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Authors: Parolly, Gerald, and Tan, Kit

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GERALD PAROLLY & KIT TAN

Verbascum lindae* (Scrophulariaceae), a new species from SW Anatolia, Turkey*Abstract**

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Verbascum lindae, a taxonomically isolated limestone chasmophyte from the vilayet of Isparta in SW Anatolia is described as a species new to science and illustrated. Its affinities with other Anatolian *Verbascum* species, which have either a chasmophytic habit or at least a woody base, are discussed.

Key words: chasmophytes, rock plants, taxonomy.

Introduction

In the course of checking or identifying the more recent collections of Robert Ulrich, pharmacist at Tübingen, Germany, we noted a new species of *Verbascum*, one unfamiliar to us but one which he had already suspected to represent an undescribed taxon having observed it for the past three years in its native habitat (Ulrich, pers. comm., 2004). Although Ulrich dismisses himself modestly as a plant collector without special merit, he has made several remarkable discoveries, among them *Potentilla ulrichii* Parolly & Nordt, *Centaurea ulrichiorum* Wagenitz & al. and *Hesperis kuerschneri* Parolly & Kit Tan.

Verbascum comprises 238 species in Turkey (more than 190 of them are endemic; figures of species and endemics are modified from Kaynak & al. 2006), including this newly described taxon and is undoubtedly one of largest genera in the “Flora of Turkey” area (Davis & al. 1988, Ekim in Güner & al. 2000: 193, Huber-Morath in Davis 1978: 461-602, Karavelioğulları & al. 2004, 2006, Kaynak & al. 2006). It is also one of the least understood regarding infrageneric classification. All Turkish species of *Verbascum* s.l. are said to fall within sect. *Bothrosperma* Murb. (Huber-Morath in Davis 1978: 462).



Fig. 1. *Verbascum lindae* – A: habit, holotype (herb. Parolly); B: leaves (Ulrich 4/96b herb. Parolly).

***Verbascum lindae* Parolly & Kit Tan, sp. nov.**

Holotype: Turkey, C3 Isparta, Sütçüler, Eğirdir - Sütçüler, 16 km N of Çandır, 1 km SE of Sığırlık Köyü, W-facing limestone cliff, 860 m, 21.5.2003, *Ulrich 3/4* (herb. Parolly; isotypes: B, herb. Kit Tan).

Species insignis a speciebus Orientis notis bene distincta combinatione habitus chasmophytici cum caudice perenni lignoso, inflorescentiis candelabriformis, floribus tetrandris, 9-10 mm diam., 1-4(-5)-fasciculatis, bracteolis 0 vel raro 1 et foliis sinuato-crenatis persistentibus.

Greyish green, softly eglandular-tomentose or velutinous, chasmophytic perennial herb. Root-stock woody, branched with age, 2-3 cm in diam. at apex, with scars and remains of basal leaves. *Stems* 1-4, normally branched from base, rarely branched from 3-8 cm on. *Basal leaves* in a lax rosette, persistent, not reflexed at anthesis but often deflexed and adpressed to the rocky substrate in fruit, oblong, elliptic-obovate to obovate-spathulate, (4-)7-17 × 2-7 cm, narrowing to a petiole shorter than or more than half the length of the lamina, shallowly to coarsely sinuate-crenate, greyish green-pannose on both surfaces; hairs dense, dendritic or stellately branched. *Inflorescence* a terminal, candelabra-like panicle 30-35 cm long; lateral panicle branches to 20 cm. *Pedicels* 2-4 mm. *Flowers* hermaphrodite, 9-10 mm across, slightly zygomorphic, in bracteate racemes. *Bracts* triangular to lanceolate, 5-10 × 2-5 mm, each bract subtending a cluster of 1-4(-5) flowers. *Bracteoles* absent or rarely 1, barely ½ as long as bracts and soon deciduous. *Calyx* divided almost to base, equally 5-lobed; lobes lanceolate, c. 3 × 1 mm, obtuse, green or tipped brown at anthesis, stellately tomentose-velutinous, ciliolate. *Corolla* rotate, 5-lobed; tube short, 1.5-2 mm, yellow, throat with purple markings; lobes obtuse, slightly unequal, c. 5 × 4 mm (one lobe shorter, c. 4 mm), yellow, stellate-tomentose. Fertile *stamens* 4, isandric, rarely with a fifth staminodal; filaments free, 3.5-4 mm, with dense, yellowish white wool turning brownish; anthers introrse, reniform, c. 1 mm, orange yellow. *Ovary* 2-locular; style terminal, filiform, long-exserted, 7-10 mm, pilose at base; stigma hemispherical-clavate. *Capsule* ovoid-globose, 4-5 × c. 3 mm, pubescent-velutinous, glabrescent, shining, olive brown, dehiscent by longitudinal slits. *Seeds* numerous, subtrigonal, c. 0.4 mm, greyish, uniformly sculptured.

