

A NEW *BULBOSTYLIS* (CYPERACEAE) FROM SOMALIA

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Bulbostylis somaliensis Lye (Cyperaceae) is described from Somalia. It is closely related to *B. hispidula* (Vahl) R. Haines, but differs in its smaller achenes as well as in the shape and surface structure of the achenes. The major diagnostic characters are the non-triangular achene and the outermost cells to the pericarp, which have several papillae in each cell. Three subspecies are distinguished, viz. subsp. *somaliensis*, subsp. *confusa* Lye and subsp. *microcarpa* (Chiov.) Lye.

Keywords. Achene, *Bulbostylis*, Cyperaceae, pericarp, Somalia.

Due to the publication of Cyperaceae for *Flora of Somalia* it is necessary to publish a new species of *Bulbostylis*, which encompasses three subspecies.

***Bulbostylis somaliensis* Lye, sp. nov. (subsp. *somaliensis*)**

Herbae annuae, pubescentes. Culmus 15–25cm altus. Spiculae 4–7mm longae et 2.0–2.5mm latae, multiflorae. Squamae dense imbricatae, 2.0–2.5mm longae, apice mucronatae. Nux 0.7–0.8mm longa subglobosa. **Figs 1–2.**

Type: Somalia: Mudug, 17–18km N of Hobyo (Obbia) on road to Jirriiban, 5°28'N 48°32'E, 50m, 28 v 1989, *M. Thulin & Abdi M. Dahir* 6653 (holo. UPS, iso. K).

A tussocky annual with a slender root system. *Culms* 5–25cm long \times 0.3–0.6mm thick, angular to somewhat compressed, with about 9 longitudinal ribs densely set with 0.2–0.3mm white spreading hairs; epidermal cells not very prominent. *Leaves* from the basal 3cm only, usually 2 per culm and with blades; sheaths with a multi-nerved green central part and pallid or light reddish brown membranous margins, densely short hairy (hairs 0.2–0.3mm long) on all ribs, but with longer (up to 10mm long) slender flexuose whitish hairs at their oblique or truncate orifices; blades 2–6cm long and 0.2–0.5mm wide, flat or incurved; the upper surface without nerves; the lower with a prominent midrib, densely hairy (hairs 0.2–0.3mm) on midrib and margins; epidermal cells not prominent.

Inflorescence a lax anthela up to 2cm wide and 2cm long, consisting of one sessile spikelet subtended by 1–4 stalked spikelets on up to 15mm long peduncles. Major involucral bract 3–10mm long, with a glume-like reddish brown base and a leaf-like upper part; the prophyll at the base of each peduncle 1–2mm long, not tubular, but flat and rectangular, membranous, light reddish brown with c.0.1mm hairs and two

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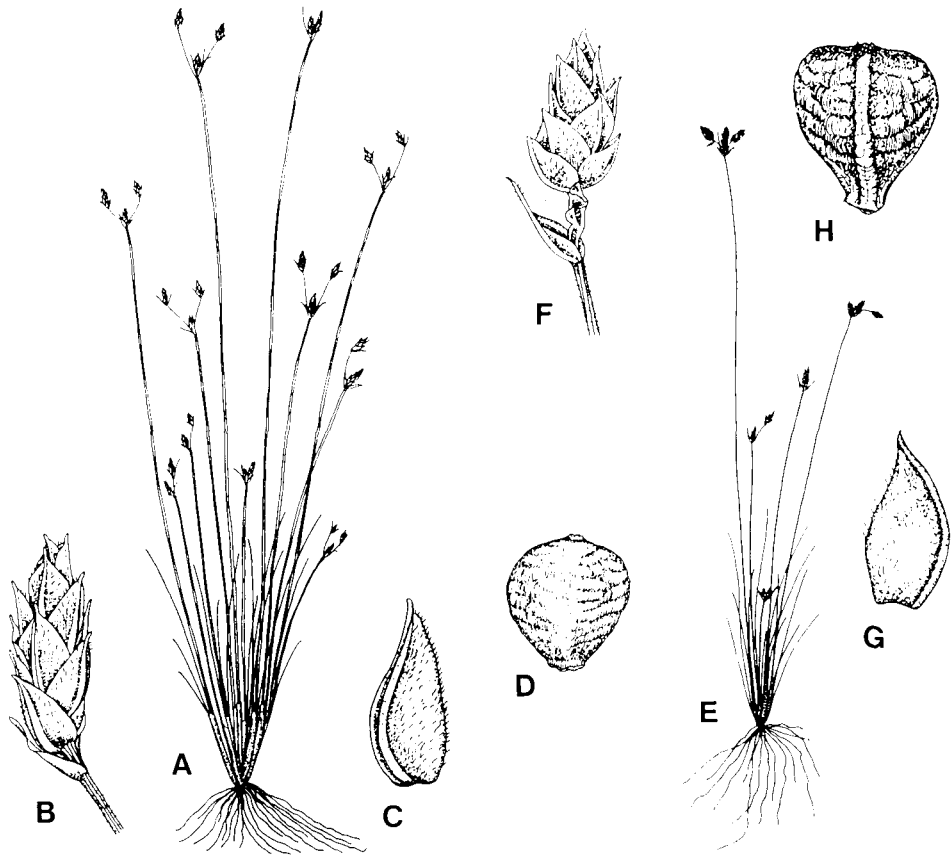


