Studies on Homalomeneae (Araceae) of Borneo XIV – A New Rheophytic Species of *Homalomena* from Sarawak, Malaysian Borneo

Peter C. Boyce
Research Fellow
Institute of Biodiversity and Environmental Conservation (IBEC)
Universiti Malaysia Sarawak
94300 Kota Samarahan
Sarawak, Malaysia
phymatarum@gmail.com

Wong Sin Yeng
Department of Plant Science & Environmental Ecology
Faculty of Resource Science & Technology
Universiti Malaysia Sarawak
94300 Kota Samarahan
Sarawak, Malaysia
sywong@frst.unimas.my

ABSTRACT

Homalomena stella P.C.Boyce & S.Y.Wong is described as a new rheophytic species and illustrated from living plants. Based on several shared morphological characteristics the possible affinity of *H. stella* with *Homalomena havilandii* Ridl. is highlighted.

KEY WORDS

Araceae, Borneo, *Homalomena*, Malaysia, Sarawak, rheophytic.

INTRODUCTION

Hitherto, rheophytism in Bornean *Homalomena* has been almost exclusively associated with the Chamaecladon Supergroup (*sensu* Boyce & Wong, 2008), with the only known species recorded as rheophytic from other parts of the genus being the Bruneian and NE Sarawak *H. vagans* P. C. Boyce (Cyrtocladon Supergroup). However, fieldwork in the highly diverse and species-rich Kanowit-Sarikei river basin of west central Sarawak has revealed an often locally abundant rheophytic species belonging to the Cyrtocladon Supergroup and clearly unmatched with any yet described species, and which we here describe.

Homalomena stella P.C. Boyce & S.Y. Wong, **sp. nov.** Type: Malaysian Borneo, Sarawak, Sri Aman, Lubok Antu, Batang Ai, Nanga Sumpa, Sungai Mawang, 1°22′0.01″N 112°7′59.99″E, 480 m asl, 18 Feb. 2010, *P.C.Boyce & S.Y.Wong AR- 3011* (holo SAR; iso SAR [spirit]). **Fig. 1.**

Diagnosis

Homalomena stella most closely resembles *Homalomena vagans* but is readily distinguished by the rosette of leaves on a compact, erect stem (vs. leaves scattered along a creeping and rooting rhizome-like stem), and by the obscurely striate or mottled petioles and peduncles. Although yet to be analysed with molecular techniques, *Homalomena stella* is probably most closely allied to *Homalomena havilandii*, both characterized by pendent leaf blades lacking posterior lobes, with clearly visible pellucid primary lateral veins on the abaxial surface, green spathes, a

