

SIX NEW SPECIES FROM ANATOLIA

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ABSTRACT. Six new species in five different families are described from Turkey: *Polygala inexpectata* Peşmen & Erik (Polygalaceae), *Hypericum malatyanum* Peşmen (Hypericaceae), *Geranium davisianum* Peşmen & Güner (Geraniaceae), *Astragalus aydosensis* Peşmen & Erik, *A. tatlii* Peşmen (Fabaceae), and *Potentilla tauricola* Peşmen (Rosaceae). *Polygala hohenackeriana* Fisch. & Mey. is recorded from Turkey for the first time.

***Polygala inexpectata* Peşmen & Erik, sp. nov.** (Subgen. *Polygala*) Fig. 1E.

Affinis *P. papilionaceae* Boiss. sed caulibus brevioribus, foliis parvis, sepalis interioribus pubescentibus, capsulis parvis sparsim pubescentibus recedit.

Herba perennis, canescentia, caudice crasso lignoso valde ramoso. *Caules* adscendentes vel erecti, 2.5-5 cm alti, dense crispato-pubescentes. *Folia* sessilia, ovata vel oblongo-lanceolata, 2.5-5(-7) × 1-2(-3) mm, integra, dense crispato-pubescentia. *Racemi* terminales, cylindracei, 2-3 × c. 1.5 mm, 8-20-flori. *Bracteae* pedicellos superantes, lanceolatae, 2.5-3 mm longae, pubescentes, margine membranaceae, caducae. *Flores* violaceo-purpurei, post anthesin nutantes. *Pedicelli* 1.5-2 mm longi, incurvati, patenter pubescentes. *Sepala* violacea, in fructu membranaceo-albescentia, exteriora oblongo-lanceolata, 2-4 × 1-2 mm, interiora quam corolla superantia, late obovata, 6-7 × 3-4 mm, extus pubescentia, nervis pallide viridibus anastomosantibus. *Corolla* 4-5 mm longa, tubo arcuatim incurvato, lobis lateralibus oblongis 2-3 mm longis, lobo mediano atropurpureo multifido. *Antherae* flavae, sessiles. *Capsula* (± matura) obcordata, 4-4.5 × 3-3.5 mm, sparsim pilosa, ala 1 mm lata; *stylus* 1 mm longus; *stigma* capitatum, 0.5 mm longum. *Floret* Mai.-Jun.

Turkey. C5 Konya: distr. Ereğli, Aydos Da., Berendi yolu above Ayrancı Barajı, 1200 m, 19 v 1977, S. Erik 2015 (holotypus HUB, iso. E); Koraş, 1400 m, Siehe 1906:442.

P. inexpectata is allied to *P. papilionacea* Boiss. (Anatolia, Transcaucasia), but differs in having shorter stems, smaller leaves ((6-)10-17 × 2-4 mm in the latter), pubescent and smaller, inner sepals (glabrous and (8-)10-11 × 5-7 mm in *P. papilionacea*), and much smaller and sparsely hairy (not glabrous) capsules (Fig.1). Siehe's immature specimen, cited above, was first wrongly identified as *P. hohenackeriana* Fisch. & Mey. by Hayek (*Ann. Nat. Hofmus. Wien* 156, 1914). Later it was treated as an anomalous specimen of *P. papilionacea* and discussed under this and *P. stocksiana* Boiss. by Cullen (*Flora of Turkey* 1:535 & 537, 1965). Good material from the same area now shows that it is a distinct new species.

I take this opportunity to record the allied *Polygala hohenackeriana* Fisch. & Mey. (hitherto only known from Transcaucasia, N & NW Iran) from E Anatolia:

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A9 Kars: 14 km from Tuzluca to Iğdir (Aras valley), 900 m, *Davis* 43631; B10 Ağrı: 35 km E of Doğubayazıt, nr Iran border, 1600 m, *Davis* 43974.

***Hypericum malatyanum* Peşmen, sp. nov.** (Sect. *Taeniocarpium* Jaub. & Spach.) Fig. 1C.

Affinis *H. fragili* Heldr. & Sart. et *H. marginato* Woron., ab utroque glandulis pellucidis foliorum dispersis, glandulis nigris petalorum nullis vel unicus, inflorescentia pauciflora, foliis obovato-ellipticis differt.

