliogullari* (E. GAZI); *ibid.* 5 vi 1996, *N. Özhatay*, *E. Özhatay* & *H. Duman* ISTE 72127 (GAZI); *ibid.* 24 vii 1996 *H. Duman* 6298 with *A. Duran* & *M.Y. Dadandı* (GAZI); C2 Burdur: Tefenni-Cavdir 15km from Tefenni, 1100-1220m, clearings of *Pinus brutia* and *Quercus sp.*, 31 vii 1995, *H. Duman* 5944 with *M. Ekici* & *A. Duran* (E. GAZI).

***Prangos platychloenae* Boiss. ex Tchih. subsp. engizekensis** H. Duman & M.F. Watson, **subsp. nov.** Figs. 3b,c, 4-5.

Affinis *Prangos platychloenae* Boiss. ex Tchih. sed caulibus alitoribus 1.5-2m (non 1-1.5m), foliis usque ad 100cm (non 30-60cm), lobis foliorum 60-100 × 1-2mm, epapillosis (non 15-50 × 0.5-2mm, papillosis), fructii 15-20 × 8-12mm (non 15-22 × 7mm) differt.

Type: Turkey. C6; K. Maraş, Engizek Dagı, SW of Küçükyeşil Yayla, rocky slopes, 2100-2300m, 30 viii 1987, *H. Duman* 3810 (holo. GAZI; iso. ANK, E).

Robust perennial up to 2m tall. *Stem* terete, glabrous, with well-developed fibrous collar. *Basal and lower cauline* leaves up to 100 × 60cm (including petiole); basal leaves ovate in outline, 5-pinnate, ultimate segments 6-10 × 0.1-0.2cm mucronate, glabrous, petiole with well developed sheath. *Flowers* hermaphrodite or male. *Terminal umbels* in a cluster or solitary, *lateral umbels* in whorls or opposite; leaves at base of lateral umbels reduced to a broad ovate-acuminate sheath. *Bracts* 4-7, large, 8-15 × 3-10mm, ovate-acuminate, persistent, resembling uppermost cauline leaves, margins scabrid. *Bracteoles* 5-10, 5-10 × 3-6mm, ovate-acuminate, papillate abaxially and adaxially, margin scabrid; bracts and bracteoles sometimes united. *Umbels* 15-26-rayed; rays 4-9cm long in fruit. *Pedicels* 10-15mm, shorter than the mature fruit. *Petals* pale yellow, papillate. *Mature fruit* narrowly ellipsoid to oblong, 15-20 × 8-12mm; wings narrow, 2-2.5mm wide, straight or sometimes undulate.

Distribution and ecology. Endemic to S Turkey, part of the Irano-Turanian floristic element. Rocky slopes; 2100-2700m. Flowers July, fruits August.

Additional specimens examined. TURKEY. C6; K. Maraş: Engizek Dagı, SW of Küçükyeşil Yayla, rocky slopes, 2300m, 19 vii 1987. *H. Duman* 3622 (GAZI, E); C6; K. Maraş: Engizek Dagı, Körsulak, rocky slopes, 2700m, 24 viii 1986. *H. Duman* 2287 (GAZI).

***Prangos heyniae* H. Duman & M.F. Watson, sp. nov.** Figs 3a, 6.

Affinis *Prangos corymbosa* Boiss. sed foliis basalibus 15-25cm (non plus quam 30cm), paribus segmentorum primariorum carentibus (haud praesentibus sessilibusque).

