

A new species of *Ceropegia* (Apocynaceae) from Tanzania

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A new species of *Ceropegia* from Tanzania is described. Photography as indicated.

Introduction

Ceropegia is a genus of around 200 currently recognised species. The group is confined mostly to Africa with others into Madagascar and east to Asia in India and Thailand and even in the Canary Islands. All the species have a swollen underground caudex or fusiform to filiform roots. The stems are permanent or deciduous at the end of the growing season.

Members of *Ceropegia* are characterised by leaves that are opposite, linear to elongated, almost absent in some species with wavy, sinuate to entire straight margins. These are bright green to greyish and glabrous to very hairy. They may be non-succulent to succulent and may be very reduced in size. The stems may be short or very long, thin or succulent. The flowers are borne in the axils of the leaves or terminal in panicles. Each flower has five corolla lobes which can be united at their tips or free. The corolla tube may be thin to broad in diameter. The corona contains the pollinia in the gynostegium. Pollination is by various species of flies, some being extremely small as depicted in Fig. 7 where the small fly is only around 0.5mm in size. The downward-facing hairs at the entrance prevent the flies leaving the flower before pollination occurs.

Fig. 1 (below) The type locality of *C. tanzaniensis* with exotic surrounding vegetation (Photo: Petr Pavelka)



Fig. 2 (above) The twining creeper of *C. tanzaniensis* in habitat (Photo: Petr Pavelka)

The paired follicles develop after fertilisation and may be upright, decumbent, thin or fattish with a smooth or warty surface. 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 corms of some species of *Ceropegia* have, according to the literature, been used as a food plant and especially the Bushmen community utilise

these as a food source. The town of Serowe in Botswana is named after the local name of *Ceropegia* (serowa) which is eaten by locals (Dyer, 1983).

A new species, *Ceropegia tanzaniensis*, is described from Tanzania. This is a rare species known only from around the village of Mlangali, Tanzania. Its nearest relative is probably *C. papillata* also from Tanzania from which it is easily distinguished by its almost parachute-shaped upper floral part and the staminal column. Morphologically these two species are similar up to the point of flowering. *C. tanzaniensis* is included in a comparative table to distinguish it from other species.

Taxonomic treatment

***Ceropegia tanzaniensis* Peckover sp. nov.** resembles *C. papillata* in having a similar underground caudex, but is easily distinguished from that species by the flowers having a different form, a corolla bulb with purple blotches on a whitish background on the inside (versus a corolla bulb which has green vertical ridges on a whitish background), corona outer lobes of urn-shaped, white nectar pouch scalloped at the tips (versus corona outer lobes less distinct and white nectar pouch with purple extensions), corolla opening forming a parachute-shaped structure as against a simple terete pointed structure and several other floral features.

TYPE: Tanzania, Njombe Region, Mlangali village, Feb 2015, Peckover 291 (holotype: PRU).



Description

Plant a perennial herb. Stem solitary, annual, twining up to 2m long, the basal organ a below-ground caudex, 30mm diameter and 20mm thick, with numerous fusiform roots from the bottom surface (Fig. 8). **Leaves** up to 30mm long, 20mm wide, cordate, entire and hairy on upper and lower surface. **Flowers** 26mm light green; **corolla bulb** 7×6mm light green, **corolla tube** 12×2mm light green; **corolla apex** 7×6mm darker green with a parachute-shaped terminal structure; **corona** 3mm diameter yellowish spotted with yellow pollinia; **inner lobes** upright white and touching at their tips; **outer lobes** orange mottled and at base purple. **Nectar pouch** urn-shaped, white, scalloped at the tips.

Ceropegia tanzaniensis appears to be most closely related to *C. papillata* (Fig. 4). Both species have a swollen below-ground caudex and fusiform roots. However, the two species differ in several floral features (Figs. 3, 4, 5a & b, 6a & b). The flowers of *C. tanzaniensis* are on first observation a light greenish colour (Fig. 3) whilst those of *C. papillata* are predominantly light purplish (Fig. 4) with plants in some populations having a greenish colour. In *C. tanzaniensis* the outside of the corolla bulb is green, almost flattish at the base whilst in *C. papillata* it is whitish and almost discus shaped. The inside of the corolla bulb for *C. tanzaniensis* is smooth with purple blotches on a white background (Fig. 5b). In *C. papillata* the inside of the corolla bulb has greenish vertical ridges on a white background (Fig. 6b).

Diagnostic features to distinguish between *C. tanzaniensis* and *C. papillata* are provided in Table 1.

Ceropegia tanzaniensis is known only from the type locality near the Mlangali village in Tanzania. Photos received (Figs. 1 & 2) show that the plants grow in a high rainfall area which has been taken over by exotic *Pinus* sp. originally from Mexico, *Eucalyptus* sp., and *Acacia* sp. from Australia. The plants grow in the leaf litter and then creep up the stems of the undergrowth. The original vegetation would have been indigenous tree species long ago logged for building material and fuel. Plant corms were supplied by Mr Ernst Specks in Feb 2015 under the name *Ceropegia* sp. nova. aff. *papillata* 8235 Mlangali.

