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Authors: Parolly, Gerald, and Tan, Kit

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GERALD PAROLLY & KIT TAN

A new species of *Hesperis (Brassicaceae)* from SW Anatolia, Turkey*

Abstract

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Hesperis kuerschneri, from the vilayet of Denizli in the Western Taurus is described as a species new to science and illustrated. Its affinities are with *H. theophrasti,* which has several infraspecific taxa in the Balkans and Anatolia. The new species occurs on steep serpentine scree slopes together with other serpentine plants of the Western Taurus and is rather local in distribution.

Key words: *Cruciferae, Hesperis theophrasti,* taxonomy, serpentine, Western Taurus.

A perennial *Hesperis* L. was collected from serpentine scree in the vilayet of Denizli, SW Anatolia, by the German pharmacist Robert Ulrich (Tübingen) and sent to the first author. It could not be identified using "Flora of Turkey and the East Aegean Islands" (Cullen 1965) or its two supplements (Davis & al. 1988, Güner & al. 2000), nor by relevant literature (Dvořak 1968, 1973, 1980, Meikle 1977, Mouterde 1970, Tan & Suda 2002). A search in some herbaria (B, C, E, GAZI, HUB, abbreviations following Holmgren & Holmgren 1998-) yielded no confirmatory results. A rewarding number of new taxa from southern Anatolia has already been acquired by Robert Ulrich, who has a sharp eye for the new and the extraordinary (see Aytaç & al. 2006, Wagenitz & al. 2006). The Old World genus *Hesperis* comprises c. 55-60 species and is especially well represented in Mediterranean and Irano-Turanian areas. Turkey is with 31 species and 17 endemic taxa a major diversity centre for the genus (Duran & al. 2002, see also Duran & Ocak 2005). The *Hesperis* we describe here as new to science also illustrates that exploration of ultramafic rock outcrops in Turkey is promising and that many areas are floristically still incompletely documented.

Hesperis kuerschneri Parolly & Kit Tan, **sp. nov.**
Holotype: Turkey, C2 Denizli, Fethiye - Çameli, N Fethiye, unterhalb des [below] Tuzla Beli, 1300 m, Serpentinhang [serpentine slope], SE-Exp., 7.5.2002, *Ulrich 2/1* (B; isotypes: C, herb. Parolly).

* Dedicated to Dr Harald Kürschner on the occasion of his appointment as apl. Professor at the Freie Universität Berlin.

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Hesperidis theophrasti subsp. *sintenisii* primo aspectu simile; a qua pedicellis distincte brevioribus et incrassatis (5-10 versus 20-28 mm), siliquis brevioribus (50-65 versus 80-115 mm), petalis bicoloribus et indumento pilis indivisis differt.

Pubescent, dull olive-green, ± erect perennial, 10-20 cm tall. *Root-stock* oblique, woody, up to 25 cm long and 0.5-0.8 cm in diam., branched, terminating in several rosettes. *Stems* arcuate-ascending to erect, 6-8 cm long, terete, thickened at maturity (to c. 3 mm diam. at base), leafy throughout, pale to dark olive-green, suffused purple especially towards base, densely furnished with an indumentum of patent, predominantly glandular and few eglandular hairs. *Basal and lower cauline leaves* sublyrate (with 2-3 pairs of segments and a large sinuate-dentate terminal segment), oblong to spathulate, apex rounded to subacute, margins irregularly sinuate-dentate with 4-10 teeth on each side, somewhat undulate; lamina c. 2-5 × 1-2 cm, with 3-5 cm long, flattened petiole, shiny, purplish and subglabrous at base; upper cauline leaves subsessile or shortly petiolate from a broadly cuneate base, decreasing in size, dentate with 3-5 teeth on each side, acute at apex; leaf indumentum similar to stem indumentum, but leaves glabrescent and with longer eglandular hairs (setae); lower leaf surface and occasionally also upper leaf surface darkening purple; basal leaves persistent at anthesis. *Inflorescence* a moderately lax, simple or compound, 8-14-flowered, ebracteate raceme slightly elongating in fruit; terminal and lateral racemes not secund, mainly arising from mid-stem upwards, with similar indumentum as on stem. *Pedicels* patent-erect to subhorizontal at anthesis, 2-7 mm, elongating to 5-10 mm, becoming subclavate and thickened (c. 1.5 mm) in fruit; extrafloral nectaries two. *Sepal*s erect, narrowly ovate-lanceolate, acute, c. 8-10 × 2-2.5 mm, inner saccate at base, olive-green with distinct scarious to purple margins, outside glandular-hairy, eglandular-barbate at apex. *Petals* bicoloured, with c. 12-15 mm long, greenish white to green claw expanding into a shorter or subequal, circinately reflexed, pinkish purple, darker-veined limb. *Anthers* linear-ob-