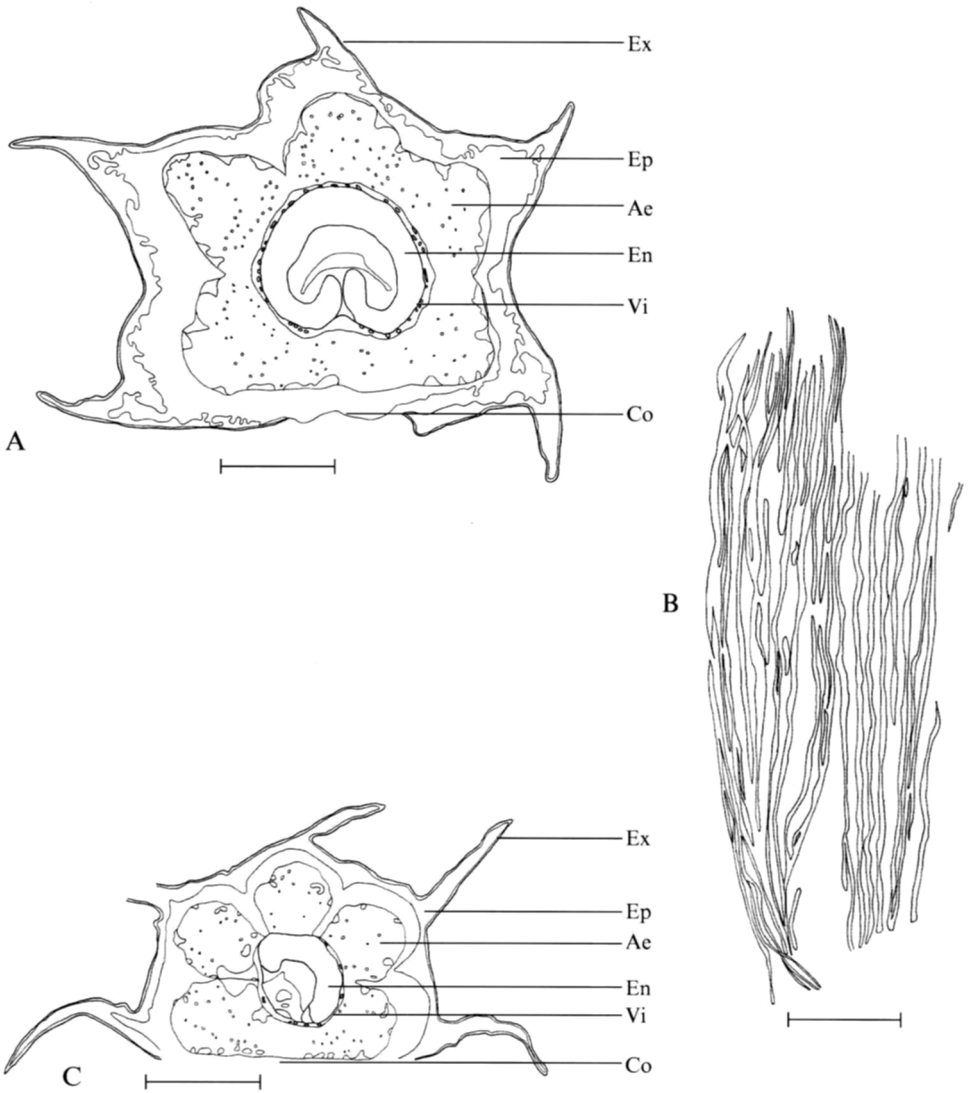


FIG. 3. A. *Prangos heyntiae*: A, TS of mericarp (scale 2m). B & C. *Prangos platychoenae*: B, longitudinal view of vittae from a fruit masceration (scale 3mm); C, TS of a mericarp (scale 2mm). Ac, aerenchyma with scattered small secretory ducts; Co, commissure; Ed, endosperm; Ep, epimesocarp; Ex, exocarp; Vi, ring of vittae.

bracteis minoribus 5–10cm longis (non 10–15cm), bracteolis minoribus 3–5mm longis (non 5–7mm), petalis extus glabris (non pubescentibus) et antheris glabris (haud ad apicem comosis) differt.

Type: Turkey. C4; Konya: Bozkir to Korualan, to 1km Korualan, calcareous slopes, 1330m, 19 vii 1996, H. Duman 6191 with A. Duran & M. Y. Dadandi (holo. GAZI; iso. E).

