

SOME CONTRIBUTIONS TO THE TURKISH FLORA

K. ALPINAR*

A new species of *Erodium* is described from Anatolia. Three new records for the *Flora of Turkey* area, namely *Pilularia minuta* Durieu ex A. Braun, *Campanula rotundifolia* L. and the cultivated *Bauhinia variegata* L. var. *variegata*, are given. The occurrence of *Viola canina* L. is confirmed. Intraspecific variation in *Papaver persicum* Lindl., *Aethionema iberideum* (Boiss.) Boiss., *Laserpitium petrophilum* Boiss. & Heldr., *Campanula trachyphylla* Schott & Kotschy and *Marrubium astracanicum* Jacq. is discussed. Descriptions and illustrations of the previously unknown fruits of *Gypsophila pulvinaris* Rech. fil. and *Onosma nigricaulis* H. Riedl are also given. Some minor changes in the descriptions of *Heliotropium greuteri* H. Riedl, *Onosma tschihatschevii* M. Popov and *Ballota saxatilis* Sieber ex J. & C. Presl are given.

INTRODUCTION

Since 1988, Dr Hendrik 't Hart (University of Utrecht) and I have been working on the project 'Biosystematic studies on Turkish *Sedum* species'. During this project we have made four excursions to different parts of Turkey and collected, in addition to *Sedum* specimens, many taxa from other families. After studying relevant material at the Royal Botanic Garden Edinburgh (E), both new distributional records and a new taxon came to light. These are given below; the sequence of families follows that adopted in the *Flora of Turkey*. The voucher specimens are housed at either ISTE and/or E.

MARSILEACEAE

Although the genus *Pilularia* L. was not cited in *Flora of Turkey* by Henderson (1965) there is a collection of *P. minuta* Durieu ex A. Braun made in the middle of the last century.

Pilularia minuta Durieu ex A. Braun, Monatsber. Koengl. Akad. (Berlin) 1863: 435 (1864).

Small semi-aquatic ferns. Rhizome slender and creeping, 4–16cm. Leaves simple, filiform, coiled at the tip when young, up to 4 × 0.3cm, arising from the rhizome with nodes up to 10mm apart. Sporocarps globose, c.0.75mm in diameter, blackish with brown hairs, deflexed and long-stalked. 2-chambered.

TURKEY. W. Anatolia. Bl Izmir: Mares du Mont-Pagus près Smyrne, mai 1866, *Balansa* 1559 (E!).

This specimen is cited by Boissier (1884) in *Flora Orientalis*. Another species, *P. globulifera* L., was recorded from Istanbul by Browicz (1989).

Further collections of these small aquatic ferns are much needed in western Turkey.

* Istanbul Üniversitesi, Eczacılık Fakültesi, Farmasötik Botanik Anabilim Dalı, 34452 Üniversite, Istanbul, Turkey.

PAPAVERACEAE

According to Tan & Sorger (1986), *Papaver persicum* Lindl. (syn. *P. tauricola* Boiss.) is represented by three taxa in Turkey. Diagnostic features and the distributional areas of the taxa are given below:

subsp. *persicum*: Capsules covered with long, white, adpressed bristles arising from the base. Disc acutely pyramidal (A8; B5-9; C5-6) (Fig. 1A).

subsp. *fulvum* Kit Tan & Sorger: Capsules with long, dense, golden-brown setae and \pm flat, shallowly umbonate disc (B6, 9; C6-7).

In the same paper are mentioned plants having capsules with a paler indumentum and a less acutely pyramidal disc; they were considered as \pm intermediate between the two subspecies and are also found in B6-7.

var. *brachycarpum* (O. Kuntze) Kit Tan: Capsules completely glabrous (B6-7) (Fig. 1B).

A specimen from C6 Kahramanmaraş (between Göksun and Andırın, after Degirmendere Village, 1500m, 20 vii 1990, K. Alpinar & H. 't Hart, ISTE 62257) differs from the above-mentioned taxa in having very shortly hairy and somewhat torulose small capsules (Fig. 1C).

