Studies on Schismatoglottideae (Araceae) of Borneo XXXIX: Schismatoglottis persistens, a new rhizomatous rheophytic species for the Schismatoglottis Multiflora Group

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Studies on *Schismatoglottideae* (*Araceae*) of Borneo XXXIX: *Schismatoglottis persistens*, a new rhizomatous rheophytic species for the *Schismatoglottis* Multiflora Group

Abstract

Wong S. Y. & Boyce P. C.: Studies on *Schismatoglottideae* (*Araceae*) of Borneo XXXIX: *Schismatoglottis persistens*, a new rhizomatous rheophytic species for the *Schismatoglottis* Multiflora Group. – Willdenowia 44: 247–251. 2014. – Version of record first published online on 8 July 2014 ahead of inclusion in August 2014 issue; ISSN 1868-6397; © 2014 BGBM Berlin-Dahlem.

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A new rheophytic species of *Schismatoglottis*, *S. persistens* S. Y. Wong & P. C. Boyce is described from Sri Aman Division, Sarawak, Malaysian Borneo. It is remarkable in the genus by the combination of a creeping, rooting, rhizome-like stem and persistent ligules at the tip of the petiolar sheath.

Additional key words: aroids, Malaysian Borneo, Sarawak, Sri Aman Division, rheophyte

Introduction

During fieldwork at Batang Ai, SW Sarawak, in 2004 we encountered a rheophytic rhizomatous *Phymatarum*-like aroid growing on shaded consolidated alluvial clay-loam banks roughly along the upper spate zone of the Sungai Pedali, a steep-banked forest stream draining into the larger Sungai Sumpa. Despite extensive searching over several days we failed to find the plant in flower; indeed we did not encounter any further populations.

A living portion (collected as *AR-2383*) was brought into cultivation under permit and although growing well for several years it failed to flower until exposed to more light, more than in the heavily shaded conditions in which it grew in the wild. Flowering has revealed it not to belong to *Phymatarum* M. Hotta but instead to be a novel species of *Schismatoglottis* Zoll. & Moritzi remarkable in possessing an extensive epigeal, rooting rhizome from which tufts of erect leaves arise, the petioles of which have the petiolar sheath extended into a pair of long, free, persistent ligules, with the entire plant highly reminiscent of *Phymatarum*.

Results and Discussion

Schismatoglottis persistens S. Y. Wong & P. C. Boyce, **sp. nov.** – Fig. 1 & 2B, D & F.

Holotype: Malaysian Borneo, Sarawak, Sri Aman, Lubok Antu, Batang Ai, Nanga Sumpa, Sungai Pedali,

