

APOCYNACEAE

A NEW SPECIES OF *BRACHYSTELMA* FROM EASTERN CAPE, SOUTH AFRICA

Brachystelma cummingii *A.P.Dold*, sp. nov., *B. tenellum* R.A.Dyer affinis base inflata gemmae pentagona (non globosa); lobis interioribus coronae rectangulatis (non anguste linearibus); lobis interioribus coronae non appendiculatis-dentatis; corpusculo clavato (non rectangulato); pagina interiori lorum trichomis sparsis acuticylindricis, albis adprementibusque, in longitudinem ordinatis (non pilis longis albisque).

TYPE.—Eastern Cape, 3324 (Steytlerville): Kleinpoort, (-BD), 550 m, 27-01-2001, *Dold 4368* (GRA, holo.).

Perennial herb with tuber. *Tuber* depressed, spherical, not exposed, 20–25 mm high, \pm 30 mm diam. *Stems* 1–3 from single central growth point, erect, occasionally branching above ground level, below 10 mm, 0.5–1.0 mm

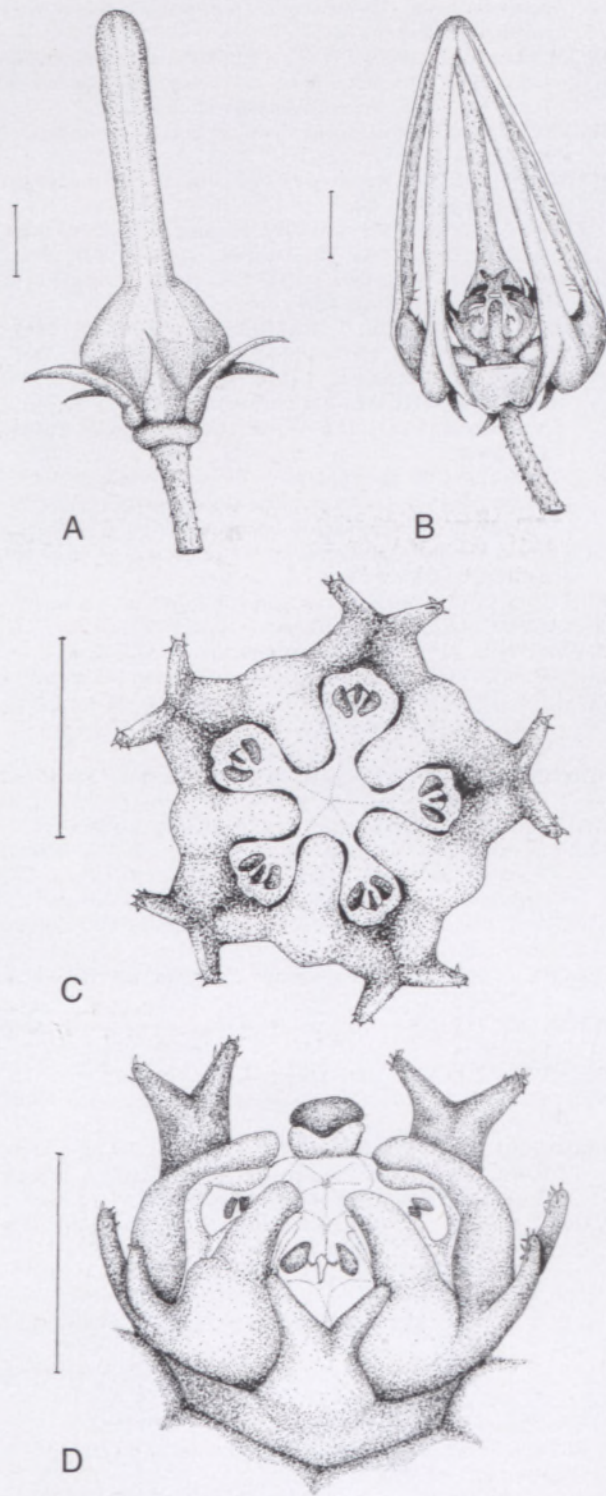


FIGURE 9.—*Brachystelma cummingii*, Dold 4368. A, flower bud; B, flower at anthesis; C, D, corona, view from top and side. Scale bars: 1 mm. Illustrations: A. Dold.

