

A new species of *Brachystelma* (Apocynaceae) from Iringa and Dodoma Regions, Tanzania

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A new species, *Brachystelma tanzaniensis* is described from Tanzania. Photographs by the author except where otherwise indicated.

Introduction

Brachystelma is a genus of around 100 currently recognised species. The group is confined mostly to southern Africa with around two thirds of all species, with the rest in Africa and also in India, and a single species in Australia. All the species have a swollen underground caudex or fusiform roots. The stems are deciduous and die back at the end of the growing season. In this article a new species of *Brachystelma* is described from Tanzania, namely *B. tanzaniensis*. This is a rare species known only from three areas in the Dodoma and Iringa Regions. Its nearest relative is probably *B. floribundum* from which it is easily distinguished by its larger corolla bulb and upward-facing flowers. *B. tanzaniensis* belongs to a group of

large multi-flowered related species including *B. barberae* and *B. buchananii*.

Members of *Brachystelma* 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 terminal in panicles. Each flower has five corolla lobes which can be united at their tips or free. The corona contains the gynostegium with the paired pollinia and the stigmatic surfaces. The paired follicles develop after fertilisation and may be upright, decumbent, thin or very fat. When mature these fruits split longitudinally to release the tufted seeds which are dispersed by the wind. There may be a few seeds to many in each



Fig. 1 *B. tanzaniensis* in habitat showing the above ground branching (Photo: Petr Pavelka)



Fig. 2 *B. tanzaniensis* in habitat showing the upward facing flowers and fat seed pod (Photo: Petr Pavelka)



Fig. 3 Small plant of *B. floribundum* from Tanzania (Photo: Ernst Specks)



Fig. 4 The large caudex of *B. tanzaniensis*

follicle. The corms of some species of *Brachystelma* have, according to the literature, been used as a food plant, with the Bushmen in particular utilising them as a food source (Dyer, 1983).

Taxonomic treatment

Brachystelma tanzaniensis Peckover *sp. nov.* resembles *B. floribundum* in having a similar underground caudex but is easily distinguished from that species by its different-coloured flowers, whitish for the corolla bulb and light greenish to light purple for the corolla lobes compared to dark purple overall with some mottling of the outside for *B. floribundum*. The corolla bulb is far larger in *B. tanzaniensis*, has mottling in the inner surface as against concentric rings in *B. floribundum*. The inner and outer corona lobes are also different; in *B. tanzaniensis* the outer lobes are divergent and have dense purple hairs as against the upright finely hairy lobes in *B. floribundum*. The inner lobes of *B. tanzaniensis* are not overlapping on the staminal column and tips are square as against overlapping and pointed in *B. floribundum*. The nectar pouch is open to the base in *B. tanzaniensis* whilst only open half way to the base for *B. floribundum*. Type: Tanzania, Dodoma Region, Mount Mangaliza (north of Mbuyuni), 09 January 1999, Peckover 298 (holotype: PRU).

Description

Plant a perennial herb up to 75mm high: at first single, then multiple stems which are decumbent, deciduous, the basal organ a below-ground caudex, up to 130mm diameter and 30mm thick, with numerous fusiform roots from the lower surface. **Leaves** up to 80mm long, 7mm wide, linear, entire, glabrous on upper and lower surface and has a few short hairs on this surface. **Flowers** 60mm diameter, whitish-coloured on outside, and fine reddish lines on a whitish background on inside; **corolla lobes** linear, either greenish or brownish up to 30mm long and 3mm wide, glabrous reflexed along their longitudinal axis; **corolla bulb** bell-shaped, 12×8mm; **corona** 6mm diameter, blackish with outer lobes purplish and densely hairy with reddish pollinia. **Nectar pouch** open to the base. **Fruit** 50×15mm reddish divergent, at first thick walled. **Seeds** dark brown with a lighter margin 6×4mm up to 35 per follicle.

Brachystelma tanzaniensis appears to be most closely related to *B. floribundum* (Figs. 3 & 5).

Both species have a swollen below-ground caudex and fusiform roots. However, the two species differ in several floral and other morphological features (Figs. 2 & 3; Table 1).

The flowers of *B. tanzaniensis* are, at initial observation, a whitish colour with greenish to brownish corolla lobes (Fig. 7) whilst those of *B. floribundum* are predominantly dark reddish overall in Tanzania but in Zimbabwe have



Fig. 5 Downward-facing dark flowers of *B. floribundum* from Zimbabwe

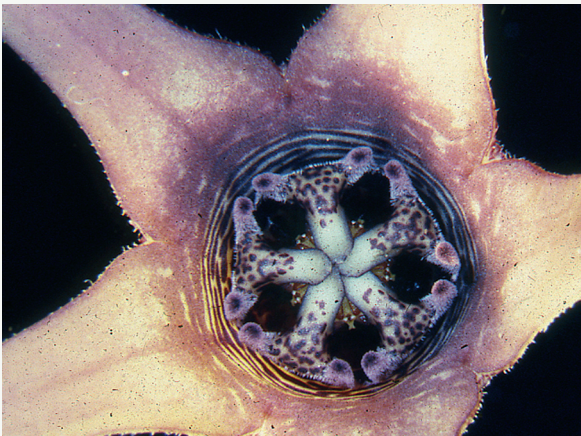


Fig. 6 The narrow corolla bulb is evident for *B. floribundum*

red spotting against a flesh-coloured background (Fig. 6). In *B. tanzaniensis* the corolla tube is wide bowl-shaped as against a more narrow bowl for *B. floribundum* (Figs. 6 & 7). The corolla lobes in *B. tanzaniensis* are twisted upright lobes whilst in *B. floribundum* with its downward-facing flowers (Fig. 5), they are long, linear and have lobes upward-facing. Diagnostic features to distinguish between *B. tanzaniensis* and *B. floribundum* are provided in Table 1.

