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SHORT COMMUNICATION

Chlorophytum burundiense (Asparagaceae), a new species from Burundi and Tanzania

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Background and aims – In the context of our preparation of the treatment of the genus *Chlorophytum* for the 'Flore d'Afrique centrale', a new species is described from Burundi and Tanzania.
Methods – Herbarium taxonomy and SEM of seeds.
Key results – *Chlorophytum burundiense* Meerts sp. nov. is described. It is a small plant < 35 cm in height, with linear leaves < 6 mm wide, a dense raceme and large, deep purplish brown bracts. It is morphologically not closely related to any other species in the genus. It has a distinct habitat, growing in afromontane grassland and scrub at 2000–2500 m a.s.l. All collections but one originate from Burundi, and a single collection originates from SW Tanzania. A determination key is provided for *Chlorophytum* species with linear leaves occurring in Burundi.

Key words – afromontane, determination key, new species, *Chlorophytum*, SEM, Burundi, Tanzania.

INTRODUCTION

The circumscription of the genus *Chlorophytum* Ker Gawl. (Asparagaceae in APG 2009) was revised by Obermeyer (1962), Marais & Reilly (1978), Nordal et al. (1990) and Kativu & Nordal (1993) to include all the species formerly included in *Acrospira* Baker, *Debesia* Kuntze, *Dasystachys* Baker, *Verdickia* De Wild. and most of the African species formerly included in *Anthericum* L. The genus *Chlorophytum* has been recently revised for Flora of Tropical East Africa (Nordal et al. 1997) and Flora Zambesiaca (Kativu et al. 2008).

For Burundi, the last revisions of the genus date back to von Poellnitz (1942, 1946) but very few collections are cited from that country. In his description of vegetation of W Burundi, Lewalle (1972) cited thirteen species. Recently, two species have been added to the flora of Burundi, i.e. the newly described *C. hirsutum* Poulsen & Nordal (Poulsen & Nordal 1999) and *C. lancifolium* Baker subsp. *lancifolium* (Poulsen & Nordal 2005).

In order to prepare the treatment of the genus for the 'Flore d'Afrique Centrale' (FAC), we have critically revised all the materials of *Chlorophytum* from Burundi in BR, BRLU, BRVU, B and K. Sixteen species have been recognized in that material (Meerts & Bjorå in prep.), i.e. *C. angustissimum*, *C. blepharophyllum*, *C. calyptrocarpum*, *C. cameronii* var. *cameronii*, *C. cameronii* var. *pterocaulon*, *C. colubrinum*, *C. hirsutum*, *C. lancifolium* subsp. *lancifolium*, *C. macrophyllum*, *C. micranthum*, *C. rubribracteatum*, *C. silvaticum*, *C. sparsiflorum*, *C. stolzii*, *C. subpetiolatum*, *C. zingiberastrum* (taxonomy and nomenclature after Nordal et al. 1997, Kativu et al. 2008). In addition, a species came to our attention which could not be identified using Baker (1898), von Poellnitz (1942, 1946), Nordal et al. (1997), Kativu (1994) and Kativu et al. (2008). It is here described as a new species.

TAXONOMIC TREATMENT

Chlorophytum burundiense Meerts, **sp. nov.**

Planta (5–)10–35 cm alta, tota glabra. Radices tenues, ad basin abrupte incrassatae carnosaeque usque ad 2–4 mm latae, nonnumquam cum distali fusiforme tuberculo. Foliae subdistichae aut rosulam formantes, 5–14, sublineares 4–16(–26) cm × 3–5.5 mm, ad basin dilatatae in vagina membranacea, margine laevi aut minutissime papilloso. Pedunculus 5–15 cm (usque ad 20–35 cm in fructu), saepe cum una bractea infra racemum. Inflorescentia racemosa 4–10 cm longa, cum rachide subalata; bracteae ovato-lanceolatae, acutae, (6–)11–17 × 3–5 mm, pedicellos paulum amplectentes, purpureae-fuscescentes. Pedicelli 1–3, c. 8 mm longi, elongantes usque ad 11 mm in fructu, in medio aut supra medium articulati, angulati aut anguste alati supra articulum. Flores albi, nonnumquam deinde roseoli, tepalis 7–8.5 × 2–2.5 mm longis, 4–5 nervatis, superne minutissime papillosis; stamina tepala aequantia, antheris 1.5–2 mm brevioribus filamentibus applanatis. Fructus 4–6 × 4.5–6 mm, lobati, triquetri, transversaliter venosi. Semina rotunda ac applanata (1.5–)1.8–2 mm. –

Figure 1 – *Chlorophytum burundiense*: A, habit (*Baudet* 304); B, inflorescence (*Lewalle* 3998); C, flower (*Valière* BR 848048); D, fruit (*Lewalle* 5131); E, pedicel (*Lewalle* 3998). Scale bars: A, 2 cm; B, 1 cm; C & D, 5 mm; E, 1 mm. Drawn by Marijke Meersman.