FIG. 1. A–D, *Bulbostylis somaliensis* Lye subsp. *somaliensis*, from the holotype: A, habit, $\times \frac{1}{2}$; B, spikelet, $\times 5$; C, glume, $\times 10$; D, achene, $\times 25$. E–H, *Bulbostylis hispidula* subsp. *hispidula*, from Lobin 6972: E, habit, $\times \frac{1}{2}$; F, spikelet, $\times 5$; G, glume, $\times 10$; H, achene, $\times 25$. Drawn by Gerd Mari Lye.

weak nerves. *Spikelets* 4–7mm long \times 2.0–2.5mm wide, oval-lanceolate with an acute tip, angular, light reddish brown, 10–15-flowered; the rachilla prominently winged. *Glumes* 2.0–2.5mm long \times c.1.5mm wide, triangular-ovate, light to medium reddish brown but with a prominent green midrib and a 0.2–0.5mm long straight or recurved green mucro; marginal nerves absent; surface of the glumes densely set with c.0.1mm long whitish hairs, the hairs on margins only slightly longer (0.1–0.2mm); epidermal cells of glumes 25–80 μ m long \times 10–20 μ m wide, narrow rectangular with straight cell walls; about half the cells strongly cutinized, the other cells with 5–10 prominent papillae, each with 1–5 satellites.

Stamens (2–)3; filaments c.2.5mm long, pallid, only slightly compressed; anthers 0.7–0.9mm long \times 0.1–0.2mm wide, linear, cream to light reddish brown, usually ending in a short acute tip of the same colour as the anther. *Style* c.2mm long, medium reddish brown, setaceous with three c.1.0mm long filiform stigmas of the

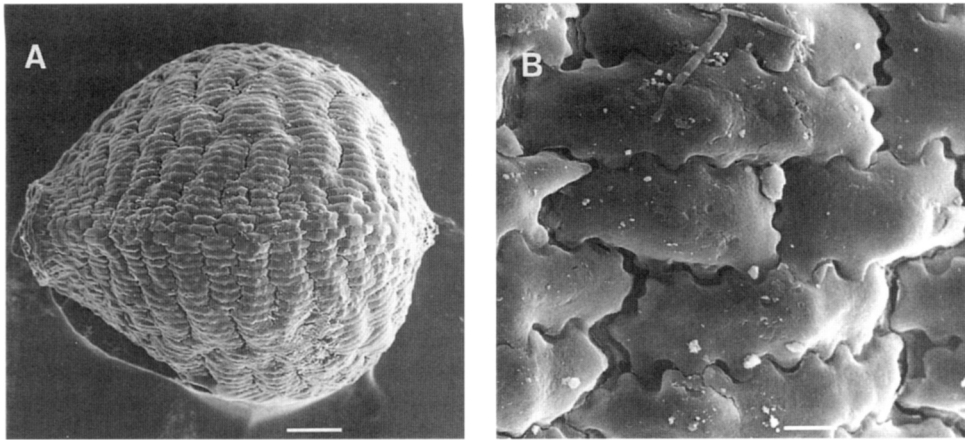


FIG. 2. *Bulbostylis somaliensis* Lye subsp. *somaliensis*. A, achene (scale 0.1mm); B, detail of epidermal cells of achene (scale 10µm). Both SEM photographs from the holotype.

same colour as the lower half of the style; the style base swollen and triangular, cream or light reddish brown, deciduous with the style. *Achene* 0.7–0.8mm long and 0.6–0.7mm wide, obovate, not triangular, pallid or light reddish brown, with about 10 transverse undulations; outermost cells of the pericarp 30–100µm long and 15–20µm wide, rectangular with prominently sinuose cell walls; at least some cells with 2–5 papillae.