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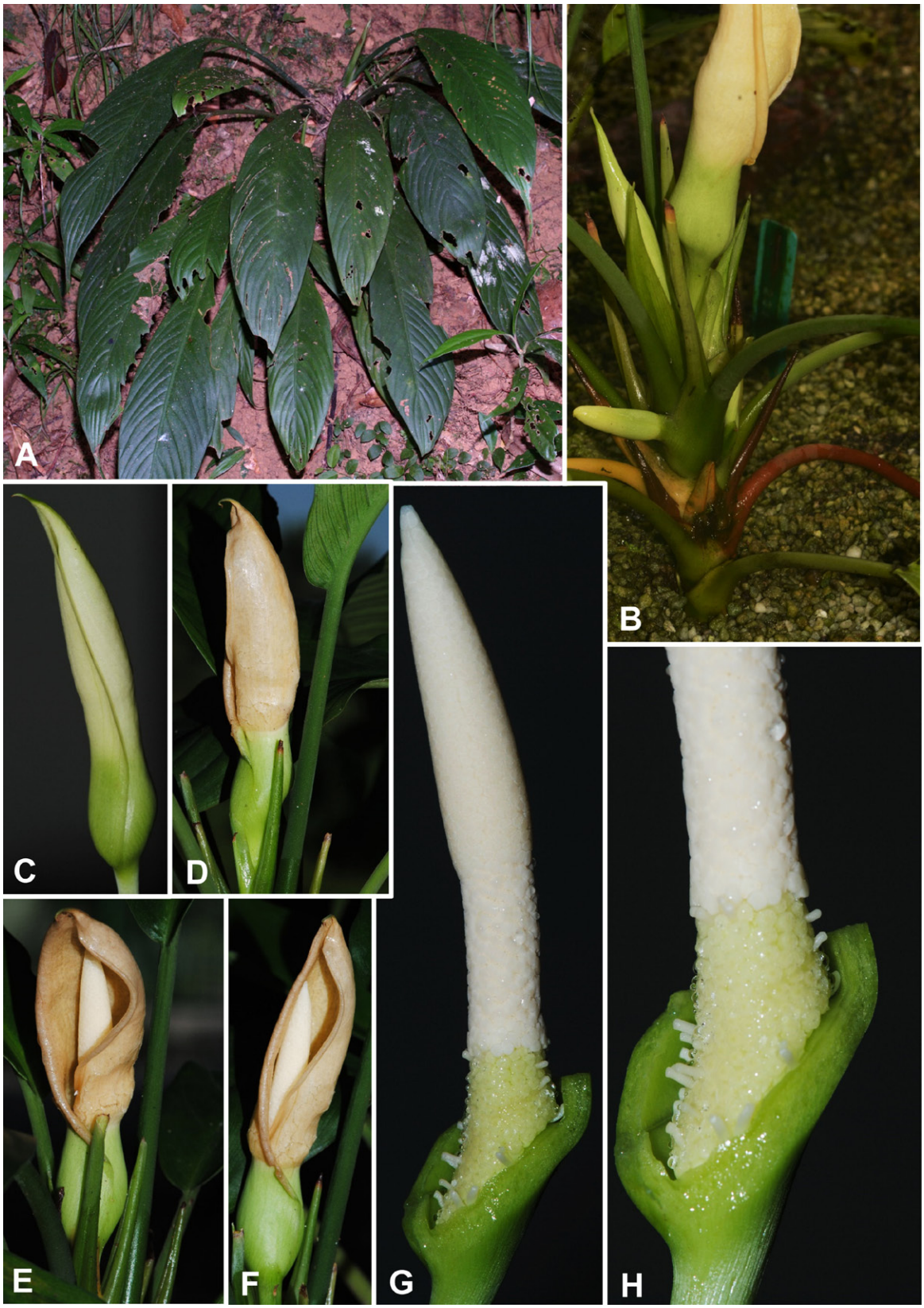

Fig. 1. *Schismatoglottis persistens* – A: plant in habitat, type locality; B: flowering shoot of cultivated plant at early staminate anthesis; note prophylls and cataphylls alternating with inflorescences; note, too, spathe limb colour; C: inflorescence at pistillate anthesis; note slit-like opening below terminal rostrum; D, E & F: inflorescence at late staminate anthesis; note spathe limb has darkened and is beginning to degrade (cracking) at junction with lower spathe; G: spadix at pistillate anthesis, spathe artificially removed; H: detail from G, showing pistillate and staminate flower zones. – All from *P. C. Boyce & al. AR-2383*. – Photographs by Peter C. Boyce.

