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Kyllinga beninensis (Cyperaceae), a New Species from Bénin

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ABSTRACT. *Kyllinga beninensis* Samain, Reynders & Goetghebeur, a new species of Cyperaceae from the Borgou-Sud region of Bénin, is fully described and illustrated. This species can be recognized by the slender habit with swollen stem base, the tiny white head consisting of a single spike, and the spikelets with two glumes and one flower. Morphological differences with the species *K. microbulbosa* Lye from East Africa, to which *K. beninensis* bears a superficial resemblance, are discussed.

Key words: Bénin, Cyperaceae, *Kyllinga*.

Since 1997, botanists of both the National University of Bénin and Wageningen University (The Netherlands) have been cooperating on the "Projet d'aménagement d'un Herbier National et de rédaction de la Flore Analytique du Bénin." One of the aims of this project is the publication of a flora for Bénin. In a recent study of the Cyperaceae for this flora (Samain & Goetghebeur, 2006), an enigmatic specimen of *Kyllinga* Rottbøll was noticed. After identification attempts with several keys for African species of *Kyllinga* (Hooper, 1972; Haines & Lye, 1983; Scholz & Scholz, 1983), it became evident that we had discovered a new species in the genus *Kyllinga*.

Kyllinga beninensis Samain, Reynders & Goetghebeur, sp. nov. TYPE: Bénin. Borgou, Tchaourou, Ouari-Maro, 27 Aug. 1999, *B. Sinsin 3038* (holotype, WAG). Figures 1, 2.

Herba perennis tenuis; basis culmi tumida. Bracteae involucrales 2–3; spica solitaria terminalis, ovoidea ad globosa; spiculae numerosae. Spicula constans biglumosa et uniflora; glumae albidae ad stramineae, translucidae ubi maturae, obtusae ad apicem. Achenium lateraliter biconvexum, complanatum, ellipsoideum, ferrugineum ad badium, papillosum seriebus longitudinalibus, obtusum ad apicem, interdum basi styli persistentis ut apiculo brevi.

Small, perennial herb with a swollen stem base 2–3 mm thick, covered by persistent red-brown scales, stems few together, loosely connected (Fig. 1A, B); culms 10–20 × 0.02–0.04 cm, angular with rounded ribs, glabrous (Fig. 1C). Leaves basal, laminae well developed, 1.5–6 cm, linear, enrolled when dry, scabrid on edges near top (Fig. 1D). Inflorescence capitate, consisting of a single white, ovoid to globose spike, 2–5 mm, with many spirally placed spikelets (Fig. 1E); receptacle narrowly ovoid to cylindrical, to 1 × 0.5 mm (Fig. 1F); involucral bracts 2 or 3, spreading or slightly reflexed, scabrid on edges and underside of midrib near the top, V-shaped in cross section, largest bract 1–3 cm, second bract 0.5–1.2 mm. Spikelet 1–1.3 mm, consisting of 2 glumes and 1 flower (Fig. 1G, 2A); glumes white or straw-colored, translucent when mature, 1–1.3 mm; glume midrib straw-colored, raised, glabrous, with obtuse apex; nerves on each side of the midrib 2 or 3, raised and straw-colored. Nutlet biconvex, laterally flattened, ellipsoidal with asymmetrical attachment, 0.9–1.1 × 0.4–0.5 mm, light to dark brown, surface with small papillae in longitudinal rows, apex obtuse, base of the style sometimes remaining as a short apiculus (Fig. 1H, I; 2B, C).

The genus *Kyllinga* can easily be distinguished from other Cyperaceae by its headlike inflorescence, small and few-glumed spikelets, and laterally compressed nutlets with two style branches (Getliffe, 1983; Goetghebeur, 1998; Tucker, 1984). These reduced characters result in a strong similarity among the different species and a difficult taxonomy of the genus. Vegetative characters such as stolons, rhizomes, stem bases with persistent leaf sheaths, and leaf and culm characteristics are very important to distinguish the different species of *Kyllinga*. Unfortunately, these structures are often not collected so that many collections can hardly be identified with certainty.