Brachystelma tanzaniensis is known from three locations in Tanzania, two in the Dodoma Region and one in the Iringa Region. All three sites, ranging in altitude between 1,800m and 2,200m, have well drained soils of red gritty quartzites in open grassland. Associated plants include *Gomphocarpus* sp., *Aeollanthus* sp., *Aloe* sp., *A. bussei* (Fig. 10), *Brachystelma plocamoides*, *Raphionacme* sp., *Ceropegia* sp., and *Crassula* sp. *Brachystelmas* cannot compete with thick grassland but when grasses are sparse, these plants find their niche as with the other species mentioned above.



Fig. 7 Prominent wide corolla bulb in *B. tanzaniensis*

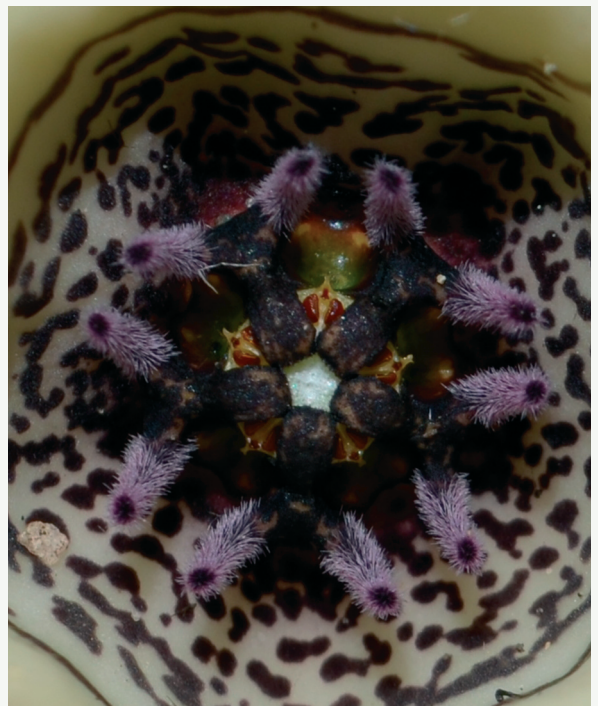


Fig. 8 Corona of *B. tanzaniensis* showing divergent hairy outer lobes

Table 1 Comparison of diagnostic features of *Brachystelma tanzaniensis* and *Brachystelma floribundum*

	<i>Brachystelma tanzaniensis</i>	<i>Brachystelma floribundum</i>
Distribution	Tanzania	Tanzania, Malawi, Zimbabwe
Plant form	Disc-shaped caudex up to 130x30cm, fusiform root below	Disc-shaped caudex up to 100x20cm, fusiform root below
Stem	Mostly single, then dividing into a few decumbent stems, flat on the soil and can be 75mm high	Mostly single or sparingly branched upright, 120mm
Leaves	Blade up to 80x10mm Linear, entire, glabrous on upper surface and a few scattered hairs below	Blade up to 75x10mm Linear, entire, coarsely hairy on upper surface and lower surface
Pedicel	Up to nine flowers per node from one leaf axil, axillary to stem Upright, 20mm glabrous	Up to seven flowers from one leaf axil, axillary to stem Nodding, up to 10mm coarsely hairy/pubescent
Corolla bulb	12x8mm, bowl-shaped On inside, whitish with fine to broken red transverse lines Outside whitish	Up to 8x5mm, bowl-shaped On inside dark concentric rings Outside purple
Corona	Blackish, 6mm diameter with dark mottling on the inside of bulb, with divergent purple and very hairy outer lobes Nectar pouches open to the base of flower	Yellowish to greenish with mottles, with dark transverse lines around the inside of bulb, with straight, slightly hairy outer lobes Nectar pouches open only half way down to the base of the flower
Corolla lobes	Long, thin and twisted upwards, light greenish to light purplish, reflexed along longitudinal axis up to 30mm long and 3mm wide	Long, thin, straight and curved outwards purple and up to 28mm long and 2mm wide
Seed follicles	Spreading, fat, reddish 50x15mm at maturity Seed dark brown with a lighter margin, 10–14 seeds per follicle	Spreading, fat, reddish mottled 40–50x10mm Seed black with brown margin, 10–15 seeds per follicle

LITERATURE:

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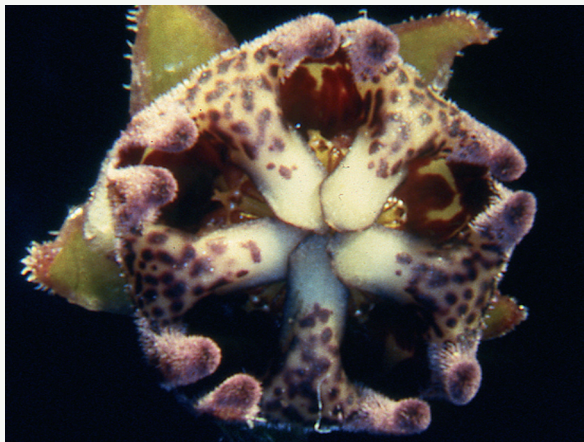


Fig. 9 Corona of *B. floribundum* showing upright less hairy outer lobes



Fig. 10 *Aloe bussei* which grows in association with *B. tanzaniensis*