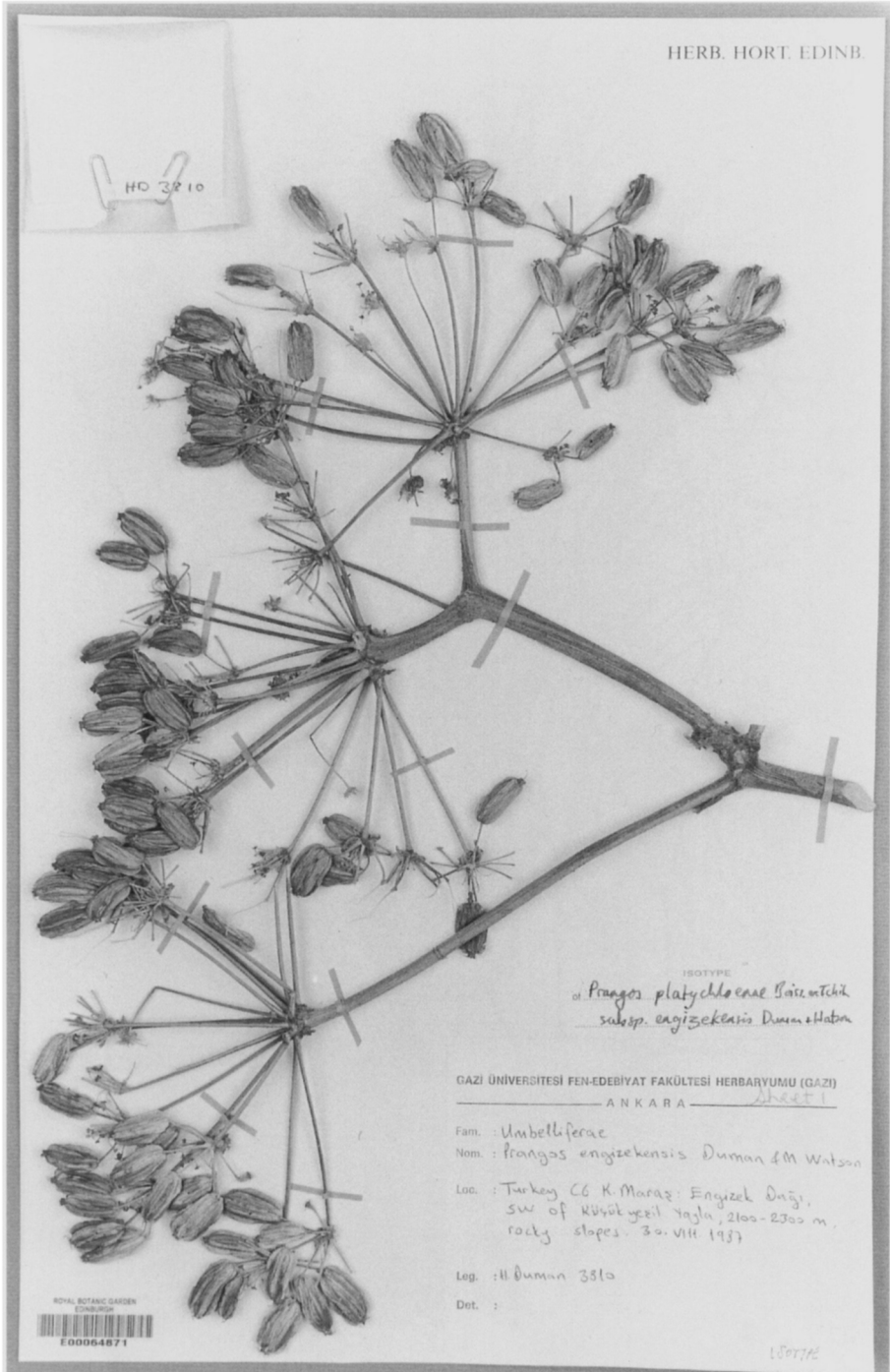


FIG. 4. *Prangos platychoenae* subsp. *engizekensis*, infructescence photograph of isotype held at E.