Distribution and ecology. In sand over flat, open limestone rocks, below 100m. Endemic to Somalia.

Bulbostylis somaliensis belongs to the very difficult *Bulbostylis hispidula* Vahl complex (Haines & Lye, 1983), a complex of species which was previously wrongly included in the genus *Fimbristylis* Vahl.

Bulbostylis somaliensis differs from *B. hispidula* in its smaller ovate achene (0.7–0.8mm long × 0.6–0.7mm wide vs. 1.0–1.3mm × 0.9–1.0mm), which is not triangular (but sometimes subtriangular in subsp. *confusa*), and in the surface structure of the achene (the outer cells to the pericarp have 2–5 papillae in each cell vs. usually no projecting papillae) (Figs 2, 3).

***Bulbostylis somaliensis* Lye subsp. *confusa* Lye, subsp. nov.**

Herbae annuae pubescentes vel subglabrescens. Culmus 5–20cm altus. Spiculae 4–15cm longae et 2–3mm latae, multiflorae. Squamae dense imbricatae, 2.0–2.5mm longae. Nux 0.7–0.8mm longa, obovata, subtrigona.

Type: Somalia, 3km SW of Diinsoor, 42°58'E 2°24'N, 20 v 1990, M. Thulin, M. Hedrén & A. M. Dahir 7615 (holo. UPS).

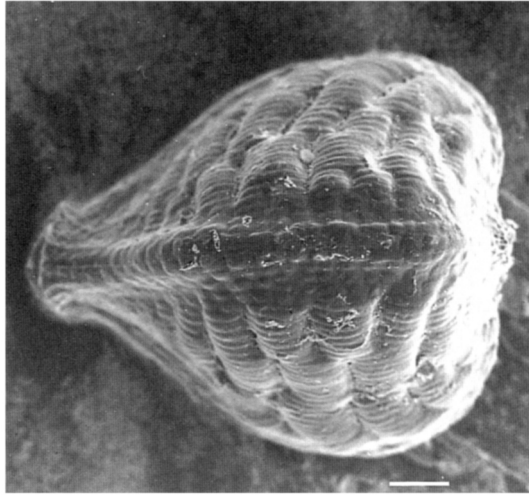


FIG. 3. *Bulbostylis hispidula* subsp. *hispidula*. Achene (scale 0.1mm). SEM photograph from Lobin 6972.

Subsp. *confusa* is a slender annual. *Culms* 5–20cm long \times 0.3–0.6mm thick, angular, hairy to almost glabrous. *Leaf sheaths* pale, densely hairy to almost glabrous with long hairs at the orifices; blades usually less than 15cm long and frequently only 1–2cm long and 0.2–0.5mm wide, flat or canaliculate, usually densely hairy.

Inflorescence a simple or compound lax anthela of one sessile spikelet subtended by 2 to many stalked spikelets, rarely all spikelets almost sessile. Involucral bracts usually shorter than the inflorescence. *Spikelets* 4–15 \times 2–3mm, ovate to elongate. *Glumes* 2.0–2.5mm long, light to dark reddish brown, but often with paler midrib and margin, minutely hairy on both surface and margin. *Achene* 0.7–0.8mm long, pale, grey or light brown, obovate, rounded to obtusely triangular with 7–10 rounded transverse wrinkles on each of the three sides, angles smooth; swollen style-base usually not persistent on the mature achene.

Distribution and ecology. In open grassland, often on sand or on shallow soils over rocks, sea-level to 350m. Endemic to Somalia.