Identification of the specimen with the Flora of West Tropical Africa key(s) (Hooper, 1972) gives *Kyllinga echinata* S. S. Hooper. This species, however, has larger spikes 8–10 mm wide, old leaf sheaths that decay into black fibers, and long-tipped spikelets. Using key(s) in Scholz and Scholz (1983) brings us to *K. nigritana* C. B. Clarke, which has reddish glumes (when dry) with a wide ciliate wing (not present on the specimen). Identification key(s) in *The Sedges and Rushes of East Africa* (Haines & Lye,

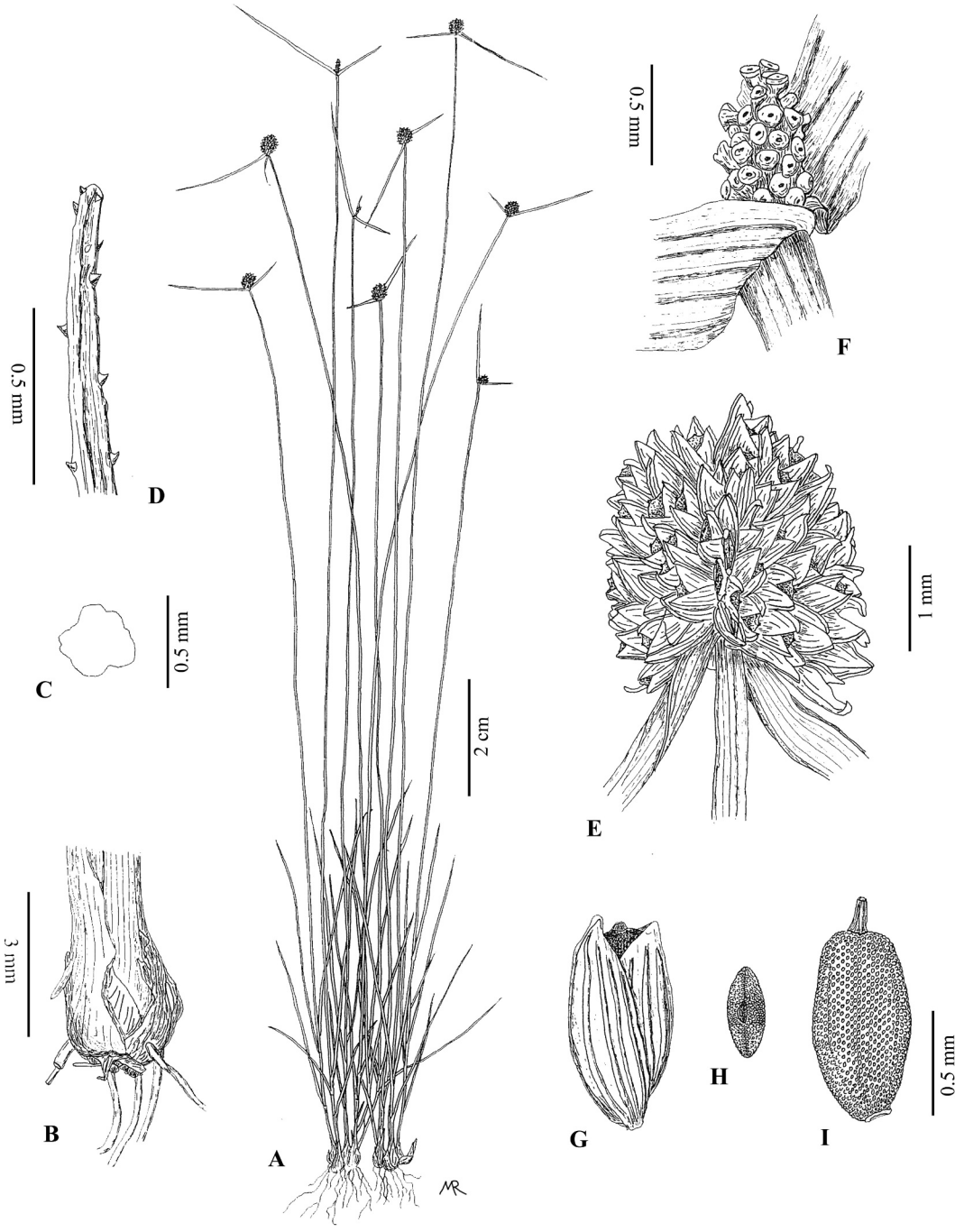

Figure 1. *Kyllinga beninensis* Samain, Reynders & Goetghebeur. —A. Habit. —B. Swollen stem base. —C. Culm section. —D. Leaf tip. —E. Inflorescence. —F. Receptaculum. —G. Spikelet. —H. Fruit, upper view. —I. Fruit, lateral view. (Drawn from the holotype, *Sinsin 3038*, WAG, by Marc Reynders.)

1983) lead to *K. microbulbosa* Lye. The resemblance is rather good, but *K. microbulbosa* has much larger glumes and spikelets with more flowers per spikelet than the novel specimen from Bénin (Lye, 1972). Key distinguishing morphological features of these two species are given in Table 1.