Key to narrow-leaved *Chlorophytum* species in Burundi

1. Inflorescence a branched panicle.....2
1'. Inflorescence a raceme.....3
2. Plant not hysteranthous; leaves 1–3 mm wide; peduncle pubescent-papillose in lower part; leaf margin scabrid or ciliate at least in lower part.....*C. angustissimum*
2'. Plant hysteranthous; leaves 5–9 mm wide; peduncle glabrous; leaf margin smooth.....*C. micranthum*
3. Leaves distichous; pedicels articulated in lower half, fruit transversally ridged; tepals 8–15 mm long; seeds irregularly folded.....4
3'. Leaves rosulate to more or less distichous; pedicels articulated near middle; fruits not ridged; tepals 3–9 mm; seeds disc-shaped.....5
4. Cataphylls with reddish tinge, pubescent; leaves generally < 5 mm wide, glabrous or pubescent; filament longer than anther.....*C. rubribracteatum*
4'. Cataphylls without reddish tinge (but sometimes with purple spots), glabrous; leaves (3–)5–20 mm wide, glabrous; filament shorter than or as long as anther.....*C. cameronii*
5. Plant not hysteranthous; roots thickened and spongy near base; inflorescence relatively dense with pedicels longer than internodes; bracts purplish brown, 11–15 mm long.....*C. burundiense*
5'. Plant hysteranthous; roots neither thickened nor spongy near base; inflorescence very lax, with pedicels shorter than internodes; bracts greenish, < 5 mm long.....*C. micranthum*

Type: Burundi, territoire Muramvya, sommet du Mont Teza, prairie d'altitude, 8 Dec. 1972, *Baudet* 304 (holo-: BR; iso- : K).

Plant solitary or more generally in tufts, (5–)10–35 cm high, completely glabrous. Rhizome short, vertical, with fibers; roots thin, more or less abruptly dilated into a spongy base 1–2 cm long, 2–4 mm thick, occasionally with a small distal tuber. Leaves in a basal rosette to more or less distichous, erect to spreading, linear, 4–16(–26) × 3–5.5 mm, flat or somewhat plicate, with c. 9–13 nerves, somewhat attenuate in the lower half, and dilated at base in a hyaline sheath, glabrous, margin entire or rarely finely papillose. Peduncle 1–2 to a plant, terete, stiff, naked or with a single bract under the inflorescence, whitish, (1–)2–3 mm thick under the inflorescence (in herbarium), 5–15 cm, elongating up to 20(–35) cm in fruit, equal to or slightly longer than leaves. Inflorescence: a raceme 4–10 cm long, relatively dense (3–4 nodes/cm), rachis angled or nearly winged; pedicels 1–3 per node, c. 8 mm long, elongating up to 11 mm in fruit, articulate at or above middle, angled or narrowly winged above articulation; bracts prominent, ovate-lanceolate, slightly sheathing the pedicels, purple brownish, more or less blackening in herbarium, (6–)11–17 × 3–5 mm. Tepals white, often becoming slightly rose after flowering, 7–8.5 × 2–2.5 mm, with 4–5 nerves, very finely papillose on adaxial side; stamens as long as perianth, anthers 1.5–2 mm, shorter than flattened filaments; style 6–7 mm. Fruit deeply lobed, triquetrous, slightly veined transversally, 4–6 × (4–)4.5–6 mm. Seeds disc-shaped, (1.5–)1.8–2 mm; testa with high, convex periclinal walls with rough surface (figs 1 & 2).

Other material examined – **Burundi**: Territoire Bururi, Tora, steppe, alt. 2450 m, 7 Feb. 1971, *Lewalle* 5131 (BR); Territ. Muramvya, Teza, Mont Ngoma, pelouse à *Eragrostis*, 15 Dec. 1979, *Reekmans* 8508 (BR, BRVU, K); Territ. Muramvya, Teza, steppe, alt. 2500 m, 12 Nov. 1972, *Reekmans* 2031 (BR); Territ. Muramvya, Teza, zone des bruyères, alt. 2200 m, Nov. 1972, *Valière* s.n. (BR 848048); Territ. Muramvya, Nabigondo-Teza, plantation de thé, fruticée à *Philippia*, alt. 2500 m, 4 Nov. 1969, *Lewalle* 3998 (BR); Territ. Muramwya, près Igenda, prairie humide, alt. 2000 m, 21 Dec. 1966, *Lewalle* 1358 (BR); Territ. Muramvya, Mont Manga, steppe, alt. 2300 m, 19 Nov. 1972, *Reekmans* 2069 (BR).

Tanzania: Njombe district, Elton [= Kitulo] Plateau, on side of mountain among rocks and grass, alt. 2400 m, 7 Jan. 1957, *H.M. Richards* 7566 (K).