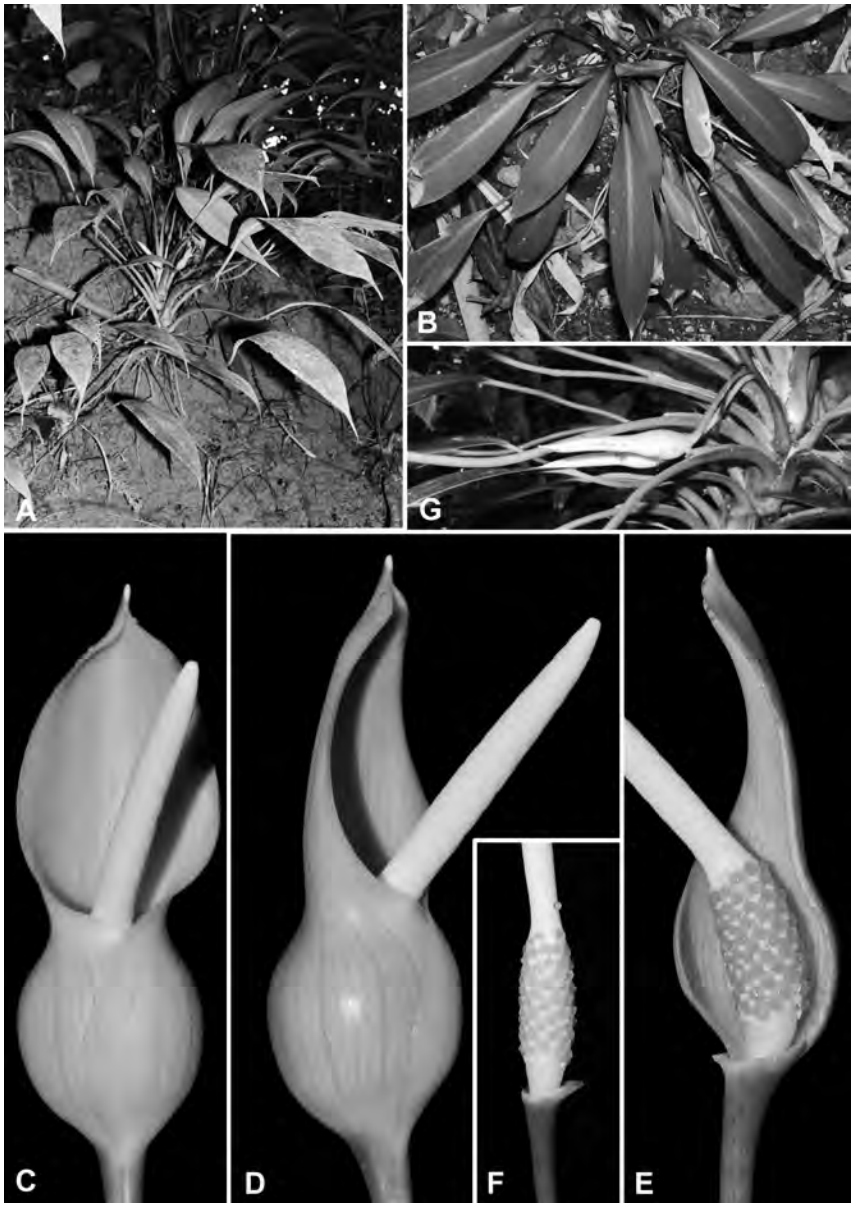

Fig. 1. ***Homalomena stella*** **P.C.Boyce & S.Y.Wong. A.** Flowering plant in habitat on a steep muddy riverbank, Type locality. Note the erect inflorescence. **B.** Plant viewed from above; note the matte green leaves and the paler mid-rib. **C.** & **D.** Inflorescence at onset pistillate anthesis. Note that the spadix has flexed to project from the spathe. **E.** Lower portion of a spadix with the spathe artificially removed prior to anthesis. Note that the spadix is straight. **F.** Inflorescence from the same plant as E, with the nearside spathe artificially removed to show the flexed spadix. Note that the stipe and pistillate zone are bent relative to the spadix in E. **G.** Plant post anthesis with the peduncle now declinate. **A–C** from *AR-1602;* **C–E** from *AR-3011*; **G** from an un-vouchered plant. Images © P.C.Boyce.

spadix elongating swiftly and projecting forwards from the spathe at pistillate anthesis, and by the pistillate flowers each associated with a large staminode, with *H. stella* differing from *H. havilandii* by the rheophytic (not lithophytic on dry boulders) ecology, the narrowly elliptic (not triangular ovate) leaf blades, and the triangular (not discoid-capitate) interpistillar staminodes.