Kyllinga beninensis is characterized by the slender habit and swollen stem base. The white head with

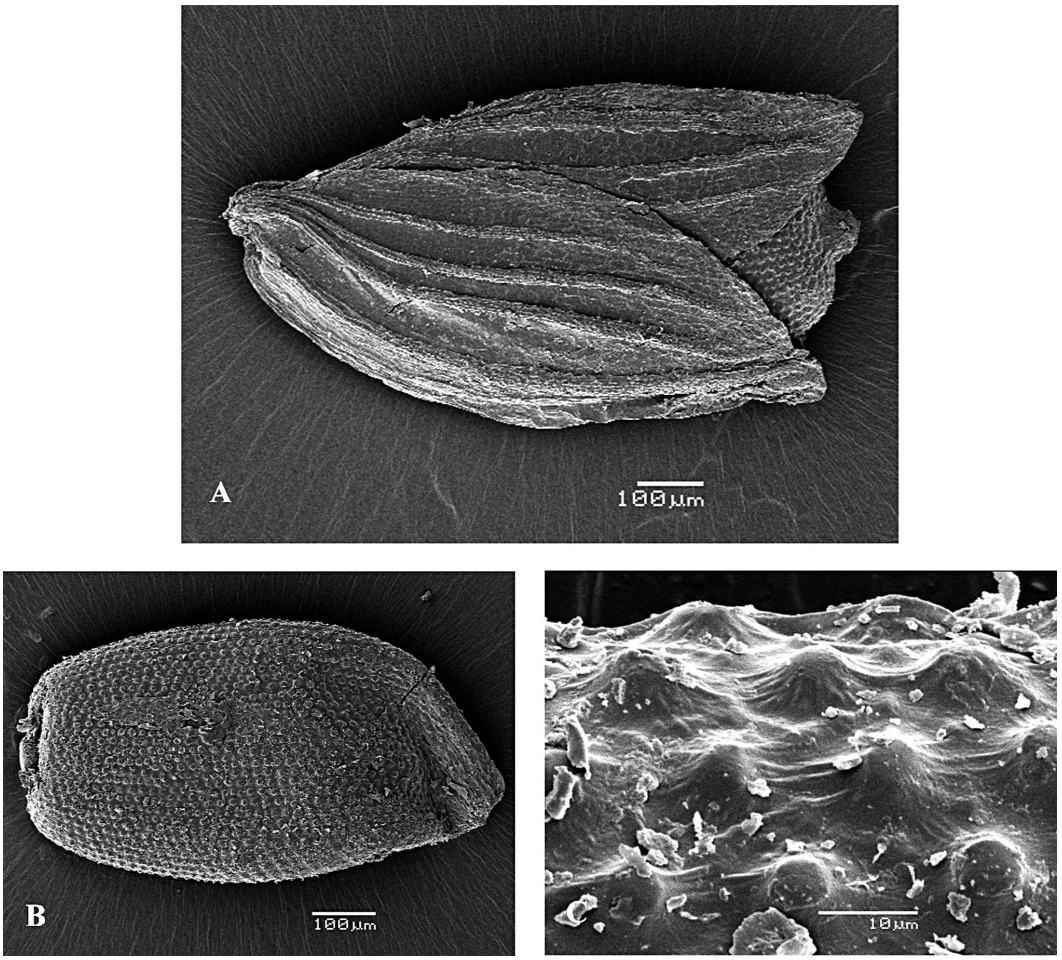

Figure 2. *Kyllinga beninensis* Samain, Reynders & Goetghebeur, SEM images. —A. Spikelet. —B. Nutlet. —C. Detail of the surface of a nutlet. (*Sinsin 3038*, WAG.)

a single spike, the small spikelets with only two glumes that lack appendages, and the achene with papillae in longitudinal rows are other important characters of this species.

The Borgou-Sud region in Bénin, where the only known specimen of this new species was collected, is the northern part of the Guineo-Sudanian transition zone. This region is characterized by a mosaic of woodlands, dense dry forests, and tree- and shrub-savannas, and is the northern equivalent of the miombo woodland south of the equator (Adjanohoun et al., 1989; Houinato & Sinsin, 2001).

Table 1. Main distinguishing characters of *Kyllinga beninensis* and *K. microbulbosa* (characters of *K. microbulbosa* after Lye, 1972).

	K. beninensis	*K. microbulbosa*
Spikelet length, mm	1–1.3	2–3
Glume length, mm	1–1.3	2–2.5
Flowers per spikelet	1	1 to 3

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