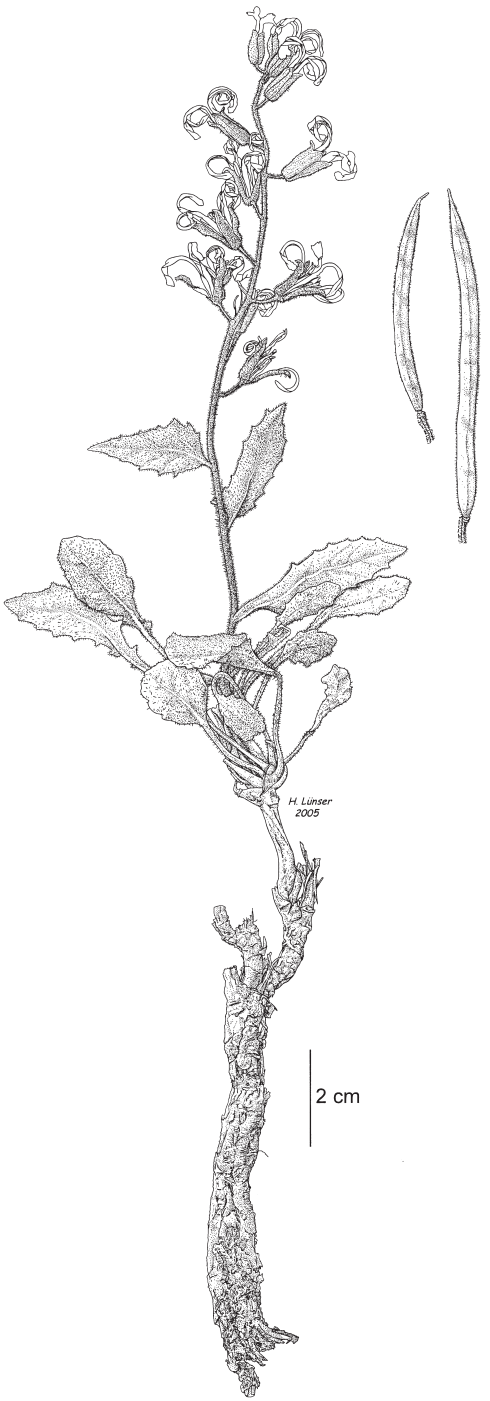


Fig. 1. *Hesperis kuerschneri* – habit (from the type) and mature siliquae (from *Ulrich 5/29,* herb. Parolly).

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Fig. 2. *Hesperis kuerschneri* at its type locality SW Turkey, Denizli, Tuzla Beli, 1300 m – A: flowering, 7.5.2002 (photograph by R. Ulrich); B: fruiting, 25.5.2005 (photograph by G. Ulrich).

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long, 3 mm, pale green. *Style* c. 1.5-2 mm long, stigma deeply 2-lobed. *Mature siliquae* subcylindrical, attenuating into a beak, somewhat torulose, moderately curved, 50-65 × 3-3.5 mm, yellowish green, glandular-pubescent, ± erect and readily dehiscent, septum membranous. *Seeds* 5-8 per locule, uniseriate, brown, irregularly ovoid, 3.5 × 2 mm, with narrow apical wing.

Ic. – Fig. 1-2; for additional colour photographs see the electronic supplement to this paper at http://www.bgbm.org/willdenowia/willd36/parolly+tan.htm

Eponymy. – We are glad to name our new *Hesperis* after Prof. Dr Harald Kürschner of the section Systematische Botanik & Pflanzengeographie at the Freie Universität Berlin. Harald Kürschner has contributed much to SW Asian botany in various fields of vegetation ecology, geobotany and bryology.

Distribution. – *Hesperis kuerschneri* is so far only known from the type locality in the Western Taurus. The Tuzla Beli is the westernmost extension of the Boncuk Dağları (the peak Gök Tepesı at 2254 m). The mountain ridge with the pass separates the two vilayets Muğla and Denizli. An extensive serpentine range stretches to the north on the Denizli side, where our plant has its very localised occurrence at c. 1300 m, although similar suitable habitats were observed on both sides of the pass at various altitudes.

Additional specimens examined. – TURKEY: C2 DENIZLI: Fethiye - Çameli, N Fethiye, nahe Tuzla Beli, 1320 m, Serpentinhang, SE-Exp., 6.5.2001, *Ulrich 1/60* (herb. Parolly, flowering); ibid., 1300 m, E-Exp., 14.6.2002, *Ulrich 2/38 & 2/39* (B, herb. Parolly, fruiting); ibid., SE-Exp., 25.5.2005, *Ulrich 5/29* (herb. Parolly, siliquae plus photographs).