The distributional areas of the taxa and the specimen mentioned above overlap in B6-7 and C6-7. As infraspecific variation is apparently very high in those regions it may be appropriate to lower the rank from subspecies to varietal level, and the specimen from Kahramanmaraş appears to be a new variety of the same species. Further collection is needed for a better understanding of its taxonomic status.

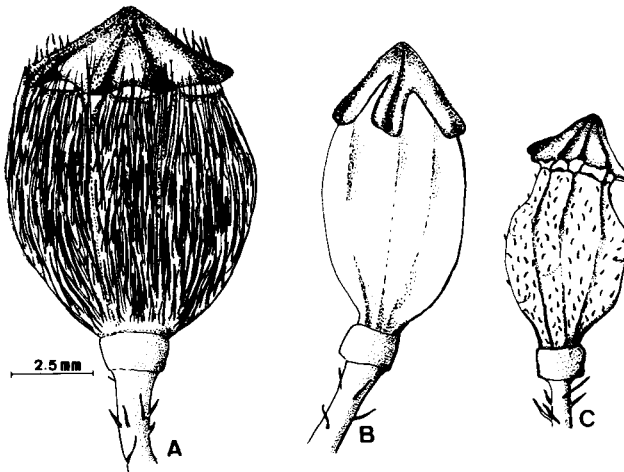


FIG. 1. *Papaver persicum* Lindl.: mature capsules. A, subsp. *persicum* (Davis & Hedge D.29234); B, var. *brachycarpum* (O. Kuntze) Kit Tan (Davis & Hedge D.31260); C, specimen from C6 Kahramanmaraş (K. Alpinar & H. 't Hart, ISTE 62257).

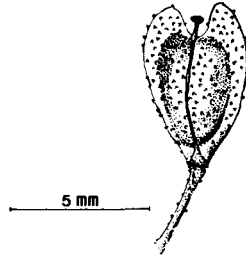


FIG. 2. *Aethionema iberideum* (Boiss.) Boiss.: mature silicula. *K. Alpınar & H. 't Hart* (ISTE 62189).

CRUCIFERAE

Aethionema iberideum (Boiss.) Boiss., Fl. Or. 1: 351 (1867).

A specimen from B7 Elazığ: Harput, around the castle, 1500m, 17 vii 1990, *K. Alpınar & H. 't Hart* (ISTE 62189) had densely papillate siliculas (Fig. 2). Examination of the type and other specimens at Edinburgh (E) has shown that this species almost always has glabrous fruits. Our gathering may represent a new taxon, but more fruiting material is required.

VIOLACEAE

Viola canina L., Sp. Pl. 935 (1753).

This widely distributed species (Greenland, Europe, Caucasia, C. Asia) was collected by J. Nemetz from the Istanbul area (Rechinger, 1938). According to Coode & Cullen (1965) its presence in Turkey required confirmation. This is provided by a recent collection: A2(A) Istanbul: Yuşa Hill, 14 v 1991, *K. Alpınar* (ISTE 63745).

CARYOPHYLLACEAE

Gypsophila pulvinaris Rech. fil., Candollea 34(2): 230 (1979).

Although there are several records from Turkey in *Flora Iranica* 163: 214, given by Rechinger (1988), *G. pulvinaris* was not cited in the Supplement volume of *Flora of Turkey*. A recent collection from E. Anatolia, B10 Ağırı: Dogubayazıt, above İshak Paşa, 2000m, 30 vii 1989, *K. Alpınar & H. 't Hart* (ISTE 60868) was in fruit. As fruits were previously unknown a brief description and illustrations of capsule and seed are given (Fig. 3A–B):

Capsule straw coloured, as long as calyx, 2.5–3mm, opening with 4 obtuse valves; seed 1(–2), depressed globose, c.1mm diameter, 0.5mm thick, black, brownish around hilum, echinate with acute tubercles on back.