Ic. – Fig. 1-2; for further photographs, in colour, see the electronic supplement to this paper at www.bgbm.org/willdenowia/willd37/parolly+tan.htm

Paratypes. – TURKEY, C3 ISPARTA: Sütçüler, Eğirdir - Sütçüler, 16 km north of Çandır, 1 km SE Sığırlık Köyü, NW-facing limestone cliff, 860 m, 25.4.2004, *Ulrich 4/7* (in fruit, herb. Parolly); *ibid.*, 7.10.2003, *Ulrich 3/4a* (fruiting branch & photograph, herb. Parolly); *ibid.*, 13.6.2004, *Ulrich 4/8* (herb. Parolly); *ibid.*, 940 m, NE-facing limestone cliff, 13.6.2004, *Ulrich 4/9a & b* (leaves & corollas, herb. Parolly); *ibid.*, 860 m, 24.5.2007, *Ulrich* (photographs & flowers).

Eponymy. – The name commemorates Sieglinde (Linda) Parolly (26.9.1941-19.10.2006), mother of the first author.

Distribution, site ecology and IUCN threat category. – The road between Karacaören Barajı and Kovada Gölü, on route to Eğirdir, follows for the greater part the ancient Lydian road of the Kings. It winds through a landscape of numerous canyons, isolated cliffs and rock ledges. 16 km north of Çandır, on level with Sığırlık Köyü, which lies c. 1 km to the northwest, it climbs from c. 600 to 850 m along a wooded, rocky saddle. Here, a tall almost barren cliff rises high over an extensive *Pinus brutia* forest and slopes towards the reservoir (Fig. 2B). *Verbascum lindae* is the dominant vascular plant on this limestone rock (Fig. 2A, its existence concentrated mainly on the almost sheer, vertical northwest face, which lies in shade for part of the day. *Ampelopsis orientale* (Lam.) Planchon, *Symphytum brachycalyx* Boiss., *Alkanna areolata* Boiss. and *Hypericum aviculariifolium* subsp. *depilatum* (Frey & Bornm.) Robson are the few plants recorded from the crevices of this limestone rock, growing together with our *Verbascum*. *Johrenia dichotoma* DC. was abundant at the base. At a satellite locality, *Atraphaxis billardieri* Jaub. & Spach is associated with *V. lindae*.



Fig. 2. *Verbascum lindae* in its natural habitat, Sütçüler, 16 km N of Çandır (Isparta, Turkey) – A, B: habit, flowering; C: sterile rosette. – Photographs by Robert Ulrich, 13.6.2004.

Verbascum lindae is a true chasmophyte, rooting in crevices of rock faces and rock ledges. It was only found on three rocks in the saddle north of Çandır. Most flowering individuals occurred on the rock now described, while at the second locality 2-3 km distant, only a few rosettes were observed. Ulrich had counted c. 70 clumps of the *Verbascum* on the steep rocks over three years but due to restricted and difficult access could not determine if each clump represented an individual plant. The species is isolated and well-protected by the cliffs. Fruit set was copious. However, we may need to place *V. lindae* in the IUCN category “Critically Endangered (CR)”, because the estimated distribution range of the species is less than 10 km² (criterion B2) and the population size of the species is estimated to be less than 50 mature individuals (criterion D; IUCN 2001).