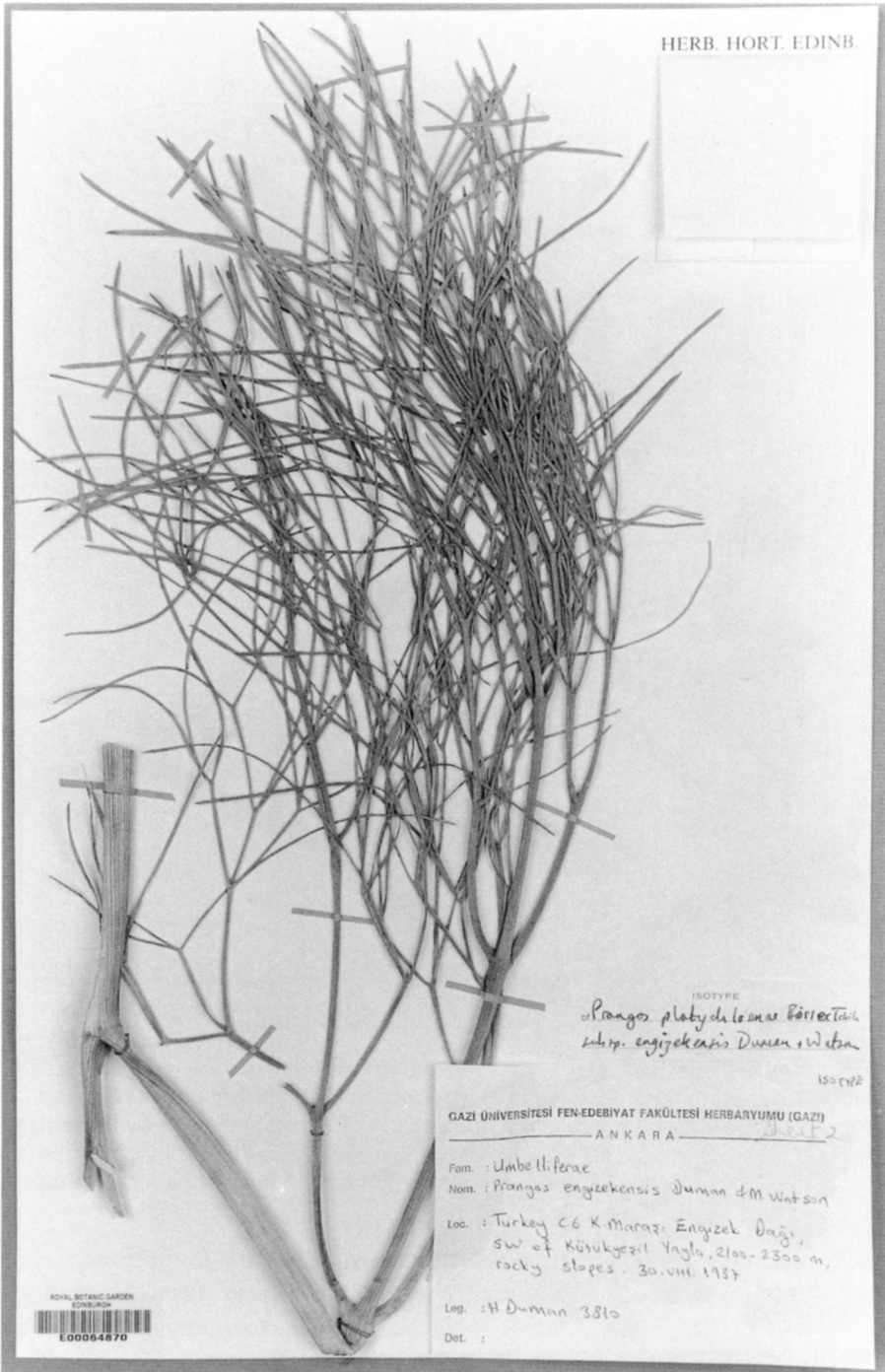


FIG. 5. *Prangos platychoenae* subsp. *engizekensis*, leaf photograph of isotype held at E.