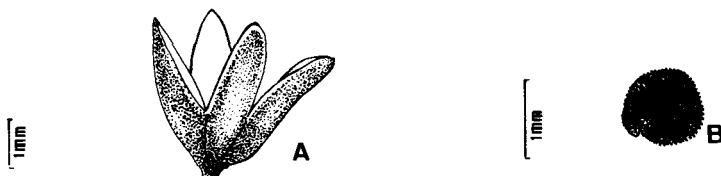


FIG. 3. *Gypsophila pulvinaris* Rech. fil. (*K. Alpınar & H. 't Hart*, ISTE 60868). A, capsule; B, seed.

GERANIACEAE

***Erodium hendrikii* K. Alpınar, sp. nov.** (Sect. *Erodium*) (Fig. 4A–E).

Species habitu *E. malacoides* (L.) L'Hérit. sed caulibus cum multis glandulis (pilis longis absentibus), foliis puberulis glandulis adspersis (glandulis sessilibus absentibus), sepalis ciliatis (non apicem prope ciliatis), corollis albidis differt.

Annual or biennial. Stems ascending, 5–35cm, with very short deflexed hairs, glandular. Cauline leaves ovate to deltoid-ovate, \pm 5–7 lobed, irregularly crenate-dentate, 1–2 \times 0.7cm, densely short glandular-pubescent. Umbels with 5–9 flowers. Outer sepals ovate-oblong, 3–4.5mm, inner sepals oblong, 3–4mm, shortly ciliate along the margins, awn 4–8mm, shortly glandular-pubescent, long hairs lacking at the tips. Petals whitish, 6–10mm. Fruits unknown.

Type: Turkey A7 Gümüşhane: Yagmurdere, 1800m, 10 viii 1989, K. Alpınar & H. 't Hart ISTE 61049 (holo. ISTE; iso. E).