Herba perennis, glabra, glaucescens. *Caules* prostrati vel adscendentes, 5–12 cm longi, fragiles, basi lignosi. *Folia* breviter petiolata, petiolo 0.5–1 mm longo, basi articulato; lamina coriacea, obovato-elliptica, 3–7(–9) × 2–3(–4) mm, glabra, basi rotundata vel cuneata, apice rotundata, margine plana vel ± crassa, glauco-viridia, glandulis pellucidis numerosis dispersis, glandulis nigris nullis. *Inflorescentia* terminalis, (1–)2–3-flora; bractee oblongae vel anguste ovatae, 2–3 × 0.7–1.2 mm, acutae, margine glandulis nigris stipitatis instructa. *Sepala* anguste ovato-oblonga, 3–4 × 1 mm, acuta vel subobtusata, margine brevissime denticulato-glandulosa. *Petala* obovata vel oblanceolata, 8–10 × 3–4 mm, basi anguste cuneata, glandulis pellucidis linearibus, glandulis nigris nullis vel ad apicem unicus. *Stamina* triadelpa, 28–30; filamenta 3–5 mm longa; antherae luteae, 0.5 mm longae. *Capsula* 4–5 mm longa, ovoidea, longitudinaliter vittata, trilocularis; styli 3, 2.5–3 mm longi. *Semina* 3–4 per loculum, cylindrica, 2 × 0.5 mm, minute papillosa. *Floret* Jul.–Aug.

Turkey. B6 Malatya: distr. Doğanşehir, Eskiköy, Meletbaşı mezresi, W slope of dried valley, limestone rock crevices, 1900–2000 m, 26 vii 1971, *H. Peşmen* 3395 (holotypus HUB; iso EGE, E).

The new species is closely related to *H. fragilis* Heldr. & Sart. from Greece and to *H. marginatum* Woron., endemic to NE Anatolia (A9 Çoruh). It differs from both these species in having petals either glandless or with only a single, black, terminal gland (as opposed to 3–10 glands) (Fig. 1), leaves with scattered (not intramarginal) and more numerous pellucid glands (Fig. 1) and few-flowered inflorescences ((1–)2–3-flowered as opposed to (1–)3–15). It also differs from these species in leaf-size and shape. *H. malatyanum* is an Irano-Turanian element.

***Geranium davisianum* Peşmen & Güner, sp. nov.** (Sect. *Pyrenaica* G. Knuth).

G. asphodeloidi Burm. fil. affinis, sed radice verticale tenui, indumento caulium longiore, petalis albis differt.

Herba biennis vel perennans. *Radix* palaris verticalis, tenuis, radicibus lateralibus filiformibus sparsis. *Caules* erecti, 25–40 cm alti, e basi pseudo-dichotomo-ramosi, quadrangulares, sulcati, undique pilis nigro-capitatis inaequalibus patenter glanduloso-pilosi. *Stipulae* anguste triangulari-lanceolatae, 6–10 mm longae, ± cuspidatae, membranaceae, glabrae, margine ciliatae. *Folia* basalia longe petiolata; petiolis 7–15 cm longis, glanduloso-pilosis; lamina reniformis vel orbicularis, 4–5 × 5–6 cm, usque ad $\frac{1}{2}$ – $\frac{3}{4}$ palmatim 5–7-partita, lobis anguste vel late cuneatis ad $\frac{1}{2}$ trilobulatis, lobulis integris vel 3-crenato-dentati, superne pilis brevibus eglandulosis adpresse pubescentibus, inferne patenter glanduloso-pubescentibus; folia caulina similia sed breviter petiolata, floralia sessilia.