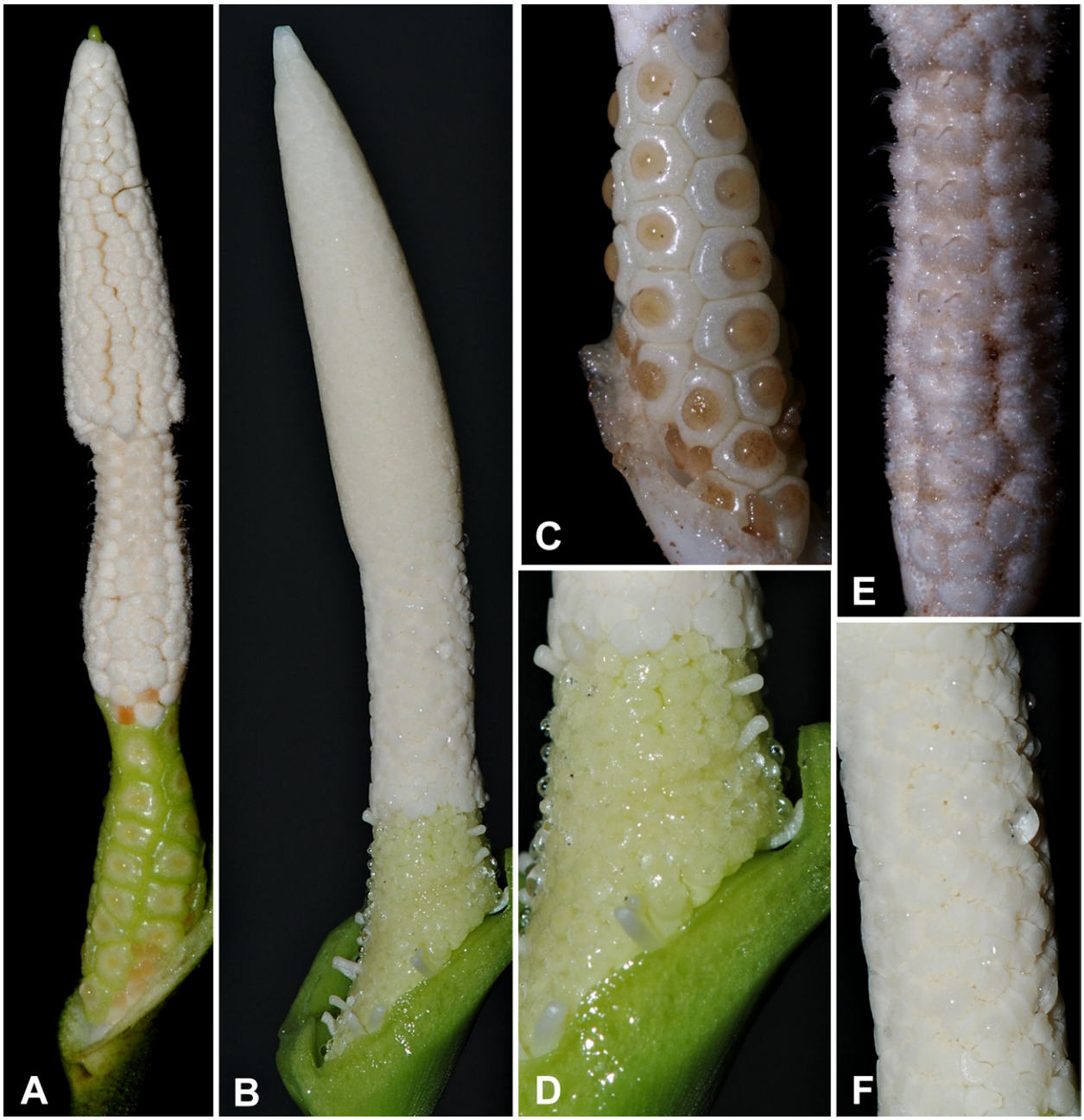

Fig. 2. *Phymatarum borneense* M. Hotta (A, C & E) and *Schismatoglottis persistens* (B, D & F) – A: spadix at pistillate anthesis, spathe artificially removed; B: spadix at pistillate anthesis, spathe artificially removed; C: detail of pistillate flower zone at pistillate anthesis; note large pistils and stigma; D: detail of pistillate flower zone at pistillate anthesis; note small pistils; E: detail of staminate flower zone at pistillate anthesis; note paired stamens with verrucate thecae and needle-like theca horns; F: detail of staminate flower zone at pistillate anthesis; note lack of theca horns. – A, C & E from *P. C. Boyce & al. AR-2330*; B, D & F from *P. C. Boyce & al. AR-2383*. – Photographs by Peter C. Boyce.

01°11'58.9"N, 112°03'27.0"E, c. 80 m a.s.l., 25 May 2008, *P. C. Boyce, Wong Sin Yeng & Jepom ak Tisai AR-2383* (SAR!; isotypes: SBC! [alcohol], SBC! [alcohol], SING!).

Diagnosis — *Schismatoglottis persistens* is unique in the genus by the combination of the stout, elongated, creeping and rhizome-like stem with leaves arising in clusters along its length, and by the persistent ligules at the distal end of the petiolar sheath. *Schismatoglottis persistens* differs from *S. erecta* M. Hotta, the only other species with elongated stems (but in that species erect) and persistent, free ligules, by the much more robust (1–2 cm in diam. vs c. 3 mm in diam.), creeping (not erect) stems, and by the larger (8–9 cm long vs c. 3 cm long), erect (not nodding) inflorescences. *Schismatoglottis persistens* shares persistent ligules with *S. monoplacenta* M. Hotta, but otherwise is very different by the creeping (not erect)

stem, the leaf blades erect from the tip of the petiole (vs leaf blades pendulous from the tip of the petiole), and by its ecology as a rheophyte on clay-loam river banks (vs obligation to vertical karst limestone cliffs).