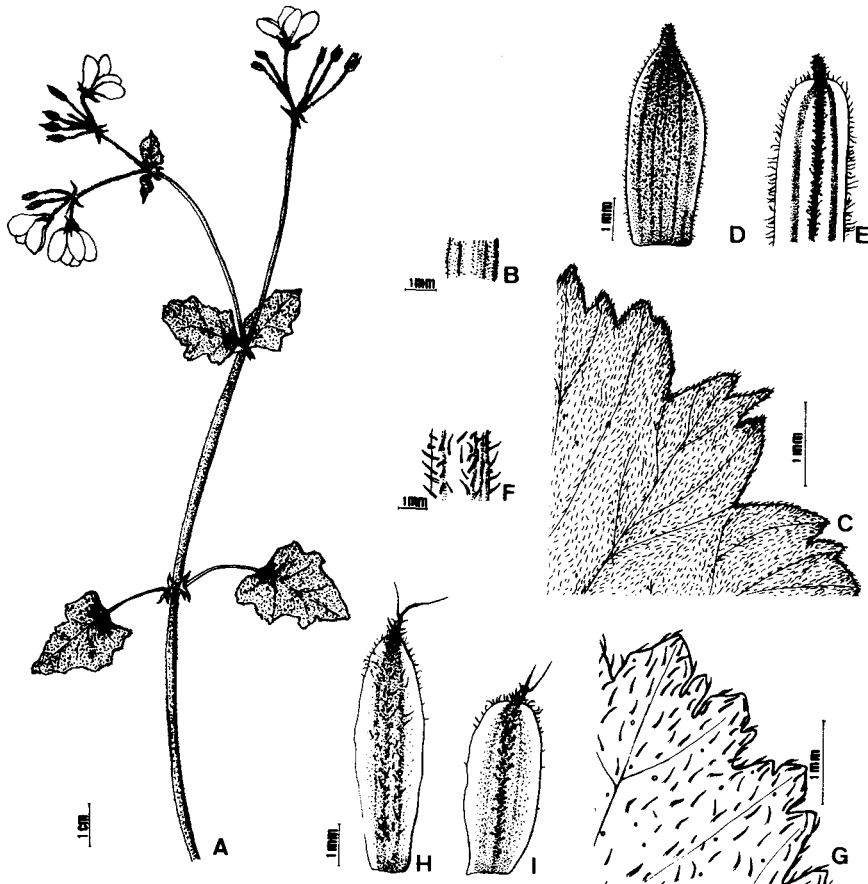


FIG. 4. *Erodium hendrikii* K. Alpınar (K. Alpınar & H. 't Hart, ISTE 61049). A, flowering stem; B, indumentum of stem; C, part of a leaf, upper surface; D, outer sepal, outer surface; E, inner sepal, outer surface. *Erodium malacoides* (L.) L'Hérit. (Tobey 90, E). F, indumentum of stem; G, part of a leaf, upper surface; H, outer sepal, outer surface; I, inner sepal, outer surface.

Erodium hendrikii K. Alpınar is close to *E. malacoides* (L.) L'Hérit. (Fig. 4F–H) but differs in the indumentum of the stem (lacking long hairs), leaves (lacking long hairs and sessile glands) and ciliate sepals (not only towards tip) and white petals.

The species is named after Dr Hendrik 't Hart (University of Utrecht) in recognition of his interest in the Turkish flora.

LEGUMINOSAE

*BAUHINIA L.

**B. variegata* L., Sp. Pl. 375 (1753). var. *variegata*.

Tall shrub or small tree, 3–7m, twigs ± pubescent. Leaves broadly ovate to suborbicular, bluntly 2-lobed, nearly truncate to deeply cordate at base, 6–16 × 5–14cm, coriaceous; glabrous above, shortly pubescent below. Flowers borne in lateral clusters. Buds fusiform, attenuate above, calyx splitting to form a spathaceous, asymmetrical limb. Petals obovate, narrowed to claw, 3–6.5 × 1.5–2.5cm, lilac to purple usually with darker streaks. Fertile stamens 5. Ovary long-stipitate, thinly pilose. Legume linear, 15–30 × 2–2.5cm, pendulous. Seeds compressed, orbicular, c. 1.5cm. Fl. 3–4. Cultivated as an ornamental plant in parks, roadsides etc.

S. Anatolia C3 Antalya: around castle, 9 v 1991, *N. Özhatay* (ISTE 62957a)!. C5 Adana: Municipal Park, 20 iv 1987, *M. Çakmak* (ISTE 57977)!

Native of India, Burma and China; cultivated in Lebanon, Palestine, Egypt, Iran, India and generally in the tropics of both hemispheres. These are the first records from Turkey of this species.

UMBELLIFERAE

Laserpitium petrophilum Boiss. & Heldr., in Boiss., Daign. ser. 1, 10: 46 (1849).

A specimen from C5 Nigde: Çamardı, above Demirkazık village, 1700m, 24 vii 1990, *K. Alpınar & H. 't Hart* (ISTE 62355) has fruits with short rigid hairs especially on the wings and ± glandular hairy pedicels (Fig. 5). Examination of the type and other specimens represented at Edinburgh (E) has shown that this species otherwise has glabrous fruits and pedicels (though sometimes minutely hirtellous). More collecting is needed before any final conclusion about its status can be made.

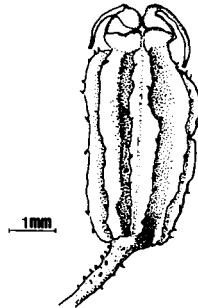


FIG. 5. *Laserpitium petrophilum* Boiss. & Heldr. (*K. Alpınar & H. 't Hart*, ISTE 62355). Mature fruit.

*Denotes introduced taxa.

CAMPANULACEAE

***Campanula rotundifolia* L., Sp. Pl. 163 (1753).**

A1(E) Kırklareli: 2km from Demircihalil Village to Dereköy, 200m, 21 viii 1988, *K. Alpınar & H. 't Hart* (ISTE 59685).

A new record for Turkey. According to Kovanda (1976), the species is widely distributed over Europe but rare in the south — the limits of its distribution in the Balkan Peninsula are not known with any accuracy.

