

**CEPHALANTHERA KOTSCHYANA:
A NEW ORCHID FROM TURKEY**

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ABSTRACT. A new species of Orchidaceae, *Cephalanthera kotschyana*, endemic to C Anatolia, is described and compared with allied species. A key to spurless cephalantheras of the eastern Mediterranean is provided.

The SW Asian species of *Cephalanthera* can be arranged in two groups, which are characterized by having a lip with or without a spur. The spurred group is represented by only two species in the region, namely the white-flowered *C. epipactoides* Fisch. & C. A. Mey. and the rose-flowered *C. kurdica* Bornm. & Kränzl. The second group, with spurless lips, comprises to date three widespread species, *C. rubra* (L.) L. C. Rich., *C. longifolia* (L.) Fritsch and *C. damasonium* (Miller) Druce, and the endemic *C. caucasica* Kränzl., occurring only in the moist Caspian forest of eastern Transcaucasia and northern Iran.

C. kotschyana, which we describe here, belongs to the group having no spur. Its nearest relatives are the European-Mediterranean *C. damasonium* and the Caspian *C. caucasica*, between which it is morphologically intermediate. Several distinct morphological characters, as well as a geographically and ecologically well-defined habitat, are typical of the new species, although there is sometimes a tendency for its appearance to approach *C. damasonium*, partly because of variations in local conditions of environment, but evidently also due to hybridization with the latter species, which sometimes occurs in the same area.

***Cephalanthera kotschyana* Renz & Taubenheim, sp. nov. Fig. 1.**

Syn.: *C. pallens* auct. non L. C. Rich.

Planta vulgo valida, 30-60 cm alta. *Rhizoma* abbreviatum, radicibus numerosis munitum. *Caulis* strictus, glaber, inferne vaginis 2-3 remotis, amplexicaulibus, brunnescentibus vestitus, superne, 3-4(-6)-foliatus. *Folia* patentia, oblonga vel oblongo-lanceolata, acuta, 6-10 × 2-3(-5) cm, interdum plicata et extrinsecus curvata, papyracea, nervosa. *Inflorescentia* dense multiflora, floribus vulgo valde congestis, 8-15(-20) cm longa, usque ad 7 cm lata; rachis ± subperula. *Bractee* glabrae, infima vulgo elongata, foliacea, lanceolata, usque ad 7 cm longa, supra celeriter decrescentes, supremae lineares, 1-3 cm longae. *Flores* magni, erecto-patentes vel patentes, perianthii phyllis tantum paulo conniventibus, pallide eburneis vel albidis, textura fragilibus, glabris. *Sepala* anguste oblonga, acuta, basin versus attenuata, 20-25(-30) × 6-7(-9) mm, lateralia leviter obliqua. *Petala* elliptica, obtusa, ± 20 × ± 8 mm. *Labellum* erectum, ± 16 mm longum; hypochilium basi cyathiforme, explanatum inter apices loborum 15 mm

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latum, lobis oblique triangulis, acutis, gynostemium amplexantibus, ± 5 mm longis; epichilium hypochilio anguste adnatum, late cordiforme, $\pm 8-10 \times \pm 14$ mm, margine leviter undulatum, superne carinis subcristatis 3, ochraceis, longitudinaliter e basi usque supra medium decurrentibus, ornatum, medium versus aureo-coloratum, antice minutissime papilloso-puberulum. *Gynostemium* generis, 10 mm longum. *Ovarium* 8-12 mm longum, sessile, glabrum, leviter tortum, post anthesin elongatum. *Fl.* Mai-Jul.

Type. Turkey. C5 Adana: mt Kassan Oglu, ad pagum Gorumse (Gürümze), in umbrosis, 1200 m, 23 v 1859, *Kotschy* 139 (holo. G, iso. K).

A6 Ordu: Akkus, S of Ünye, Fagus forest on calcareous soil, 1400 m, *Renz & Taubenheim* 12166 (private herb. Renz). B7 Tunceli: c. 3 km N of Pülümür pass, Quercus/Acer forest, 1600 m, *H. Baumann* 5550 (private herb. Baum.); c. 15 km S of Tunceli towards Elazığ, Quercus scrub, 900 m, *Taubenheim* 78.276 (E). C5 İçel: Güllek, deciduous forest, *Siehe* 274 (E). C6 Maraş: Zeytin Da., Carpinus wood on steep limestone slopes, 1200 m, *Balls* 1073 (E).

C. kotschyana was, as far as we could ascertain, first collected by Theodor Kotschy in the Taurus mountains (Prov. Adana) as early as 1859 (Kotschy, Th., *Reise nach Cypern und Kleinasien* 1859, II Abt. *Petermann's Geogr. Mitt.* 8:289, 1862). The specimen is cited by Boissier (*Fl. Orient.* 5:85, 1884) under *C. pallens* Rich. We have selected this typical and well preserved plant in the Herb. Boissier in Geneva as the holotype and name it in honour of the discoverer.

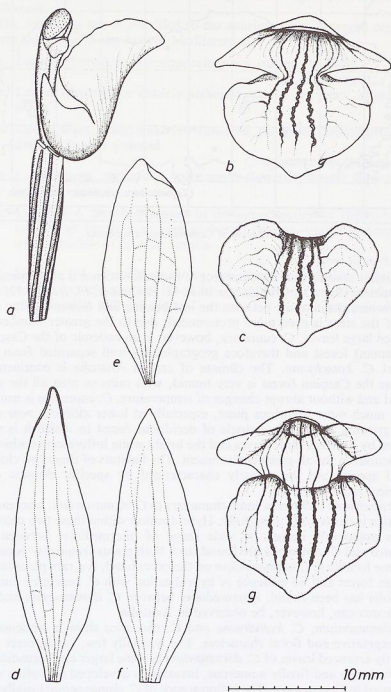
C. kotschyana has been found several times since Kotschy's explorations in Turkey. Recently H. Baumann* collected the plant in central Anatolia and expressed the opinion that it is strikingly distinct from the other oriental species of *Cephalanthera*.

