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RESEARCH ARTICLE

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A new subspecies of *Spermacoce bequaertii* (*Rubiaceae*: *Spermacoceae*)

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Key words

Africa
Rubiaceae
Spermacoce bequaertii
Spermacoceae
taxonomy

Abstract A new subspecies of the African species *Spermacoce bequaertii* is described and illustrated. This new subspecies (subsp. *brevituba*) is restricted to the Kasai district in the Democratic Republic of Congo, and differs from the typical subspecies in having smaller mature flowers with a glabrous corolla tube inside.

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INTRODUCTION

Spermacoce L. is a large pan-(sub)tropic *Rubiaceae* genus with some 150–250 species, mainly American but with many native species in Africa (Dessein 2003). It differs from other members of the *Spermacoceae* s.lat. (*Rubiaceae*, *Rubioideae*) in Africa by having capsular fruits with longitudinal dehiscence, the seeds have a single ventral groove and there is only one per carpel, the inflorescences are axillary and/or terminal.

Spermacoce bequaertii (de Wild.) Verdc. is an herb native to Gabon, Congo (Brazzaville) and the Democratic Republic of Congo (Sosef et al. 2006, Walters et al. 2011). During his revision of the genus by the second author, it was clear that this species consisted of two taxa with distinctly different sizes of the mature flower (Dessein 2003). This was later confirmed by the forthcoming treatment of this genus for the Flora of Gabon by the first author.

The populations in the southern part of the Kasai district of the Democratic Republic of Congo have mature flowers with a short corolla tube (0.5–0.7 mm long). The populations further north near Kinshasa (Democratic Republic of Congo), Congo (Brazzaville) and in Gabon have mature flowers with a longer corolla tube (2–3 mm long). Otherwise, the plants of these populations are very similar both in habit and morphology. Given that the plants of the southern part of the Kasai district are essentially only a miniature flowered form of this species, with a different distribution pattern than the typical form, it is best treated as a distinct subspecies.

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TAXONOMY

Spermacoce bequaertii (de Wild.) Verdc.

Spermacoce bequaertii (de Wild.) Verdc. (1975) 305. — *Borreria bequaertii* de Wild. (1932) 432. — Type: *Bequaert 7673* (holo BR! [BR0000008194701]; iso BR! [BR0000006728007], K!), Democratic Republic of Congo, Territoire Kinshasa, Léopoldville (= Kinshasa).

[*Borreria tetradon* K.Schum. (1900) 322, nom. nud. — Based on: *Schlechter 12475* (BR! [BR0000008204813], K!, P! [P00462479]), Democratic Republic of Congo, Dolo.]

Perennial *herb* with woody plant base and woody taproot; stems 15–35 cm tall, rather unbranched, red-brown, 4-ribbed, glabrous. *Leaves* decussate, sessile, fused with stipule base; blades linear, 1.5–8 by 0.1–0.5 cm, glabrous or sparsely beset with short hairs above; apex acute; base slightly narrowed; leaf margins revolute, glabrous; main vein glabrous; secondary veins obscure, glabrous. *Stipules* fimbriate; basal part 1.5–5 mm long, glabrous or sparsely to densely beset with short hairs; fimbriae usually 3, c. 2–9 mm long, colleter-tipped. *Inflorescences* terminal and often axillary at 1 or 2 successive lower nodes, 0.7–1.5 cm diam, each inflorescence with 2 or 4 supporting leaves with stipules of supporting leaves often broadened and forming a cup around the developing flowers; bracts stipuliform with numerous setae c. 1–3 mm long. *Flowers* shortly pedicellate or sessile, arranged in many-flowered capitula. *Calyx* tube reduced to a rim; lobes 4, very short, 0.25–0.5 mm long in flowering stage, margins beset with short hairs. *Corolla* white; tube cylindrical, sometimes funnel-shaped at the upper part, 0.5–3 mm long, glabrous outside, a ring of hairs at 2/3 of the base inside; corolla lobes narrowly triangular to narrowly ovoid, 1–3 mm long, glabrous inside and outside or sparsely pubescent outside. *Anthers* ellipsoid, 0.7–1.2 mm long, well exserted; filaments 0.7–5 mm long. *Pollen* 8-zonocolporate, suboblate to spheroidal; mean equatorial diameter (E) 40–45 µm; polar outline circular, slightly lobed; ectocolpi short and relatively broad; endoaperture an indistinct endocingulum; tectum perforate, granules or microspines uniformly present; inner nexine surface granular with