C. rotundifolia L. is easily recognized by its suborbicular crenate basal leaves and linear-setaceous (10–30 × 0.5–1mm) cauline leaves. A brief description and an illustration of the species (Fig. 6A–C) is given below.

Perennial. Stems ascending-erect, 5–20cm, glabrous. Basal leaves petiolate (petioles 2–2.5cm), suborbicular, reniform, crenate. Cauline leaves very narrowly lanceolate to linear-setaceous, 10–30 × 0.5–1mm, usually crowded at the middle of the stem. Inflorescence ± branched. Calyx 3mm, teeth linear-lanceolate, c.1mm. Corolla 5–10mm. Capsule 4–5mm turbinate to conical, pendent.

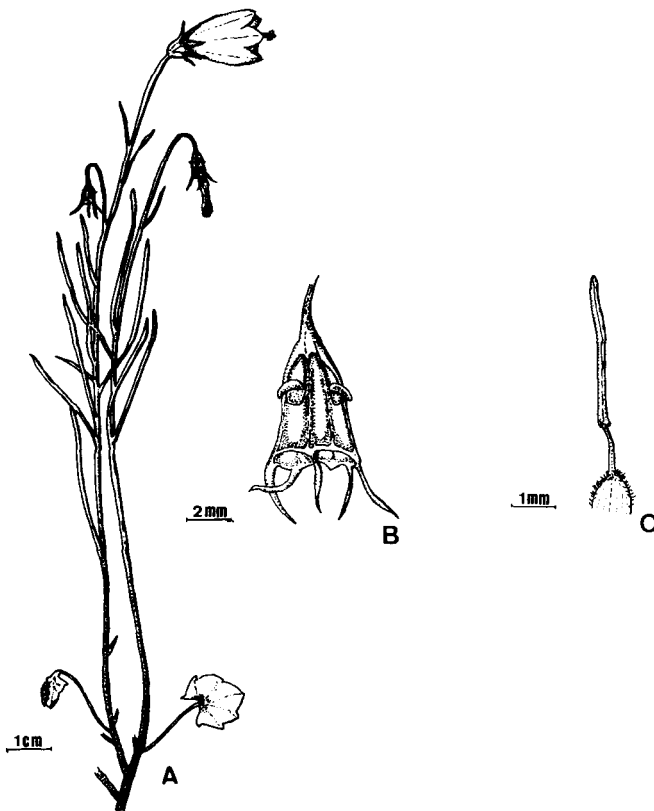


FIG. 6. *Campanula rotundifolia* L. (*K. Alpınar & H. 't Hart*, ISTE 60868). A, plant; B, capsule; C, stamen.

***Campanula trachyphylla* Schott & Kotschy, in Boiss., Fl. Or. 3: 926 (1875).**

According to *Flora Orientalis* and *Flora of Turkey* this species has glabrous stems and \pm included styles (Damboldt, 1979), but a specimen from C5 Nigde: Çamardı, Emli George, 1700m, 24 vii 1990, K. Alpınar & H. 't Hart (ISTE 62373) had pubescent stems and \pm exserted styles. More material is needed.

BORAGINACEAE

According to Riedl (1979), *Heliotropium greuteri* H. Riedl has a sessile calyx, but a specimen identified as *H. greuteri* collected from C7 Urfa, Aratdağı Pass, 800m, 14 vii 1990 by K. Alpınar & H. 't Hart (ISTE 62139) has a stipitate (1–2mm) calyx. Another specimen cited by Riedl in *Flora of Turkey* which is also represented at Edinburgh (*Manissadjian* 728) also has a stipitate calyx.

A gathering from A9 Kars of *Onosma nigricaula* H. Riedl (15km N of Kars along the road to Susuz; nr Mezra River, 1650m, 29 vii 1989, K. Alpınar & H. 't Hart, ISTE 60828a) is in fruit. As there is no information about the nutlets in *Flora of Turkey* 6: 348, a brief description and an illustration (Fig. 7A–B) is given below:

'Nutlets 3–4, slightly rugose, very glossy, yellowish-brown, 2×1.2 mm with \pm gibbous shoulders and a distinct ventral and indistinct dorsal keel, beak \pm straight, obtuse'.