The area of distribution of *C. kotschyana* is mainly the southern side of central Anatolia (fig. 2), where a cold snowy winter alternates with a dry hot summer. In addition a somewhat isolated locality has been recorded from the forest region in Prov. Ordu, about 50-60 km from the Black Sea, south of the mountain ridge. It is to be expected that the gap between these two presently known areas will be filled as more information becomes available. To date *C. kotschyana* can be considered as a central Anatolian endemic.

The plant grows in shady places on humus-rich calcareous soil, mainly at altitudes above 1000 m. On the northern border of Central Anatolia it can be found in rather open beech forest with little undergrowth, or at the clearer edges of forest on south-facing slopes. In central and southern Anatolia, the favoured localities are oak-scrub formations. The flowering time extends from the beginning of May until July, according to the elevation and exposure of the locality and the local seasonal conditions.

C. kotschyana occupies similar localities to *C. damasonium*, a widespread, but scattered plant throughout Turkey. It differs from the latter species in the dense, congested, broad spike and the larger, often folded and outcurved leaves. The flowers are also open, in contrast to those of *C. damasonium*, and together with the showy spike give the plant a characteristic, easily recognisable appearance. There are also some distinct differences in the structure of the lip of the two species.

* Private communication from Dr H. Baumann, D-7030 Böblingen.



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FIG. 1. a-f *Cephalanthera kotschyana*: a, ovary, column and labellum; b, epichile and hypochile; c, epichile; d, lateral sepal; e, petal; f, median sepal. g, *C. caucasica*, labellum.

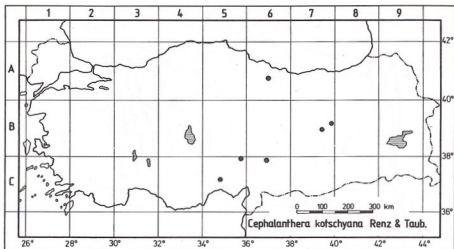


FIG. 2. Distribution of *Cephalanthera kotschyana*.

A similar conspicuous development of the inflorescence is also typical of *C. caucasica* (Renz J., Orchidaceae in K. H. Rechinger, *Fl. Iranica* 126:29, 1978), where the contrast between the leaf-bearing and flower-bearing section of the stem is even more pronounced, due to the greater number of crowded large leaves. *C. caucasica*, however, is an endemic of the Caspian (Hyrcanian) forest and therefore geographically well separated from the area of *C. kotschyana*. The climate of central Anatolia is continental, whereas the Caspian forest is very humid, with rains or mist all the year around and without abrupt changes of temperature. *C. caucasica* is usually also a much more luxurious plant, especially at lower altitudes near sea-level, growing in the dense shade of deciduous forest to which it is well adapted by its many large leaves and the bright white inflorescence which is conspicuous in the all-green environment. The habitats of these two closely related species are thus clearly characterized by specific climatic and ecological requirements.

C. kotschyana inclines in some characters to *C. damasonium*, whereas *C. caucasica* is closer to *C. longifolia*. Hybridization within these two pairs of species apparently occurs. A wide range of intermediates between *C. caucasica* and *C. longifolia* are found since both plants frequently occur in the same localities; *C. damasonium* on the other hand, is a rare plant in the Caspian forest and no evidence of hybridization with *C. caucasica* and *C. longifolia* has been found. Intermediates between *C. damasonium* and *C. kotschyana* can, however, be observed in Anatolia.

C. damasonium, *C. kotschyana* and *C. caucasica* show a sequence in their vegetative and floral characters. The normally few, small, erect and distantly arranged leaves of *C. damasonium* become larger and spreading in *C. kotschyana* and finally numerous, luxuriantly developed and often very condensed in *C. caucasica*. The inflorescence of *C. damasonium* usually has few, remote, nearly closed flowers. *C. kotschyana* has a dense and many-flowered inflorescence, with flowers opening wider, just as in *C. caucasica*. The latter has, moreover, bracts rapidly diminishing upwards to insignifi-

cant leaflets, and sometimes white almost translucent ovaries, giving the most typical form of inflorescence the aspect of a fragile, pure white bunch of flowers.

The following key is provided to the spurless white-flowered cephalantheras occurring in the eastern Mediterranean:

- 1a. Leaves alternate in two $\pm$ opposite rows, narrow, tapering
C. longifolia (L.) Fritsch
- 1b. Leaves distantly or densely arranged around the stem, broad, acute 2
- 2a. Leaves short, erect; spike few-flowered, the lower flowers often distant; flowers $\pm$ closed
C. damasonium (Miller) Druce
- 2b. Leaves large, spreading; spike many-flowered, dense; flowers opening wider 3
- 3a. Leaves 3-4, mostly arranged in the upper section of the stem; uppermost bracts $\pm$ as long as ovary; flowers usually creamy-white; epichile of lip with 3 crests
C. kotschyana Renz & Taub.
- 3b. Leaves 7-9, densely covering the stem; uppermost bracts minute, much shorter than the ovary; flowers pure white; epichile of lip with 3-5 crests
C. caucasica Kränzl.