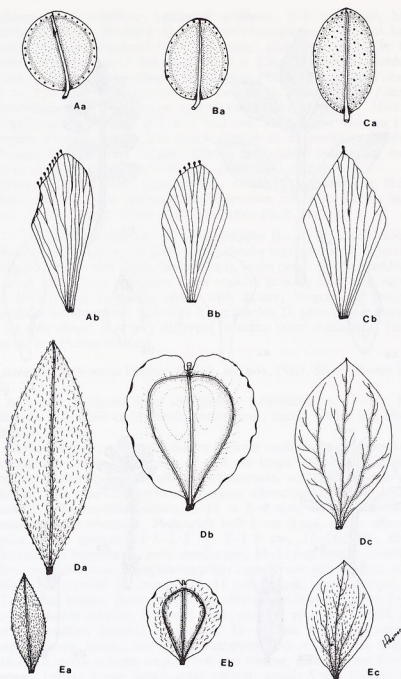


FIG. 1. A. *Hypericum marginatum* Woron.: a, leaf viewed from beneath; b, petal—(from Davis 32436). B. *H. fragilis* Heldr. & Sart.: a, leaf viewed from beneath; b, petal—(from C. Leonis: vi 1901). C. *H. malatyanum* Peşmen: a, leaf viewed from beneath; b, petal—(from the type collection). D. *Polygala papilionacea* Boiss.: a, leaf viewed from beneath; b, fruit; c, inner sepal viewed from the outside—(from Davis 30749). E. *P. inexpectata* Peşmen & Erik: a, leaf viewed from beneath; b, fruit; c, inner sepal viewed from the outside—(from the type collection). [All 4 × natural size].

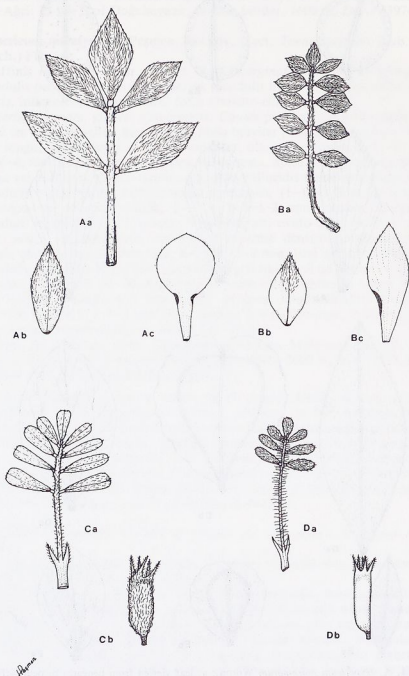


FIG. 2. A. *Astragalus aydosensis* Peşmen & Erik: a, leaf; b, bract viewed from the outside; c, standard viewed from the inside—(from the type collection). B. *A. pelliger* Fenzl: a, leaf; b, bract viewed from the outside; c, standard viewed from the inside—(from Balls 1347). C. *A. tatlii* Peşmen: a, leaf; b, calyx—(from the type collection). D. *A. mikrophyton* Sirj. & Rech. fil.: a, leaf; b, calyx—(from T. F. Hower 1187). [All 2 × natural size].

Inflorescentia multiflora; pedunculi axillares, 2–5 cm longi, biflori, glanduloso-pilosi. *Bractee* librae, lineari-lanceolatae, 3–4 mm longae, margine ciliatae. *Pedicelli* 5–25 mm longi, glanduloso-pilosi, in fructu deflexi. *Sepala* ovata vel lanceolata, 6–8 × 2 mm, 3-nervosa, glanduloso-pilosa, margine ciliata, aristae 1 mm longae. *Petala* alba, anguste obovata, 10 × 3.5 mm, apice rotundata, supra basin albo-barbata. *Filamenta* lineari-lanceolata, ad medium eglanduloso-ciliata, purpurea. *Mericalpia* subadpresse pubescentia, 2.5 × 1.5–2 mm, subglobosa; rostrum 11 mm longum, 2-canaliculatum, pilis longis glanduloso- et brevibus eglanduloso-pilosum; stylus 5 mm longus, inferne eglanduloso-pubescent, superne glaber. *Semina* brunneola, foveolata. *Floret* Jul.–Aug.

Turkey. A8 Rize: distr. Çamlıhemşin, Amlakit Ya. Arkavit to Husayd, 2000–2400 m, *Picea orientalis*-*Rhododendron* mixed forest, on igneous rock, 24 vii 1974, A. Güner 1182 (holotypus HUB, iso. E).

G. davisianum resembles *G. asphodeloides* Burm. fil. subsp. *sintensis* (Freyn) Davis in facies, but differs in its slender taproot (the latter having an oblique rhizome with thick, fleshy roots), white petals (neither reddish nor mauve), glabrescent colourless lower stipules (usually hairy and purple in the latter), and in having stems with denser, longer and completely glandular indumentum. Although it approaches *G. pyrenaicum* Burm. fil. in its root shape, it is very different in many other characters. The new species is a Euxine element.

