

A new species of *Caralluma* (Apocynaceae–Asclepiadoideae–Ceropegieae) from the Yemen

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Abstract

In this paper a new species, *Caralluma faucicola* Bruyns, closely related to *C. hexagona* Lavranos, is described from near the border between the former North and South Yemen in Arabia.

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1. Introduction

The family Apocynaceae was recently expanded to include both the families Asclepiadaceae and Periplocaceae (Endress and Bruyns, 2000; APG, 2006). In this new concept, most of the former Asclepiadaceae was placed in the subfamily Asclepiadoideae. The Asclepiadoideae is made up of four tribes, among which is the Ceropegieae. There are roughly 700 species in the Ceropegieae and this number is made up of about 330 species of stapeliads, about 160 species of *Ceropegia* L. and about 100 species of *Brachystelma* Sims, with a few smaller genera. The present new species belongs to the stapeliads, a monophyletic group of highly succulent plants that are found in dry areas of the Old World from southern Africa to Myanmar. The 330 stapeliads have been placed in 31 genera (Bruyns, 2005), of which the three with the most species are *Caralluma* R.Br., with approximately 57 species (Gilbert, 1990), *Orbea* Haw., with 56 species (Bruyns, 2005) and *Huernia* R.Br., with 51 species (Bruyns, 2008). The genera *Huernia* (Leach, 1988, Bruyns, 2005) and *Orbea* (Bruyns, 2002) have been critically revised. *Caralluma* has received some attention. Gilbert (1990) published a review of *Caralluma*, in which all the species that he believed should be recognised were listed and grouped into sections, with synonyms suggested. Plowes (1995) also considered *Caralluma* and split it into 17 genera, six of which

were monotypic. It was claimed that most of these were ‘easily identifiable natural groups’ but no evidence was put forward to support this. The fact that names that are obvious synonyms of *Caralluma edulis* were placed in separate genera makes this arrangement of dubious value and it has not been adopted in any recently published, regional accounts (Gilbert, 2003; Lavranos, 2006). Meve and Liede (2002) also considered *Caralluma*, within the setting of a general molecular survey of the stapeliads. In their analyses they included 19 species of *Caralluma*, in the sense of Gilbert (1990). Although the resolution that they obtained was poor, they concluded that the 57 species of *Caralluma* of Gilbert (1990) should be placed in seven distinct genera.

Caralluma therefore still requires critical revision. For now, the present new species is placed in *Caralluma*.

2. Species treatment

Caralluma faucicola Bruyns, sp. nov., a *C. hexagona* Lavranos caulibus prostratis, corona exteriori cristatis et non in lobulis bifidis divergentibus extensis, spatio parvo inter lobis interioribus includentibus differt. Type: Yemen (N), Taiz distr., near At Turbah, ±1800 m, 10 Oct. 2005, Bruyns 10263 (E, holo.; BOL, M, iso.).

Sprawling to pendulous, many-stemmed succulent to 300 mm diam. or more. Stems ascending to prostrate, 30–300 × 8–20 mm, brownish green, smooth; tubercles 2–3 mm

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long, rectangular, fused into 4 prominent rows along stem, mostly tipped by fleshy ovate-deltoid caducous leaf-rudiment ± 0.5 mm long. *Inflorescences* sessile, 1–3 per stem, dense, often apical, with 5–25 flowers opening in rapid succession; *pedicel* 2–4 \times 1 mm, ascending to spreading; *sepals* 1.5–2 \times 1 mm (at base), lanceolate, acute. *Corolla* rotate, 10–12 mm diam.; outside green mottled with slightly raised purple patches; inside towards centre pale yellow with round raised papillate purple-brown spots often fused into short transverse ridges, becoming wholly purple-brown towards tips of lobes; *tube* ± 1 mm long, broadly V-shaped, filled by gynostegium which projects slightly from it; *lobes* spreading, 3 \times 3 mm (at base), ovate-deltoid, acute, margins sometimes slightly recurved, with cluster of purple cilia at tips. *Corona* 2 \times 3 mm, purple-brown, glabrous, sessile; *outer lobes* entire, filling up gaps between inner lobes, ascending with slightly spreading edges, ± 1 mm long; *inner lobes* 0.5 mm long, adpressed to backs of anthers, much shorter than them, narrowly deltoid, obtuse. *Follicles* and *seed* unknown.

3. Distribution and habitat

Caralluma faucicola is found at an altitude of around 1800 m on steep rock-faces on the lower parts of massive cliffs near the small town of At Turbah, south of Taiz. Here plants of *C. faucicola* are very common, forming dense mats cascading down the rocks or filling up crevices. *C. faucicola* is, at present, only known from this locality. Other succulents found there were *Aeonium leucoblepharum* Webb ex A.Rich., *Ceropegia arabica* H. Huber, *Euphorbia schimperi* Presl, *Huernia hadramautica* Lavranos and *Opuntia* sp. and there was also a sparse cover of non-succulent herbs.