Additional collections. SOMALIA. Jubbada Hoose region: Ngumi Island, 42°16–18'E 0°45–46'S, 4 ix 1959. *G. Moggi* & *R. Bavazzano* 2109 (FT) & 2437 (FT); Lake Salamo near Stambul, c.72km SW of Chisimaio, 42°07'E 0°52'S, 28 x 1971. *G. Moggi* & *R. Bavazzano* s.n. (FT); San Uanle near Chisimaio, 42°27'E 0°37'S, 9–11 vi 1973. *R. Bavazzano* s.n. (FT); *ibid.*, 25–26 vii 1975, *M. Tardelli* 146 (FT); *ibid.*, 29 vii 1975, *G. Moggi*, *M. Tardelli* & *R. Bavazzano* 181 (FT); *ibid.*, 6 viii 1975, *R. Bavazzano* & *M. Tardelli* 423 (FT); *ibid.*, 7 viii 1975, *R. Bavazzano* & *M. Tardelli* 539 (FT); Ras Mtoni (Mtumi), 42°27'E 0°37'S, 2 viii 1975. *G. Moggi*, *M. Tardelli* & *R. Bavazzano* 279 (FT); between Fuma Terra and Girole, 13 viii 1975. *M. Tardelli* & *R. Bavazzano* 618 (FT); Coiama Island, N side, 14 viii 1975. *R. Bavazzano* & *M. Tardelli* 656 (FT); Coiama Island, S side, 14 viii 1975. *R. Bavazzano* & *M. Tardelli* 720 (FT); Bagiumi Island, 15 viii 1975. *R. Bavazzano* & *M. Tardelli* 753 (FT).

Shabeellaha Hoose region: Marka district, in and near Gandershe, 44°58'E 1°50'N, 11 vi 1981, *G. Moggi & M. Tardelli* 148 (FT); *ibid.*, 20 vii 1988, *N. Kilian* 1884 & *W. Lobin* 6714 (BONN).

Banaadir region: Geesira c.10km S of Mogadishu, 45°11'E 1°57'N, 19 vii 1988, *N. Kilian* 1860 & *W. Lobin* 6714 (BONN).

Bay region: c.20km SE of Buur Heybo, 44°25'E 2°54'N, 190m, 1 vi 1989, *M. Thulin & B. A. Mohamed* 6783 (UPS); Buur Heybo, 44°17'E 2°59'N, 250m, 17 v 1990, *M. Thulin, M. Hedrén & A. M. Dahir* 7510 (UPS).

The plant described as *Fimbristylis cioniana* Savi var. *microcarpa* Chiov. is here considered to belong to *Bulbostylis somaliensis*. However, it differs from the two other subspecies in its reddish basal leaf sheaths, the shorter glumes and the slightly smaller achene with three undulate angular ribs. I consider this plant to constitute a separate subspecies. Therefore the following new combination is needed:

***Bulbostylis somaliensis* Lye subsp. *microcarpa* (Chiov.) Lye, comb. et stat. nov.**

Basionym: *Fimbristylis cioniana* Savi var. *microcarpa* Chiov. in Result. Sci. Miss. Stefanini-Paoli: 180 (1916). Type: Somalia, Bay region: between Goriei and El-Magu, 18 vii 1913, *G. Paoli* 629 (holo. FT).

Subsp. *microcarpa* is a slender tussocky annual with 10–25cm long × 0.3–0.5mm thick densely short hairy culms. *Leaves* with prominent red basal sheaths contrasting brightly with the long white hairs from the orifices of the leaf sheaths; blades 2–10cm long and 0.3–0.5mm wide, flat or incurved, densely short hairy.

Inflorescence a lax anthela of one sessile spikelet subtended by 1–8 solitary spikelets or groups of spikelets. *Spikelets* 4–6mm long × 1.5–2.5mm wide, ovate to lanceolate, light brown. *Glumes* 1.7–2.0mm long, light reddish brown but often darker near the midrib above and paler near margin, but without prominent pale marginal border, densely short hairy on both surface and margin. *Achene* 0.6–0.7mm long and 0.4–0.5mm wide, obovate, white to light reddish brown, with 8–12 transverse wrinkles on each of the three sides; the angular ribs not papillose.

Distribution and ecology. In sandy, seasonally damp soil, c.150m. Known only from the type collection.

The three subspecies of *Bulbostylis somaliensis* can be separated using the following key:

- 1a. Basal sheaths reddish; glumes 1.7–2mm long; achene 0.6–0.7 ×
0.4–0.5mm subsp. **microcarpa**
- 1b. Basal sheaths pale or light reddish brown; glumes 2–2.5mm long; achene
0.7–0.8 × 0.5–0.7mm 2
- 2a. Achene almost globose subsp. **somaliensis**
- 2b. Achene obovate, obtusely triangular subsp. **confusa**

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REFERENCE

HAINES, R. W. & LYE, K. A. (1983). *The sedges and rushes of East Africa*. Nairobi.

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