***Astragalus aydosensis* Peşmen & Erik, sp. nov.** (Sect. *Sisyrophorus* Bunge) Fig. 2A.

Affinis *A. pelligero* Fenzl sed foliis 3–5-foliolatis (non 7–13), foliolis maioribus, bracteis et bracteolis longioribus, limbo vexillo late obovato-elliptico differt.

Herba perennis, nana, scaposa vel breviter caulescens, e caudice ramoso prostrata. *Folia* imparipinnata, 2–2.5 cm longa (cum petiolo); stipulae ovatae, 8–10 mm longae, albo-membranaceae, ad $\frac{1}{2}$ connatae, a petiolo liberae, pilis bifurcatis sericeae, margine albo-ciliatae; foliola 1–2-juga, sessilia, deltoideo-oblancoolata, 8–13 × 5–8 mm, acuta, pilis bifurcatis dense sericeo-tomentosa. *Pedunculi* 1–2.5 cm longi, dense albo-pilosi. *Spica* dense globosa, 1.5–2.5 × 2–2.5 cm, 12–16-flora. *Bractee* obovatae vel lanceolatae, naviculariformes, 10–12 mm longae, acuminatae, albo-membranaceae, in pagina superiore subadpresse albo-pilosae, margine ciliatae. *Bracteolae* 2, lineares, 10–11 mm longae, dense pilosae. *Calyx* 12–14 mm longus, dense simpliciter albo-piloso-lanatus; tubus 5–6 mm longus, dentes subulati, 8–9 mm longi, patenter plumosi. *Corolla* pallide lutea. *Vexillum* lingulato-obovatum, 12–14 mm longum, recurvatum, unguiculatum; lamina late obovato-elliptica, 7–8 × 5–6 mm, extus pilis bifurcatis dense sericeo; unguis 4–6 mm longus, glaber. *Alae* 11–12 mm longae; lamina 7 mm longa, extus sericea; unguis 5 mm longus. *Carina* 10–11 mm longa, lamina extus sericea, ungue glabro. *Ovarium* dense bifurcatim albo-pilosum, 10-ovulatum; stylus 5 mm longus, a basi ad $\frac{1}{2}$ pilosus. *Legumen* ignotum. *Floret* Jun.–Jul.

Turkey. C5 Konya: distr. Ereğli, Aydos Da. above Ayrancı Barajı, limestone slope, steppe, 1400 m, 23 vi 1977, S. Erik 2324 (holotypus HUB, iso. E).

Astragalus aydosensis is the second species of the previously monotypic section *Sisyrophorus* Bunge. The other species, *A. pelliger* Fenzl, endemic to S, SW and C Anatolia, differs in having 3–6-paired, much smaller leaflets ($3-5 \times 2-4$ mm), shorter bracts and bracteoles (4–6 mm and 6–8 mm respectively), and standard with tapering acute limb (Fig. 2). *A. pelliger* grows on the same mountain as the new species, but the two remain distinct.

***Astragalus tatlii* Peşmen, sp. nov.** (Sect. *Trachycercis* Bunge) Fig. 2C.

Species habitu *A. mikrophyti* Sirj. & Rech. fil. similis, sed pilis foliorum brevioribus, foliolis longioribus, calycibus dense pubescentibus differt.