Synecology and phenology. – *Hesperis kuerschneri* inhabits steep to very steep (20-35°), E- and SE-facing montane serpentine scree below some higher cliffs. Tectonically this area forms part of the Marmaris ophiolite nappe, "composed of the peridotites and an ophiolitic melange / olistostrome" (Şenel 1997). Black Pine (*Pinus nigra* var. *caramanica* (Loudon) Rehder) occurs scattered on the slopes, while *H. kuerschneri* grows in full sun in coarse or fine scree together with *Teucrium alyssifolium* Stapf (abundant here with almost white flowers) and other serpentinophytes of the Western Taurus such as *Cytisopsis pseudocytisus* subsp. *reeseana* (Guyot) Greuter & Raus, *Eryngium thorifolium* Boiss. and *Thlaspi leblebicii* Gemici & Görk. Associated species indifferent to a particular substrate include *Cruciata taurica* (Willd.) Ehrend., *Convolvulus compactus* Boiss., *Hypericum aviculariifolium* var. *albiflorum* Hub.-Mor. (in a pink-flowered population), *Pelargonium endlicherianum* Fenzl and *Stipa* sp. The vegetation can preliminarily be placed in the western race of the serpentinophytic Thuryion capitatae Quézel 1973 alliance (Parolly 2004).

The genus *Hesperis* includes several species growing, though not exclusively, on ultramafic substrates, such as *H. laciniata* All., from S Europe and NW Africa eastwards to Turkey and Syria, *H. theophrasti* subsp. *rechingeri* (F. Dvořak) Kit Tan & J. Suda, endemic to Mts Vourinos and Vounassa, and *H. dinarica* G. Beck, a Balkan endemic of the W and central Balkan Peninsula. None are known to be nickel hyper-accumulators (Brooks 1987, Reeves & Adıgüzel 2004).

Hesperis kuerschneri flowers from early to late May, when the first ripe fruits can be obtained.

Taxonomic affinities. – The genus is in urgent need of a thorough revision. Combining morphological and molecular characters in such a revision would be crucial, in particular, as the taxonomic value of traditionally applied morphological characters may well be called into question.

The combination of characters, especially the indumentum consisting of predominantly glandular and few eglandular hairs, the bicoloured petals with a greenish white or green claw expanding into a pinkish purple limb, and the fairly small and thick, glandular-pubescent siliquae borne on ± erect, thickened pedicels all contribute to make *Hesperis kuerschneri* a distinctive taxon. E Mediterranean and SW Asian species that have some affinities to our plant all deviate to some

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extent in indumentum characters; they include *H. theophrasti* Borbás, *H. steveniana* DC., *H. balansae* E. Fourn. and *H. bottae* E. Fourn.

Hesperis steveniana, known from the Crimea, Caucasus and scattered occurrences in Turkey (N Anatolia, Eastern Taurus), differs from *H. kuerschneri* by its much taller, biennial habit (to 60 cm) with basally retrorsely bristly stems and much larger (24-28 mm), reddish violet petals (Cullen 1965).

Hesperis theophrasti and *H. balansae* have uniformly coloured petals, usually more slender siliquae (1-3 mm broad) and an indumentum that always includes branched hairs. *H. theophrasti* subsp. *sintenisii* F. Dvořak, endemic to W Anatolia, has 20-28 mm long pedicels, much longer (80-115 mm) and puberulent siliquae with glandular and eglandular hairs (Davis & al. 1988; for a description of the pink to dark lilac to bright violet-purple flowers see Tan & Suda 2002). Subsp. *rechingeri* is restricted to the area of the Greek Mt Vourinos and resembles *H. kuerschneri* in its low stature, flowering pedicels being usually shorter than the sepals and its short siliquae (35-70 mm). It can also be readily distinguished by the early withering leaf rosette, usually no longer present at anthesis (Tan & Suda 2002). The Balkan type subspecies is a much more robust plant with generally longer siliquae (60-110 mm) and basal leaves still persistent at anthesis.

Hesperis balansae, endemic to W Anatolia (Manisa Dağı, Kaz Dağı, etc.) and the East Aegean islands, shows similarities in the short and thickened pedicels but is readily differentiated by the lax, elongate, usually secund, patently branched inflorescences, greenish bronze to tawny yellow petals and the patent, rarely almost divaricate, normally much larger, but narrower siliquae ([45-]60-150 × 1.5-3 mm; see Davis & al. 1988, Tan & Suda 2002).

Hesperis bottae has purplish pink petals and elongate, attenuate, glandular-pilose siliquae; it is known from E Anatolia (vilayet Elažig).

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Addresses of the authors:

Gerald Parolly, Institut für Biologie – Systematische Botanik & Pflanzengeographie, Freie Universität Berlin, Altensteinstraße 6, D-14195 Berlin, Germany; e-mail: gparolly@zedat.fu-berlin.de

Kit Tan, Institute of Biology, University of Copenhagen, Øster Farimagsgade 2D, DK-1353 Copenhagen K, Denmark; e-mail: kitt@bi.ku.dk

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