

Ceropegia crinita **(Apocynaceae), a new species** **of *Ceropegia* sect.** ***Chamaesiphon*** **from South Africa**

Ralph Peckover

The previously well-known genus *Brachystelma* has now been sunk into *Ceropegia*. A new species is described here. Photos by the author.

Introduction

In the book *Ceropegia, Brachystelma and Riocreuxia* in Southern Africa by R A Dyer (1983), there is a colour photo on the frontispiece labelled *Brachystelma barberae* (now *Ceropegia barberae*). This plant was photographed in Queen Elizabeth Park, Pietermaritzburg, KwaZulu-Natal, South Africa. The photograph depicts a plant which has very hairy flowers compared with those of the typical *C. barberae* seen in other parts of South Africa and Zimbabwe. Fieldwork and a comparative morphological study of this hairy-flowered entity in cultivation revealed several other differences from *C. barberae* and it is here described as a new species, namely *C. crinita*. Illustrations as well as a comparative table with features to distinguish between the two species are provided. (Figs. 1–8; Table 1).



Fig. 1 A flowering plant of *C. crinita*

The genus *Brachystelma*, with around 116 recognised species, was sunk under several sections of *Ceropegia* by Bruyns *et al.* (2017). *Brachystelma barberae*, to which *C. crinita* is morphologically most similar, was transferred to *Ceropegia* sect. *Chamaesiphon*, the section in which we provisionally place *C. crinita*. Members of sect. *Chamaesiphon* are confined mostly to southern Africa (around two thirds of the species) with the rest ranging into Africa but also to India and a single species in Australia. All the species now under sect. *Chamaesiphon* have a swollen underground caudex. The stems are deciduous and die back to the swollen underground caudex at the end of the growing season.

Members of *Ceropegia* sect. *Chamaesiphon* are characterised by leaves that are opposite, linear to elongated, with wavy, sinuate to entire straight margins. These are bright green to greyish and glabrous to very hairy. The flowers are borne in the axils of the leaves or



Fig. 2 *C. barberae* in full flower in a 15cm pot, 160 large hairless flowers

terminal in panicles. Each flower has five corolla lobes which can be united at their tips or free. The corona contains the pollinia as well in the gynostegium. The paired follicles develop after fertilisation and may be upright, decumbent slender or very swollen. When mature these fruits split longitudinally to release the tufted seeds, which are dispersed by the wind. There may be from a few seeds to many in each follicle. The caudices (tubers) of some species of this group have, according to the literature, formerly been used as food by humans, especially by the Bushmen (Dyer, 1983).

Ceropegia crinita is known only from grassland between Durban and Pietermaritzburg in the more subtropical near-coastal part of KwaZulu-Natal, South Africa. A few plants derived from near Hillcrest were obtained from a dealer and I then grew these in our nursery back in Pretoria. These plants looked to me from their growth habit to be a miniature form of *C. barberae*, but when they flowered and I looked at the flowers in more detail, it became clear that there were definite differences in their morphology from *C. barberae*.

Taxonomic treatment

***Ceropegia crinita* Peckover sp. nov.**

Ceropegia crinita resembles *C. barberae* in having a similar underground caudex, but is easily distinguished from that species by, amongst others, the flowers being smaller, corolla bulb with inward-facing hairs, corolla lobes shorter with inward facing long hairs on the ventral surface, plants smaller and precocious in development with floral primordia during first year from seed, and several other floral features (Table 1).

TYPE: South Africa, KwaZulu-Natal, Kloof, Krantzklouf Nature Reserve 2930 (DD), September 2019, Peckover 308 (PRU!, holo.).

Description

Perennial herb up to 50mm high, usually single-stemmed, the basal organ a below-ground caudex (tuber), up to 80mm diameter and 20mm thick, with numerous fusiform roots from the bottom surface. Leaves with blade up to 70mm long, 25mm wide, oblong, and hairy on upper and lower surface. Flowers 10mm diameter, inside purple and outside green; on inside, fine purplish rings on a yellowish green background; corolla lobes linear, 15–20×1mm, purplish and forming a cage with inward-facing hairs; corolla bulb urn shaped, 4×5mm; corona 3mm diameter, greenish red with orange pollinia.



Fig. 3 *C. crinita* with fat small seed follicle and the predominantly oblong leaves



Fig. 4 The section of the outer corona lobes of *C. crinita* showing the upward-pointed lobes

Seed follicles cylindrical, 50×15mm, greenish to reddish, upright. Seeds up to 14 per follicle.

Ceropegia crinita (Fig. 1) appears to be most closely related to *C. barberae* (Fig. 2). Both species have a swollen below-ground caudex and fusiform roots. However, the two species differ in several floral and vegetative features (Figs. 3–6 & Table 1). The flowers of *C. crinita* are in a smaller umbel and its corolla lobes are shorter than those of *C. barberae*. The main qualitative difference is with the corona where the outer lobes of the nectar pouch have distinctive upward-facing lobes which are absent in *C. barberae*. (Figs. 4 & 5). Diagnostic features to distinguish between *C. crinita* and *C. barberae* are provided in Table 1.