Herba perennis, subacaulis, caespitosa, 3–4 cm alta. *Caudex* ad 5 mm crassus, $\pm$ lignosus, superne valde ramosus. *Folia* imparipinnata, canescentia, cum petiolo 10–20 mm longa; stipulae lanceolatae, 7–8 mm longae, e basi ad $\frac{1}{2}$ – $\frac{3}{4}$ connatae et ad petiolum adnatae, membranaceae, glabrescentes, margine ciliatae. *Petioli* 5–6 mm longi, patenter pilosi. *Foliola* 2–5-juga, subsessilia, anguste obovato-cuneata, $4-6 \times 1-1.5$ mm, basi articulata, apice breviter mucronata, pilis albis simplicibus patenter pubescentia. *Flores* in pedunculis ad 4 mm longis vel solitaires. *Bracteae* lineari-lanceolatae, 5–6 mm longae, $\pm$ carinatae, membranaceae, extus sparsim pubescentes, margine ciliatae. *Pedicelli* 0.5–3 mm longi, dense albo-pilosi. *Bracteolae* lineares, 1–2 mm longae, pubescentes. *Calyx* tubulosus, 8–9 mm longus, tubus $5-6 \times 2-3$ mm, basi obliquo, pilis longis patentibus et brevioribus crispatis pubescens, destes subulati, 3–4 mm longi, pilosi. *Corolla* roseo-coerulea, glabra. *Vexillum* obovato-oblongum, 15–16 mm longum, lamina 5–6 mm lata, in medio constricta, apice emarginata, unguis cuneatus, 6–7 mm longus. *Alae* 12 mm longae; lamina oblonga, 4×2 mm, basi auriculata; unguis linearis, 8 mm longus. *Carina* 11 mm longa; lamina oblonga, $3.5-4$ mm longa, basi auriculata; unguis linearis, 7 mm longus. *Ovarium* breviter stipitatum, dense tomentosum; stylus 8 mm longus e basi ad $\frac{1}{2}$ pubescens. *Legumen* ignotum. *Floret* Jul.–Aug.

Turkey. A8 Erzurum: calcareous steppe between Rizekent Köyü and Çikrikli, 22 vii 1976, *A. Tatli* 4933 (holotypus HUB; iso. ATA, E).

In habit the new species resembles *A. mikrophyton* Sirj. & Rech. fil. from Afghanistan. It differs in having sparser, shorter indumentum, hairy calyces (glabrous apart from the teeth in the latter), and longer leaflets (Fig. 2). *A. tatlii* is the only species with basifixed hairs among the Turkish species of sect. *Trachycercis*. Both species are Irano-Turanian elements. The species is named after its collector, Dr A. Tatli, who is a plant ecologist at Atatürk University in Erzurum.

***Potentilla tauricola* Peşmen, sp. nov.** (Subgen. *Potentilla*).

P. kotschyanae Fenzl affinis, sed foliis ternatis parvis, segmentis epicalycis integris, inflorescentia pauciflora differt.

Herba perennis. *Caudex* crassus, lignosus, fuscus. *Caules* floriferi simplices, erecti vel adscendentes, 5–15 cm alti, purpurascens, pilis eglandulosis longis et brevioribus patenter pilosi. *Folia* basalia ternata, longe petiolata; petioli 3–7 cm longi, patenter pilosi; foliola late cuneato-obovata, $5-15 \times 5-11$ mm, utrinque subadpresse pilosa, margine in dimidio inferiore integra, superiore crenato-dentata, dentibus (5–)7–9,

dente terminali brevi. Folia caulina inferiora breviter petiolata, superiora sessilia; stipulae herbaceae, basi ad petiolum adnatae, ovatae vel lanceolatae, 5–8 mm longae, integrae vel 1-dentatae. *Inflorescentia* terminalis, (1–)2–3-flora; pedicelli erecti, 5–12 mm longi, dense pilosi. *Calyx* dense eglanduloso-pilosus; segmenta epicalycis anguste ovato-oblonga vel lanceolata, 6–8 × 2–2.5 mm, integra, obtusa; sepala triangulari-ovata, 5–7 × 2–2.5 mm, acuta. *Petala* pallide lutea, late obovato-orbicularia, 5–6 × 5–6 mm. *Stamina* c. 20, filamenta 1.5–2 mm longa; antherae oblongae, 0.5–1 mm longae. *Receptaculum* subconicum, sparsim pilosum. *Achenia* numerosa, reniformia, c. 1.5 mm longa; stylus subterminalis, conico-attenuatus, 1–1.25 mm longus, a basi ad $\frac{2}{3}$ incrassatus papillosus; stigma paulo dilatatum. *Floret* Jun.–Jul.

Turkey. C4 Içel: distr. Mut, Kizıldag, c. 2000 m, 17 vi 1970, *A. Pamukçuoğlu* s.n.; C5 Içel: above Aslanköy, 1500–2000 m, 19 vi 1970, *A. Pamukçuoğlu* s.n. (holotypus HUB, iso. E).

The new species from the Cilician Taurus is closely related to *P. kotschyana* Fenzl. It differs from the latter in its ternate leaves (not digitate with 5 leaflets), entire epicalyx segments (usually 2–3-fid in *P. kotschyana*), and 1–3-flowered inflorescence (2–12 in the latter).

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