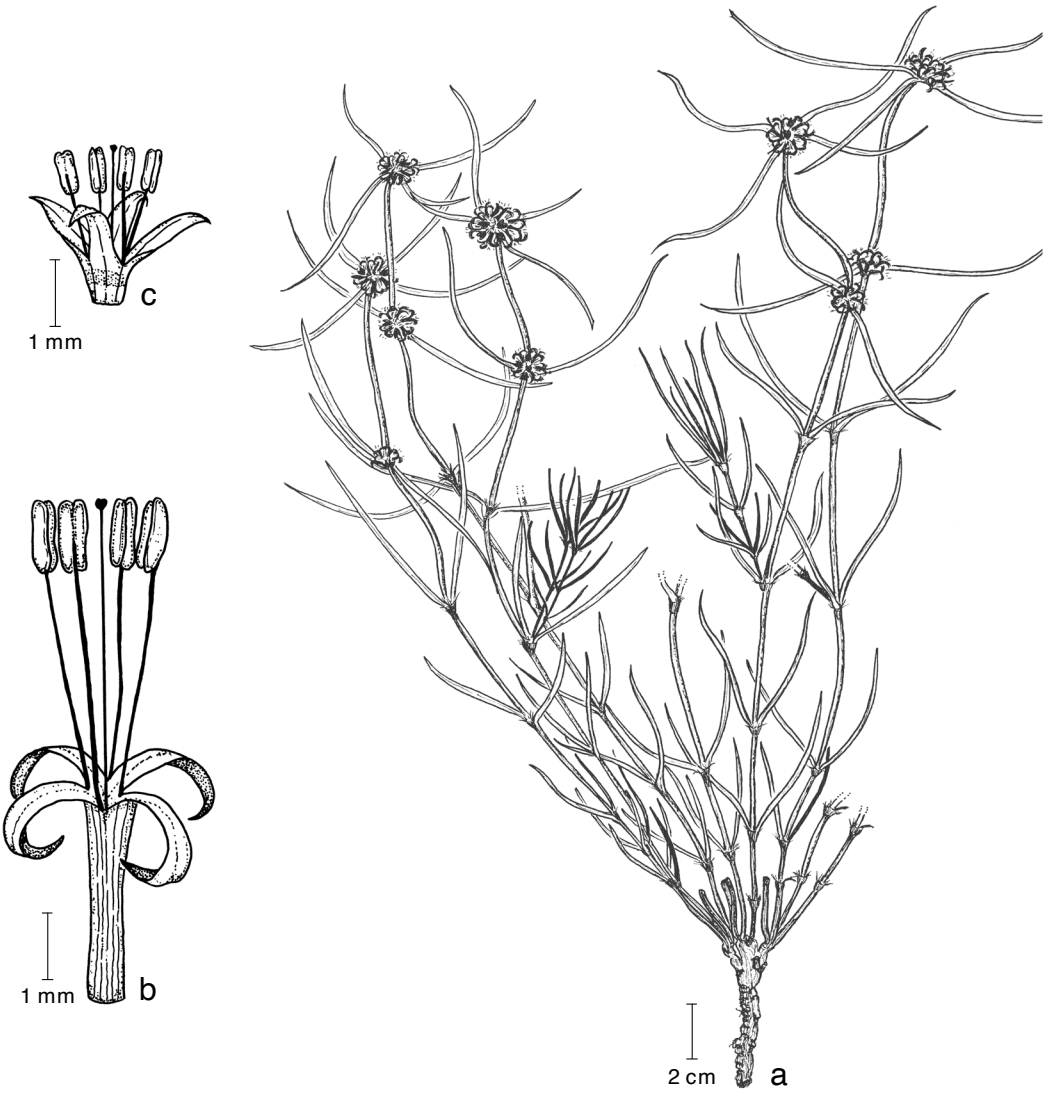
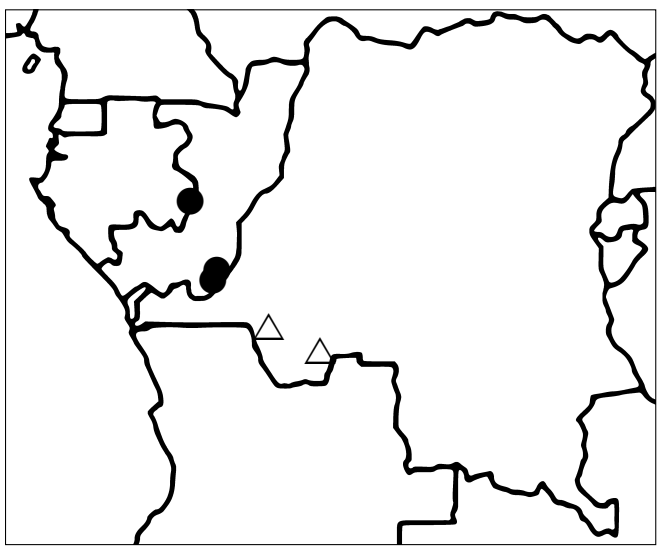