A collection of *Onosma tschihatschevii* M. Popov from B5 Kayseri (c.35km from Saimbeyli to Develi, above Gezbeli Pass, 2100m, 21 vii 1990, K. Alpınar & H. 't Hart (ISTE 62292)), a very local endemic, shows that the pedicels can be as long as 10mm, more than 'up to 5mm' as given in *Flora of Turkey* 6: 363 (1978).

LABIATAE

According to Davis & Doroszenko (1982), *Ballota saxatilis* Sieber ex J. & C. Presl has eglandular hairy calyces and bracteoles. Examination of a recent collection from C7 Urfa (66km from Birecik along the road to Urfa, Aratdağı Pass, 800m, 14 vii 1990, K. Alpınar & H. 't Hart (ISTE 62141)) together with other specimens represented at Edinburgh (E) has revealed that the species usually has glandular hairy bracteoles and calyces.

The key in *Flora of Turkey*, 7: 157, couplet 9 should read as follows:

'Bracteoles linear-oblongate to spatulate, $6-10 \times 0.6-2.2$ mm, mucronate 8. **latibracteolata** Bracteoles linear-filiform, $2-4 \times 0.2-0.4$ mm, emucronate' [thence as in text].

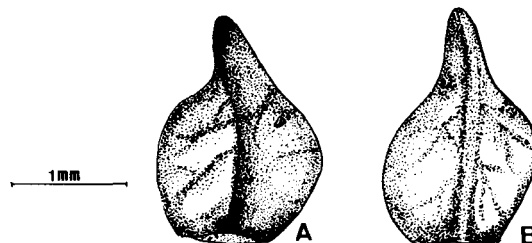


FIG. 7. *Onosma nigricaula* H. Reidl: nutlet (K. Alpınar & H. 't Hart, ISTE 60828a). A, outer surface; B, inner surface.

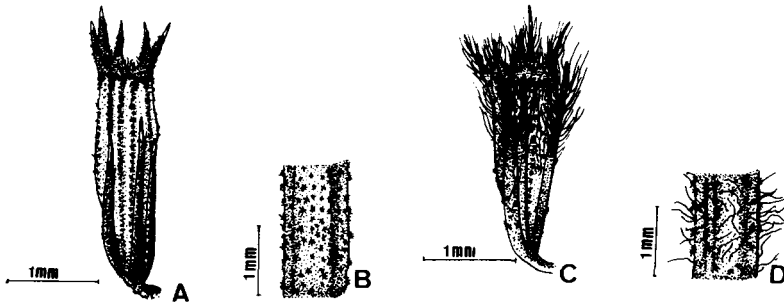


FIG. 8. *Marrubium* specimen from Bitlis (K. Alpinar & H. 't Hart, ISTE 60952). A, calyx with bracteoles; B, detail of stem. *Marrubium astracanicum* Jacq. C, calyx with bracteoles; D, detail of stem.

Some *Marrubium* specimens from East Anatolia, B9 Bitlis: crater of Nemrut Dag, c.2400m, rough pasture, edge of *Betula*-*Populus* scrub, 11 viii 1956, McNeill 552 (E!); *ibid.*, 2350m, 5 viii 1989, K. Alpinar & H. 't Hart (ISTE 60952), are close to *M. astracanicum* Jacq. but differ in their indumentum (lacking eglandular long hairs), the length of the bracteoles (up to $\frac{2}{3}$ as long as calyx tube instead of \pm as long as calyx teeth) and the length of the flowers (7-8(-9)mm, not 10-14mm) (Fig. 8A-D).

According to Seybold (*in litt.*), *M. astracanicum* has many local races. Before describing this material as a new taxon, it should be established whether these differences are constant within the population. Further searching on Nemrut Dag₁ is needed.

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