thick at base, 0.4–0.5 mm thick above, 100–150 mm long, internodes 4 mm at base to 10–14 mm above, dull purple at base, new growth green, white puberulous. *Leaves* sessile, basal 3 or 4 pairs elliptic, 14–20 × 3–5 mm, erect, often twisted on central axis, margins tinged reddish, upper 10–15 pairs linear, spreading, simple, (10–) 18–20(–22) × 1.0–1.5 mm, entire, V-shaped in cross section, lower keel prominent, upper surface with minute shiny water cells, dark green, lower surface leathery, yellow-green. *Flowers* single, extra-axillary at nodes, opening successively at every node whilst growing, seldom

simultaneously; pedicels spreading, 15–18 × 0.4 mm, puberulous, purple. *Bract* persistent, single, extra axillary clasping, lanceolate, acute, ladle-shaped, cuspidate, bluntly spurred at base, 1 × 0.2 mm at base, green becoming dark purple-black. *Sepals* 5, lanceolate, acute, 1.6 × 0.6 mm at base, glabrous, reflexed below corolla sinus, reaching pedicel, persistent, purple. *Corolla*: in bud, inflated base pentagonal, 2 × 2.5 mm, cylindrical beak 4–6 × 0.5 mm, apex rounded; at anthesis, (4.5–) 5.5–6.0(–10) × 3.5–4.0 mm; tube 0.25–0.50 mm, surrounding base of gynostegium, then reflexed up to 1 mm to sinus; lobes deltoid at base, produced into long attenuate lobes connivent at apices, 5–8 mm from apex to sinus, 1.2 mm broad at base, narrowing abruptly to 0.3 mm, sinus between lobes deeply incised, forming an open, pyramidal to ± globose, cage-like structure, inner surface of lobes with sparse, cylindrical-acute, white, adpressed trichomes, each attached to a raised papilla, arranged longitudinally, base dark purple, outer surface paler, upper surfaces dull green to yellow-green. *Gynostegium* 1 mm diam. at base, 1–2 mm high, glabrous, stipe white; outer corona lobes 0.4 × 0.3 mm at base, erect, slightly spreading, flattened, distal end bilobed, lobes spreading laterally forming a shallow V, black, tips sparsely furnished with minute white trichomes; inner corona lobes 5, 0.4 × 0.2 mm at base, flattened, incumbent on and curving inwards distally to cover anthers, black. *Pollinium* semi-ovate, flattened, 0.22 × 0.12 mm, insertion crest along outer edge narrowly, transparently winged, golden brown; corpusculum clavate, 0.15 mm long, orange-brown; caudicle short, broad, orange-brown. *Follicles* paired, linear ± 60 × 3 mm, broadest in the middle, green, minutely and densely mauve-speckled, apices forming minute club-shaped tip. *Flowering time*: November to December. Figures 9–11.

Specimens examined

EASTERN CAPE.—3324 (Steytlerville): De Bordtjie, west of Kleinpoort, (–BC), *Bruyns* 6913 (BOL); south of Kleinpoort, (–BD), *Bruyns* 4914 (BOL); Kleinpoort, (–BD), *Cumming* 7037 (GRA); *Dold* 4368 (GRA).

Brachystelma cummingii resembles *B. tenellum* R.A.Dyer (Dyer 1973, 1980, 1983), but differs morpho-

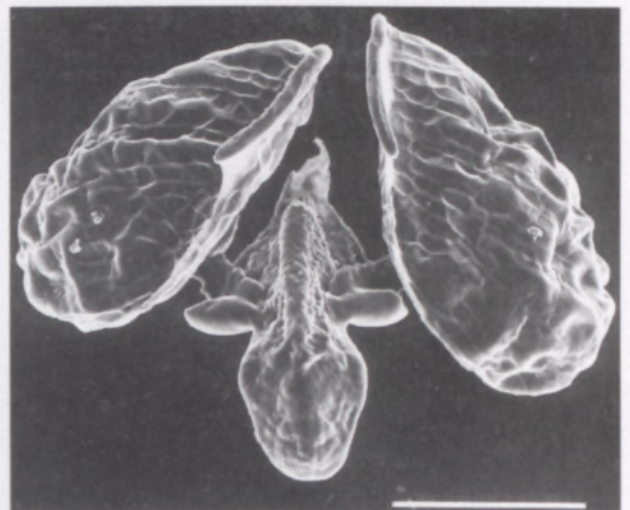


FIGURE 10.—*Brachystelma cummingii*, Dold 4368, pollinarium. Scale bar: 100 µm.

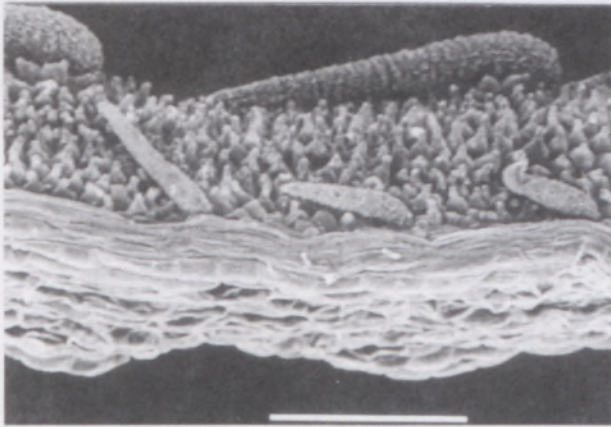


FIGURE 11.—*Brachystelma cummingii*, Dold 4368, section of corolla lobe showing adpressed trichomes. Scale bar: 100 µm.

logically in several ways (Table 1). The recurved corolla lobe margins of *B. cummingii* resemble those of *B. gracile* E.A.Bruce (Bruce 1949; Dyer 1980, 1983), but are more pronounced, obscuring all but the tips of the calyx. The unusual adpressed trichomes on the inner surface of the corolla lobes of *B. cummingii* are also found on *B. pygmaeum*.