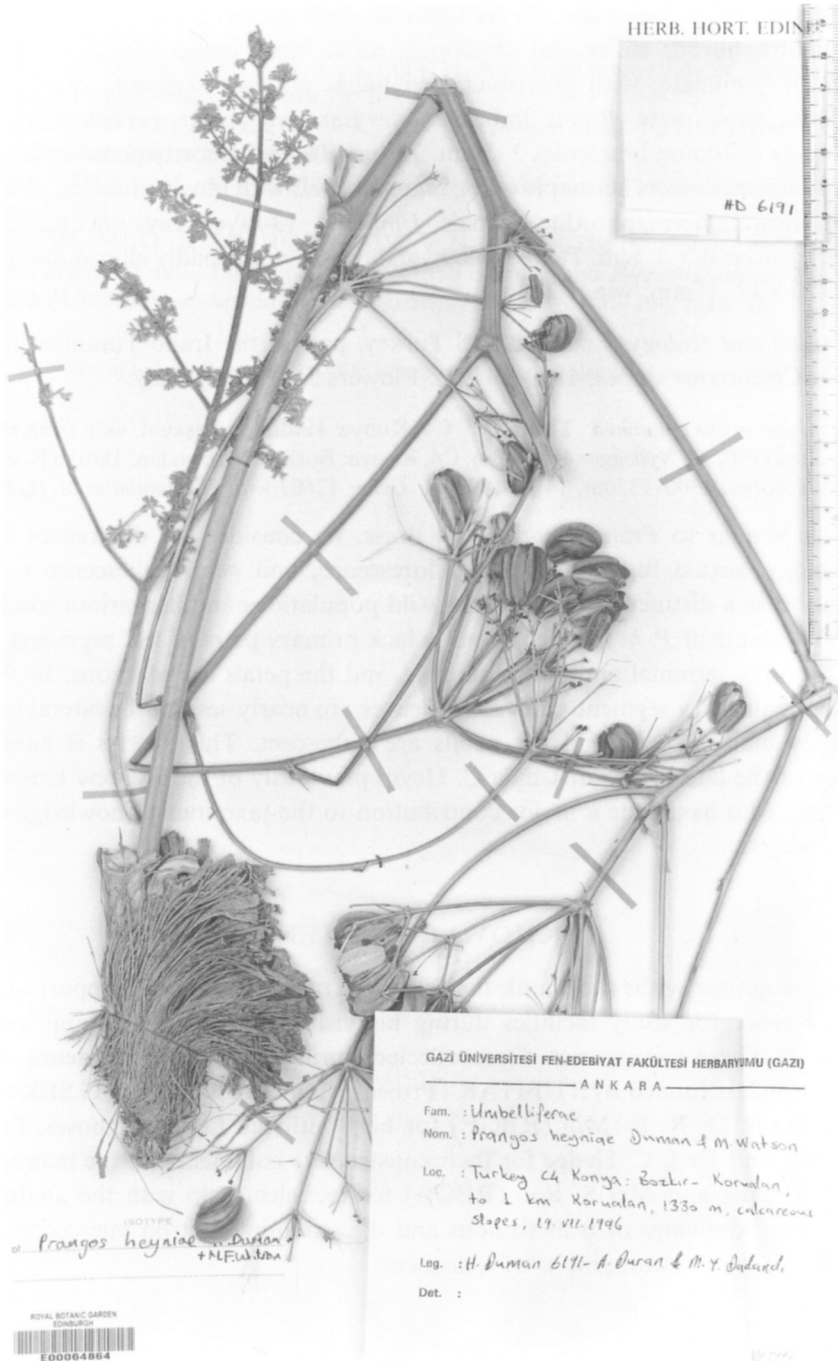


FIG. 6. *Prangos heyniae*, photograph of isotype held at E.

Erect perennial, 60–80cm tall. *Stems* terete, branched above, densely covered with crisped hairs, fibrous collar well developed. *Basal leaves* ovate in outline, 15–25 × 8–12cm, 4–5-pinnate, with greyish-crisped hairs; ultimate segments short, 2–3 × 0.6–0.8mm, mucronate. *Bracts* and *bracteoles* narrowly linear, persistent or caducous; bracts 5–10mm; bracteoles 3–5mm. *Terminal umbels* shortly pedunculate, peduncles 3–4.5cm, flowers hermaphrodite; *lateral umbels* with long peduncles, peduncles 8–12cm, flowers hermaphrodite or male. *Umbels* 5–13-rayed; rays unequal, 2–6cm in fruit. *Pedicels* 0.5–1.5cm. *Petals* yellow, glabrous. *Fruit* broadly ellipsoid to globular, 12–20 × 12–15mm; wings 3–4mm wide, straight.

Distribution and ecology. Endemic to S Turkey, part of the Irano-Turanian floristic element. Calcareous slopes; 1330–1450m. Flowers June, fruits July.

Additional specimens examined. TURKEY. C4; Konya: Hadim to Taşkent. 4km from Hadim. 1450m, 22 vi 1990, *M. Nydegger* 45773 (E); C4, Konya: Bozkir to Korualan. 1km to Korualan. calcareous slopes, 1300–1350m, 14 vii 1998, *A. Güner* 12607 with *H. Duman et al.* (GAZI).

Although similar to *Prangos corymbosa* Boiss. we consider the differences in leaf morphology, sexual function of the inflorescence, and petal pubescence warrant recognition as a distinct species. Studies wild populations and herbarium specimens show that plants of *P. heyniae* consistently lack primary pairs of leaf segments, have hermaphrodite terminal and lateral umbels, and the petals are glabrous. In *P. corymbosa* the primary segment pairs of the leaves are nearly sessile, the lateral umbels have only male flowers, and the petals are pubescent. This species is named in memory of the late Professor Chaia C. Heyn, previously of the Hebrew University, Jerusalem, who has made a major contribution to the taxonomic knowledge of the genus *Prangos*.

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