Ceropegia crinita is a relatively small, range-restricted species, as far as is known confined to KwaZulu-Natal. Compared to *C. barberae*, it has a smaller caudex, around 70–80 mm in diameter, more oblong leaf blades and small flowers which are very hairy on the inner surfaces. This plant is found from just inland from Durban up

Table 1	<i>Ceropegia crinita</i>	<i>Ceropegia barberae</i>
Distribution	KwaZulu–Natal, South Africa, from Durban inland to Pietermaritzburg	Eastern Cape (may be <i>C. crinita</i> as well), Free State, Gauteng, North West, Limpopo and also into Botswana and Zimbabwe
Caudex (form)	Disc-shaped with centre sunken, up to 80×20mm, fusiform roots below	Disc-shaped with centre sunken, up to 200×30mm, fusiform roots below
Stem	Mostly single, upright, up to 30mm tall, covered with coarse hairs	Mostly single but also multiple, up to 75mm tall, covered with coarse hairs
Leaves	Blade up to 70×25mm; elliptic, margin undulating on horizontal plane, hairy on upper and lower surfaces	Blade up to 150×30mm; acute-shaped, undulating to wavy, hairy on upper and lower surface
Inflorescence and pedicels	Up to 50 flowers borne in umbels in the leaf axils; pedicels up to 25mm long	Up to 180 flowers borne in several umbels in the leaf axils; pedicels up to 40mm long
Corolla bulb	6mm in diameter, urn-shaped with corona inside, with horizontal purple lines, almost obscured by long inward-facing epidermal hairs	12mm in diameter, urn-shaped with corona inside, with horizontal purple lines, absent or few short inward-facing epidermal hairs
Corona	Greenish red, 3mm in diameter, with upward pointed lobes on outer nectar lobes. Outer nectar pouch walls half open to the base of the nectar pouch. Inner lobes pressed on the staminal column, greenish	Reddish brown, 5mm in diameter, with level lobes often crossing over each other. Outer lobe nectar pouch walls half open to the base of the nectar pouch. Inner lobes pressed on the staminal column, brownish
Corolla lobes	Linear, joined at tips, 15–20mm long, 1mm wide and forming a cage, covered with purple hairs on the inner surface	Linear, joined at tips, 40–50mm long, 1mm wide and forming a cage, glabrous on the inner surface
Seed follicles	Upright, greenish to reddish, 50×15mm at maturity. Seeds brown with a paler margin, up to 14 seeds per follicle, seed 13×4mm	Upright, green and flecked with reddish markings, 100×15mm at maturity. Seeds brown with a paler margin, up to 30 seeds per follicle, seed 15×4mm
Seedling till first flowering	2 years onwards	4–5 years
Flowering time	July to September	September to November

Table 1 Differences between *C. crinita* and *C. barberae*



Fig. 5 Outer broad corona lobes of nectar pouch touching and flattened of *C. barberae*



Fig. 6 *C. crinita* very hairy corolla bulb almost obscuring the corona

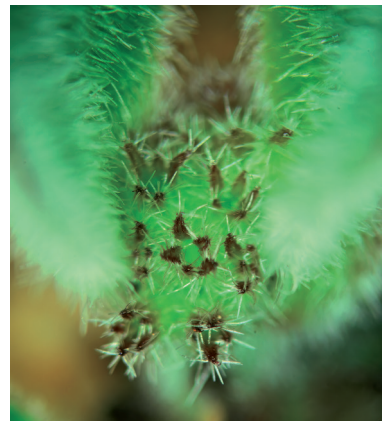


Fig. 7 The flower primordia on one-year-old *C. crinita* seedling

to Pietermaritzburg where the average annual rainfall is around 1,000mm plus, whilst in other areas this can be from 500–800mm. A study of the photos with localities of flowering specimens of *C. crinita* available online under *C. barberae* in South Africa at iNaturalist (<https://www.inaturalist.org/> accessed October 2022), indicated that all these records were from outer west Durban, Eston and Inchanga areas which are inland from Durban in KwaZulu-Natal. All other photos of *C. barberae* from elsewhere in South Africa on iNaturalist had the large, non-hairy flowers in large inflorescences characteristic of typical *C. barberae*.

Another difference between the areas where the new species and *C. barberae* occur is that in the range of *C. crinita* there are more subtropical conditions with relatively little frost compared to most of the range of *C. barberae*. This leads to the spring being mild and the *C. crinita* plants start to flower in mid-July, even when under cultivation in Pretoria, Gauteng. In comparison *C. barberae* occurring naturally in Gauteng flowers around October to November.

Seedlings of *C. crinita* are notably precocious and even after only one year from seed develop flower primordia and will flower properly after the second year. Clusters of flower primordia are depicted in Fig. 7.



Fig. 8 Left: *C. barberae* seed pod and seed. Right: the smaller *C. crinita* seed pod with smaller seed and tuft

Flowers of different plants of *C. crinita* were pollinated under a microscope and resultant seed sown. Seedlings grew well and within one year from sowing, seedlings already showed flower primordia (Fig. 7). The plants were too small for full floral development, but in the second year these flowered with the characteristic hairy corolla bulb and lobes and even after pollination under the microscope produced sets of seed follicles (Fig. 3).

Conservation status

Considering the narrow known distribution range and because the areas where the new species grow is under considerable threat from collection for traditional medicine and plant collectors, urban residential expansion, agriculture,

forestry and industry, there can only be less and less habitat for this species to survive. There should thus be an Endangered status allocated to this species as its habitat and environment are threatened.

ACKNOWLEDGEMENT:

A word of thanks is extended to Prof A E van Wyk for prior editing of this document as well as enhancement of the photos.

LITERATURE:

- Bruyns, P V, Klak, C & Hanacek, P (2017) A revised, phylogenetically-based concept of *Ceropegia* (Apocynaceae). *South African Journal of Botany* 112: 399–436.
 Dyer, R A (1983) *Ceropegia*, *Brachystelma* and *Riocreuxia* in Southern Africa. A.A. Balkema, Rotterdam.

Email: brachy@vodamail.co.za