B. cummingii is only known from four specimens, one from De Bordtjie and three from Kleinpoort (Figure 12), at 550–800 m above sea level and is scattered in open rocky grassland on flat surfaces. The vegetation type of both localities is Central Lower Nama-Karoo (Hoffman 1996). Tubers are well below the surface in shallow sandy soil (derived from the Peninsula formation of the Table Mountain geological group) associated with *Aristida adscensionis*, *Dicoma spinosa*, *Digitaria eriantha*, *Eragrostis curvula*, *Euphorbia jansenvillensis* and *Lebeckia pungens*. An average annual rainfall (23 years) of 350 mm has been recorded at Glenconnor, 30 km to the east of Kleinpoort. In the absence of data, it is expected that Kleinpoort and De Bordtjie would have a similar rainfall figure.

TABLE 1.—Morphological differences between *Brachystelma cummingii* and *B. tenellum*

	<i>B. cummingii</i>	<i>B. tenellum</i>
Leaf	sessile	petiolate
Pedicele	15–18 mm	10–15 mm
Corolla	4.5–10.0 mm	3.5–4.0 mm
	reflexed around tube	saucer-shaped
	mouth (1 mm)	(0.5 mm)
inner surface	minute, acute, white trichomes	long, white hairs
base of bud	pentagonal	globose
Corolla lobes		
inner	rectangular	narrowly linear
outer	shallowly lobed	deeply lobed
Corpusculum	clavate	narrowly rectangular

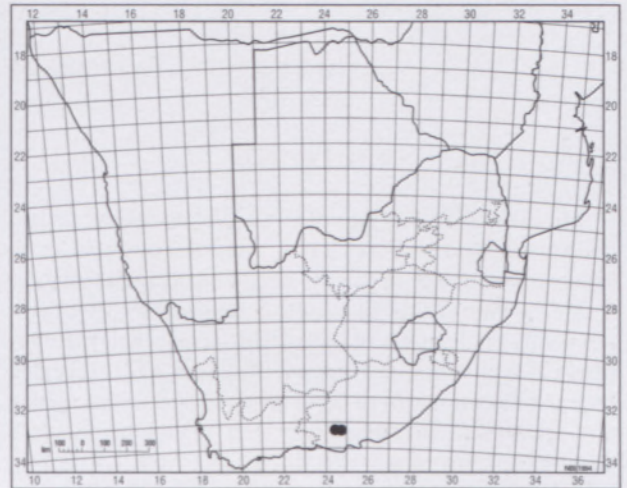


FIGURE 12.—Known distribution of *Brachystelma cummingii*.

The locality of *B. cummingii* is significant, as the genus is poorly represented in arid regions (Peckover 1993) compared to areas of higher rainfall. In his revision of the genus, Dyer (1980) recorded only a single species in the Karoo. In comparison, Retief & Herman (1997) record 35 species for the northern provinces of South Africa, whereas Bruyns (2000) records three species of *Brachystelma* for the Cape flora, of which only one is endemic to that region.

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REFERENCES

BRUCE, E.A. 1949. *Brachystelma gracilis*. *The Flowering Plants of Africa* 27: t. 1077.
 BRUYNIS, P.V. 2000. Apocynaceae. In P. Goldblatt & J. Manning, Cape plants. A conspectus of the Cape flora of South Africa. *Strelitzia* 9: 280–290.
 DYER, R.A. 1973. *Brachystelma tenellum*. *The Flowering Plants of Africa* 42: t. 1664.
 DYER, R.A. 1980. Asclepiadaceae. *Flora of southern Africa* 27.4: 31.
 DYER, R.A. 1983. *Ceropegia, Brachystelma and Riocreuxia in southern Africa*. Balkema, Rotterdam.
 HOFFMAN, T. 1996. Central Lower Nama-Karoo. In A.B. Low & A.G. Rebelo, *Vegetation of South Africa, Lesotho and Swaziland*. Department of Environmental Affairs and Tourism, Pretoria.
 PECKOVER, R. 1993. Taxonomic questions within the genus *Brachystelma*: a few examples. *Aloe* 30: 114, 115.
 RETIEF, E. & HERMAN, P.P.J. 1997. Plants of the northern provinces of South Africa: keys and diagnostic characters. *Strelitzia* 6: 257–281.

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