The steep habitat of *C. faucicola* is fairly unusual for a stapeliad on the Arabian Peninsula. In the Yemen, the smaller stapeliads are mostly found on rocky slopes in crevices among the stones or in gravelly plains in the protection of bushes or low trees. *Echidnopsis squamulata* (Decne.) P.R.O.Bally is occasionally found in crevices in rock-faces (Bruyns, 1988) and *Caralluma solenophora* Lavranos is not uncommon

below and on some of the firmer cliffs at between 600 and 900 m of the volcanic slopes of Jabal al 'Areys, east of Aden. *C. faucicola* is the only species known exclusively from such steep habitats.

4. Diagnostic features and relationships

Caralluma faucicola is superficially similar to *C. hexagona* Lavranos but differs from it in several respects. In *C. faucicola*, the stems are prostrate, with a strongly repent growth which is unknown in *C. hexagona*, where the apices of the stems are always erect. Young stems have smaller leaf-rudiments than those of *C. hexagona* and these are deltoid rather than ovate, as they are in *C. hexagona*. In addition, the stems lack the much swollen and often grooved area of the tubercle above the leaves that is typical of *C. hexagona*.

In *C. faucicola* the flowers (Fig. 1) are small and of a size that is occasionally found in *C. hexagona* (especially as it occurs in the south-eastern parts of the Yemen) but is much more typical of *C. penicillata*. In *C. faucicola* the inside of the corolla is covered with dark spots which become more dense towards the tips of the lobes, where the colour is usually wholly purple-brown. These dark spots are raised from the surface into low ridges. This arrangement is very similar to the colour-scheme of *C. penicillata*, while in *C. hexagona* the darker spots are mostly not raised out of the surface.

The margin of each outer corona lobe (terminology as in Bruyns, 2005; Fig. 23) of *C. faucicola* is an entire ridge enclosing a comparatively small area between adjacent inner lobes (Fig. 1E). This ridge does not rise at all above the level of the inner lobes. In *C. hexagona* the outer lobes also enclose the area between adjacent inner lobes (for details of these structures in *C. hexagona*, see Bruyns 1987; Figs. 4 and 5). However, in *C. hexagona* the rear of each inner lobe is considerably expanded horizontally so that a broad bay is enclosed between adjacent inner lobes by the outer corona. Furthermore, in *C. hexagona* the outer lobes are bifid above into flattened lobules that are channeled towards their bases and spread perpendicular to the radius of the flower. This is different from the arrangement in *C. faucicola* and also from

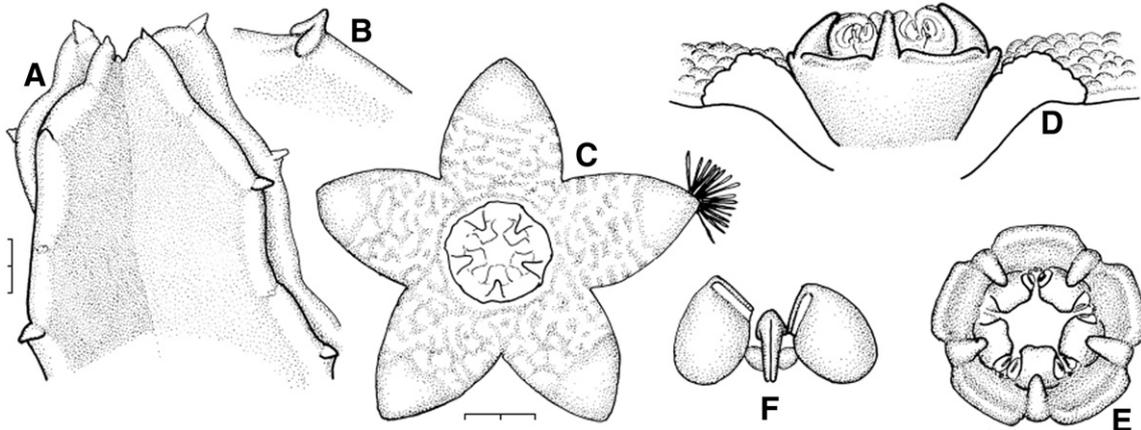


Fig. 1.

that in *C. penicillata*. In *C. penicillata* the gynostegium and outer corona are much longer than in *C. faucicola* (with the gynostegium enclosed in a much longer corolla tube) and the outer lobes are deeply divided into two lobules whose sides remain pressed to each other laterally for their whole length (for details of these structures in *C. penicillata*, see Bruyns and Jonkers 1993; Fig. 9).

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