Fig. 1 *Spermacoce bequaertii* (De Wild.) Verdc. a. Habit; b. corolla of subspecies *bequaertii*; c. corolla of subspecies *brevituba* (a, b. *Carlier 294*; c. *Callens 2287*; all from BR).

numerous endocracks. *Ovary* ellipsoid to obovoid, 1–1.5 mm long, pubescent above; style 2–10 mm long, well exserted, glabrous; stigma capitate, c. 0.2 mm diam, papillose; nectary disc bipartite. *Capsule* ellipsoid to obovoid, c. 1.5–2 by 1–1.5 mm, glabrous or sparsely pubescent above, crowned with the persistent calyx lobes; dehiscence septicidally and loculicidally in the upper part, remnants of the septum remaining attached to the valves. *Seeds* unknown (seeds not fully mature).



Map 1 *Spermacoce bequaertii* subsp. *bequaertii* (●); *Spermacoce bequaertii* subsp. *brevituba* (△).

Key to the subspecies

1. Mature flowers larger: corolla tube 2–3 mm long, with a ring of hairs inside at 2/3 of the base; corolla lobes 2–3 mm long; filaments 3–5 mm long; style 6–10 mm long . . . . . a. subsp. *bequaertii*
1. Mature flowers small: corolla tube 0.5–0.7 mm long, glabrous inside; corolla lobes 1–1.5 mm long; filaments 0.7–1.5 mm long; style 2–3 mm long . . . . . b. subsp. *brevituba*

a. subsp. ***bequaertii*** — Fig. 1a, b; Map 1

Inflorescences 1–1.5 cm diam. *Corolla*: tube funnel-shaped at the upper part, 2–3 mm long (often much shorter in young flowers), c. 0.3 mm broad at the base, c. 1 mm wide at the throat; lobes 2–3 mm long, with a ring of hairs inside at 2/3 of the base. *Anthers* ellipsoid, c. 1–1.2 mm long; filaments 3–5 mm long. *Style* 6–10 mm long.

Distribution — Native to Gabon (Haut-Ogooué province), Republic of the Congo and Democratic Republic of Congo (near Léopoldville (= Kinshasa)).

Habitat & Ecology — Grassland, woodlands, roadsides and in wastelands. In Gabon it is known to grow at about 500 m altitude. Flowering: May, August to November; young fruits: October to November.

Representative specimens. Democratic Republic of Congo, Lower Congo, *Achten 361* A&B (BR), Léopoldville [= Kinshasa], région Luebo-Kasai; *Achten 451* (BR), Léopoldville [= Kinshasa], région Luebo-Kasai; *Carlier 294* (BR, WAG), Léopoldville [= Kinshasa], Lemba; *Jespersen* s.n. (BR-S.P. 819209), Kasangula; *Muambi 47* (BR), Stanley-pool-route Kenge. – Gabon, *de Wilde et al. 10020* (K, WAG), Haut-Ogooué, Plateau Batéké, 7 km S of Leconi.

b. subsp. ***brevituba*** Dessein, *subsp. nov.* — Fig. 1c; Map 1

This subspecies differs from the typical subspecies in having smaller mature flowers (corolla tube 0.5–0.7 mm long, lobes 1–1.5 mm long; filaments 0.7–1.5 mm long; style 2–3 mm long) with a glabrous corolla tube inside. While the typical subspecies has larger mature flowers (corolla tube 2–3 mm long, lobes 2–3 mm long; filaments 3–5 mm long; style 6–10 mm long) with a corolla tube with a ring of hairs inside at 2/3 of the base. — Type: *Devred 1866* (holo BR! [BR0000008190352]), Democratic Republic of Congo, Kahemba-Vallée, Lutshima-Kwango (for paratypes see below).

Inflorescences up to 0.7 cm diam. *Corolla*: tube cylindrical, 0.5–0.7 mm long, glabrous inside; lobes c. 1–1.5 mm long. *Anthers* ellipsoid, 0.7–0.9 mm long; filaments c. 0.7–1.5 mm long. *Style* 2–3 mm long.

Distribution — Known only from the southern part of the Kasai district in the Democratic Republic of Congo.

Habitat & Ecology — Grasslands and woodlands. Flowering: November to April; fruiting: unknown.

Other representative specimens (Paratypes). Democratic Republic of Congo, *Callens 2287* (BR), Kasai, Entre Manzengele et Kibabu [?= Kibubu]; *Devred 1555* (BR), Vallée Lini.

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