Description — *Herbs* rheophytic, perennial, creeping, to c. 40 cm tall. *Stem* fleshy, somewhat elongate, rooting along its length in mud; *internodes* to 3 cm long × 1–2 cm in diam. *Leaves* several together in a cluster at each active tip, with clusters also arising adventitiously along length of stem; *petiole* shorter than blade, 8–12 cm long, sub-terete, dorsally very slightly flattened and weakly crisped alate, sheathing only at extreme base, wings extended into a narrowly triangular ligular persistent portion c. 5 cm long; *leaf blade* broadly oblanceolate to narrowly elliptic, 12–23 cm long × 3–7 cm wide, distinctly coriaceous, adaxially semi-glossy medium green, very slightly paler and matte abaxially, base cuneate to narrowly rounded, apex acuminate and apiculate for c. 1 cm; *midrib* adaxially ± flush with blade, abaxially prominent; *primary lateral veins* c. 15 on each side, regularly alternating with somewhat lesser interprimaries, diverging at 45°–60°; *secondary venation* adaxially ± obscure, abaxially very fine and comprised of somewhat dense pellucid vein-like glands; *tertiary venation* invisible. *Inflorescences* c. 5 in a simple synflorescence subtended by lanceolate fleshy cataphylls resembling ligules, with a strong esteric odour at pistillate anthesis; *peduncle* compressed cylindric, completely concealed by cataphylls at anthesis, c. 3 cm long × 5 mm wide × 3 mm thick. *Spathe* ± erect at pistillate anthesis, becoming fornicate at staminate anthesis, 8–9 cm long, at anthesis lower spathe narrower than spathe limb but without an obvious constriction at junction of spathe limb with lower spathe; *lower spathe* narrowly ovoid and asymmetric, pale green with very fine darker longitudinal veins, dorsally c. 1 cm long, ventrally c. 2 cm long and somewhat gibbous, persistent; *spathe limb* cream at pistillate anthesis, darkening to pale ochre during staminate anthesis, opening broadly lanceolate, 5.5–7.5 cm long, rostrate for c. 2 cm, inflating at pistillate anthesis and opening via a narrow terminal slit, then widely gaping (c. 2.5 cm wide) and fornicate with limb margins reflexing during staminate anthesis, then degrading into a slimy adherent layer. *Spadix* 5–6 cm long, subcylindric (slightly attenuate at top of pistillate zone); *pistillate zone* 7 mm (dorsal side) to 15 mm long (ventral side), narrowly conic, obliquely inserted, distally c. 6 mm in diam., very pale green; *pistils* small, crowded, c. 0.8 mm in diam., ellipsoid-bottle-shaped; *stigma* sessile, discoid, wider than top of pistil, c. 1 mm wide, papillose; *interpistillar staminodes* sparse, irregularly scattered among pistils, occasionally forming an incomplete row at junction with peduncle, c. 2 mm long, much exceeding pistils, slender vermiform-claviform with cap only slightly wider than stalk, waxy white; *sterile interstice* ill-defined, usually with a single row of partially formed polygonal staminodes; *interstice staminodes* c. 1 mm across, glossy white, apex truncate, irregularly orbicular-polygonal; *staminate zone* cylindric, c. 1.5 cm long × 0.4–0.5 cm in diam., white; *stamens* irregularly crowded, individual flowers very hard to distinguish, rectangular-dumbbell-shaped from above, truncate with thick connective slightly elevated above thecae; *thecae* opening by a single pore; *appendix* narrowly conic, pointed, proximally slightly wider than top of staminate zone, 2.5–3 cm long, widest part c. 5 mm in diam., distally tapering and narrowly obtuse, white; *appendix staminodes* rectangular-dumbbell-shaped from above, much resembling stamens in shape and size but more regularly arranged. *Fruiting spadix* not seen.

Ecology — *Schismatoglottis persistens* occurs as a rheophyte on shaded vertical consolidated clay-loam river banks under lowland humid forest at c. 80 m above sea level.

Distribution — Known only from the type locality in SW Sarawak.

Etymology -— From Latin, *persistens*, meaning lasting, or persisting, here used in reference to the persistent ligules of the petiolar sheath.

Remarks — It is not readily evident to what *Schismatoglottis persistens* is closely related. Although vegetatively most similar to *Phymatarum*, the pistillate and staminate flowers of the two are very different (compare Fig. 1 and Fig. 2). The presence of long, free ligules is one of the defining morphologies of the *Schismatoglottis* Multiflora Group (Hay & Yuzammi 2000; Wong 2010; Wong & Boyce 2008), as well as for most other genera of the *Schismatoglottideae* (Bogner & Hay 2000), but in most species such ligules are marcescent. Persistent ligules do occur in *Pichinia* S. Y. Wong & P. C. Boyce (Wong & Boyce 2010), but in other respects, and especially vegetatively, *S. persistens* and *Pichinia* are unalike. Persistent ligules are found in two species of the *Schismatoglottis* Multiflora Group – *S. erecta* M. Hotta, and *S. monoplacenta* M. Hotta – but these species are not otherwise obviously similar to *S. persistens*.

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