Fig. 3 The very distinctive flowers of *C. tanzaniensis* with the parachute-shaped tips



Fig. 4 The flowers of *C. papillata* with terete tips from Songea, Tanzania

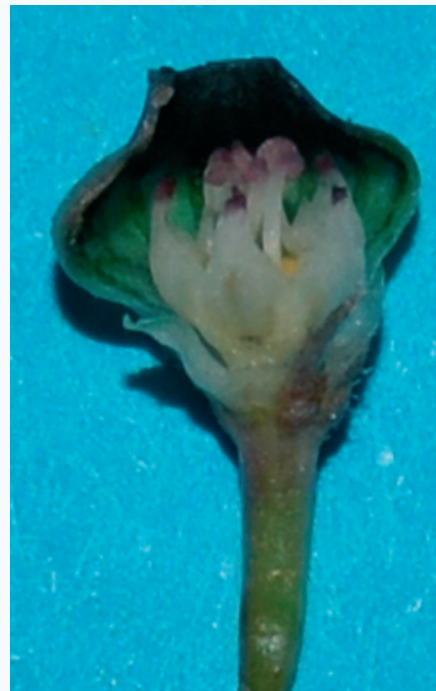


Fig. 6a Side view of the corona of *C. papillata*



Fig. 5a Side view of the corona of *C. tanzaniensis*



Fig. 6b Frontal view of the corona of *C. papillata* depicting the greenish raised ridges on the corolla bulb

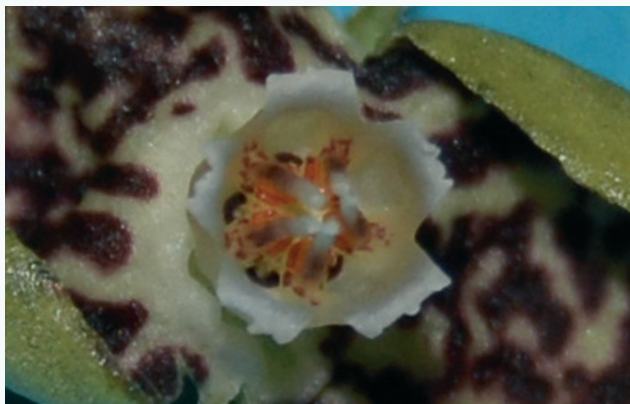


Fig. 5b Frontal view of the corona of *C. tanzaniensis* depicting the mottled corolla bulb markings



Fig. 7 A trapped fly measuring 0.5mm in size, is a likely pollinator



Fig. 8 The corm of *C. tanzaniensis* with fusiform roots (Photo: Petr Pavelka)

During that growing season, from August 2015 onwards, the plants grew out from the dormant corms and started producing sets of flower buds from each node higher up the twining creeper (Fig. 3). This is

also typical of the other related species mentioned. As the buds developed, I noticed that they had a characteristic parachute-like apex similar to the unrelated *C. sandersonii* and *C. rendalli* from South Africa and knew that this species was unlike any other described species. The *C. tanzaniensis* plants were now seen to be distinct from this species. The flowers on opening were unique in that the inside of the corolla bulb had red blotches against a whitish background. It was also almost square-shaped at the base. Unfortunately, during the season, the few plants succumbed to fungal rot so any potential seed follicles could not be observed.

From the information received, restricted distribution and the conditions under which this species grows in habitat, the status of this species is probably highly threatened.

LITERATURE:

Dyer, R A (1983) *Ceropegia, Brachystelma and Riocreuxia in Southern Africa*. A. A. Balkema, Rotterdam.

Table 1 Diagnostic features of *C. tanzaniensis* and *C. papillosa*

	<i>C. tanzaniensis</i>	<i>C. papillosa</i>
Distribution	Tanzania	Tanzania
Plant Form	Disc-shaped caudex up to 30×20mm, fusiform roots below	Disc-shaped caudex up to 30×20mm, fusiform roots below
Stem	Mostly single, creeper upright up to 2m covered with fine hairs, deciduous	Mostly single up to 2m tall, covered with fine hairs, deciduous
Leaves	Blade up to 30×20mm Cordate margin entire, pilose on upper and lower surface	Blade up to 30×20mm Cordate, entire, pilose on upper and lower surface
Flowers	Flowers overall greenish 26mm Up to 10 flowers axillary to the leaf node on the stem	Flowers light purplish or greenish 20-23mm Up to 15 flowers axillary to the leaf node on the stem
Pedicel	Perpendicular to stem then turning upwards 10mm sparsely pilose	Up to 15 flowers axillary to the leaf node on the stem Perpendicular to stem then turning upwards, 12-15mm glabrous
Corolla bulb	7×6mm, light green outside with purple blotches on a whitish background inside	4×3mm, light purple or greenish discus shaped outside with vertical green ridges on a whitish background inside
Corolla tube	12×2mm light green	12-15×1mm purple or greenish
Corona	Whitish 3mm diameter yellowish spotted inside. Outer white nectar pouch walls forming a full urn and scalloped at the tips. Inner lobes white upright and touching at their tips. Pollinia orange	Whitish 3mm diameter inside white. Outer white nectar pouch forming a half urn and with purple extensions. Inner lobes white with purple reflexed tips. Pollinia yellow
Corolla lobe tips	7×6mm darker green parachute-shaped with a few inward facing hairs	5×4mm terete shaped with black edges to the openings with many inward facing hairs