The species is not closely related morphologically to any other species in Central Africa. The combination of small habit, linear leaves, roots thickened proximally, large dark purplish-brown bracts and distally angulose-winged pedicels is typical. Seed testa has strongly convex periclinal walls with rugose surface. *C. burundiense* might find its closest relative in the morphologically variable *C. subpetiolatum* complex. The root system, the general flower and fruit morphology show similarities. The new species is however distinct in its narrower leaves, its longer, winged pedicels, the large brownish bracts, the anthers being shorter than the filaments, and seed shape.

Chlorophytum burundiense is also distinct in its habitat requirements. All known materials have been collected in grassland and scrubland at high altitude (2000–2500 m). A collection of *C. burundiense* (*Lewalle* 3998) is cited (as *C. comosum*) by Lewalle (1972) from the upper vegetation belt of W Burundi, with the highest percentage of endemism (10–20%). Data are so scarce that an assessment of conservation is at present impossible.

The species is almost endemic to Burundi, with a single collection from SW Tanzania. The collection from Tanzania is situated c. 700 km south of all other collections, suggesting that the species might exist elsewhere in mountains of W Tanzania. This collection has finely papillate leaf margin (leaf margin smooth in all collections from Burundi).

Chlorophytum species with narrow leaves in Burundi include *C. angustissimum*, *C. cameronii*, *C. micranthum*, *C. rubribracteatum*. They can all be found in mountain grassland and will be easily distinguished by the key herewith (taxonomy and nomenclature after Nordal et al. 1997).

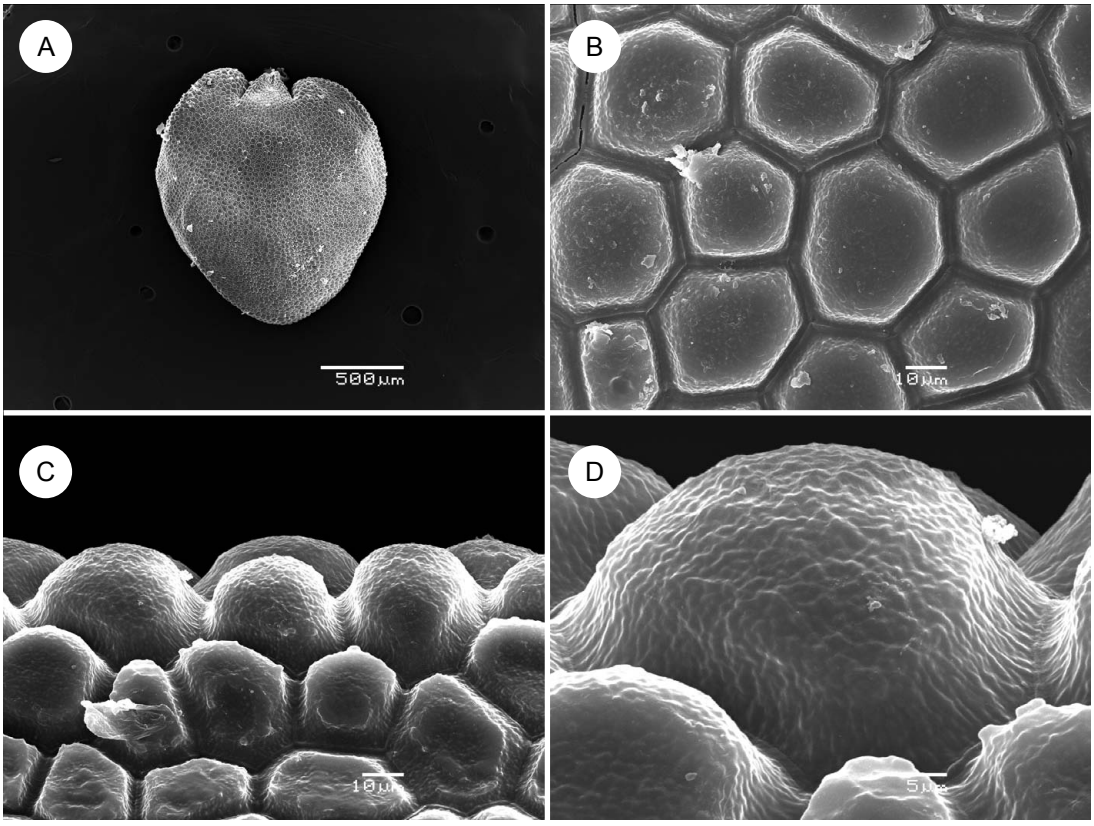

Figure 2 – *Chlorophytum burundiense*: A, seed; B, seed-coat in surface view; C–D, seed-coat in lateral view. SE micrographs, from *Lewalle* 5131 (seeds gold-coated but otherwise untreated).

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