A restricted occurrence is apparently typical of chasmophytic species of *Verbascum* in Turkey and many are extremely localised, e.g., *V. pumiliforme* Hub.-Mor., which occurs in the area south of *V. lindae* and only between the saddle and Çandır (Davis & al. 1988; Ulrich, pers. comm. 2004).

Verbascum lindae flowers from (April) May to early June and fruits till July.

Affinities. – The unique combination of characters make *Verbascum lindae* an easy-to-identify plant with obscure relationships. Its placement in Huber-Morath’s artificial groups provides problems. Tetrandric flowers with an additional stamen or antherless staminode can be found together with “normal” flowers bearing four fertile stamens within the same inflorescence (see Murbeck 1933). Such a situation is seldom documented for Turkish taxa, especially in species of “group A” (Huber-Morath 1978). It is more commonly met with in Greece (Tan & Iatrou 2001). However, the inflorescence of many of these “group A” Anatolian taxa is racemose. The few taxa that have more than one flower per bract axil, viz., *V. gaillardotii* Boiss., *V. freynii* (Sint.) Murb. and *V. transcaucasicum* Wulf have little affinity with *V. lindae* based on their biennial habit, inflorescence and floral characters (0 or 2 bracteoles, violet-purple filament wool).

If one considers groups with five fertile stamens, *V. lindae* would then key out in “Flora of Turkey” (Huber-Morath 1978: 461-602) as in “group F” and in Huber-Morath’s “Die türkischen Verbasceen” (1971) within “group E” (largely corresponding to *V.* subsect. *Fasciculata* ser. *Isandra* subser. *Ebracteolata* Murb.). However, this group comprises mainly species with a biennial habit. The few perennial taxa in this group, such as *V. alyssifolium* Boiss., *V. calycosum* Murb. and *V. pumilum* Boiss. & Heldr., clearly differ in their much smaller or narrower leaves, and their non-woody, non-chasmophytic habit.

Perennial limestone chasmophytes are rare in the genus and random in distribution without clear-cut taxonomic grouping. Many are not related to *Verbascum lindae*, viz., the rock plants of the *Celsia* type (group A p. max. p.) such as *V. luciliae* (Boiss.) Kuntze, *V. rupicola* (Hayek & Siehe) Hub.-Mor., *V. sorgerae* (Hub.-Mor.) Hub.-Mor. and *V. spodiotrichum* (Hub.-Mor.) Hub.-Mor., all of which have long-pedicellate flowers solitary in bract axil and a glandular indumentum. The plants of the “more natural” *V. pestalozzae* group (*V. dumulosum* P. H. Davis & Hub.-Mor., *V. pestalozzae* Boiss., *V. pumiliforme* Hub.-Mor.) in group C (partly subsect. *Singuliflora* ser. *Cladotricha* subsect. *Ebracteolata* Murb.) are typical compact suffrutescent chasmophytes (especially *V. pumiliforme*), but they are dwarf in stature with few-flowered, unbranched or weakly branched inflorescences. The SW Anatolian-E Mediterranean *V. propontideum* Murb. (group I) bears some similarities with its woody habit, leaf shape and indumentum, but is readily distinguished on account of its much larger (20-25 mm in diam.), nearly sessile, pellucid-glandular flowers borne in clusters of 4-7. The more E Mediterranean *V. antiochium* Boiss. (group J) has no woody stock but a harsh glandular indumentum in the upper plant parts, pellucid-glandular flowers 2-3 times larger and violet-purple filament wool.

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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, Botanical Institute, University of Copenhagen, Øster Farimagsgade 2D, DK-1353 Copenhagen K, Denmark; e-mail: kitt@bot.ku.dk.