Description

Medium, solitary, aromatic (reminiscent of mango resin) rheophytic herbs to 45 cm tall. **Stem** epigeal, erect, congested, all but the oldest portions obscured by densely overlapping leaf bases, rooting from the older exposed nodes and through the petiole bases. *Leaves* ca. 10 per module, ca. 12–20 together, spiral; modules subtended by a small conspicuously 2-keeled **prophyll** up to 3 cm long; **petioles** up to 23 cm long, sheathing for ca. 1/3 their length, spreading, flexing upwards at the 2–3 cm long pulvinus occurring ca. 2/3 along the petiole length, with 1/3 of the petiole lying distal to the pulvinus, petiole above the petiolar sheath terete in cross section, petiole matte pale to medium green with a faint mottled and broken-striate pattern; **petiolar sheath** persistent, 7–8 cm long, margins incurved, sheath coloured as for petiole, the margins narrowly marcescent; **blade** 17–25 × 4–6 cm; narrowly lanceolate to very narrowly elliptic, apex acuminate and tubular-mucronate for ca. 4 mm, matte medium olive green adaxially, abaxially matte pale green with darker pellucid striate interprimary venation; midrib moderately conspicuous, creamy yellow and somewhat impressed adaxially, rounded-raised abaxially; primary lateral veins about 4 per side, arising more ao less equally spaced, impressed adaxially, slightly raised abaxially; **interprimary veins** much finer than primary laterals, comprising very numerous conspicuous darker pellucid veins, sometimes branching just after they exit the midrib; secondary and tertiary venation ± invisible. **Inflorescences** up to 10 together, produced sequentially in a simple synflorescence; **peduncle** slender, about 10 cm, ca. 3 mm diam., except at the wider insertion of the spathe, pale matte green with darker broken striae, spreading with the spathe erect at anthesis, later pendent, spathe opening ventrally relative to the peduncle; **spathe** ca. 6 cm long; **lower part** ca. 2 cm long, 1.4–2 cm wide, ellipsoid at pistillate anthesis, becoming globose at staminate anthesis, exterior medium green with darker veins, interior very pale greenish white; **limb** ca. 4 cm long, ca. 1.5 cm wide. spreading at pistillate anthesis, narrowly ovate-ellipsoid, somewhat constricted at the junction with the convolute lower part, exterior pale green with darker longitudinal veins, interior greenish white with darker veining, tipped with a rostrate mucro 5 mm long. **Spadix** straight and shorter than spathe during development, extending and flexing forwards at pistillate anthesis, ca. 5.5 cm long at pistillate anthesis; **stipe** oblong-globose, oblique, ca. 4 mm long on its longest side, ca. 3 mm diam., waxy white; **pistillate flower zone** ca. 1/3 the length of the spadix, ca. 1.5 cm × 5 mm; **pistils** congested, cylindrical-globose, ca. 1 × 0.6 mm, bright medium green; **style** absent; **stigma** narrower than the ovary, umbonate-capitate and impressed into the ovary, bright green, producing a conspicuous stigmatic droplet at pistillate anthesis; **interpistillar staminodes** on a slender stalk, the tops expanded and triangular, equalling the height of the associated pistil, waxy white; **staminate flower zone** slightly narrower than the pistillate flower zone, with a single row of staminodes below the first row of pistillate flowers, ca. 3.5 × 0.4 cm, cylindrical-fusiform, ivory white; **staminate flowers** very densely packed, with individual flowers difficult to differentiate in fresh material, 4-staminate, stamens each with two anthers, rarely 3; stamens elongate-globose, connective forming a slightly impressed synconnective ca. .75 mm diam.; thecae opening by a tiny lateral slit. **Infructescence** not observed.

Distribution—*Homalomena stella* is restricted to the valleys of the Kanowit and Sarikei rivers, as far south as the Ai catchment along the border between Sri Aman Division and Kapuas Hulu Regency, Kalimantan Barat (Indonesian Borneo). *Homalomena stella* very likely also occurs in north eastern Kalimantan Barat, but as yet there are no collections to confirm this. The lower Rejang flows NW – SE through the northern part of this distributional area, with the Sungai (river) Sarikei feeding into the Rejang at Sarikei, although as yet *H. stella* is not recorded from the Rejang valley.

The valleys of the Kanowit and Sarikei rivers are home to a number of endemic aroid taxa, including the genera *Schottarum* P.C.Boyce & S.Y.Wong (Low et al., 2013) and *Schottariella* P. C. Boyce & S. Y. Wong, together with numerous undescribed species of *Ooia* S. Y. Wong & P. C. Boyce, *Homalomena* Schott, and *Schismatoglottis* Zoll. & Moritzi.

Ecology—*Homalomena stella* occurs as a rheophyte on steep shaded muddy river banks in lowland moist to wet evergreen forest on deep soils, often (but not exclusively) associated with shales; 20–100 m asl.

Etymology—From Latin, *stella* – a star – in reference to the rosettes of narrowly lanceolate leaves which viewed from above, somewhat whimsically, resemble a star-burst.

Notes—Although resembling *H. vagans* P.C.Boyce (1998) in rheophytic habit, it is highly probable that *Homalomena stella* belongs to a group of otherwise lithophytic or chasmophytic species allied to NW Sarawak *H. havilandii* Ridl., excluding *H. vagans*, and characterized by pendent leaf blades lacking posterior lobes, with clearly visible pellucid primary lateral veins on the abaxial surface, the spathes green externally and very pale green internally, and notable for the spadix elongating swiftly and projecting forwards from the spathe at pistillate anthesis, and by the pistillate flowers each associated with a large staminode. See also Ng et al., 2011. Molecular analyses is wanting.

Other material examined: MALAYSIAN BORNEO. Sarawak. **Sri Aman**. Lubok Antu, Batang Ai, Nanga Sumpa, Rumah Gumbang, Sungai Delok, 01°11′40.8″N 112°04′04.2″E, 28 July 2004, *P.C.Boyce, Jeland ak Kisai & Kachong AR-553* (SAR); Lubok Antu, Batang Ai, Nanga Sumpa, Sungai Pedali, 01°11′58.9″N 112°03′27.0″E, 25 May 2008, *P.C.Boyce* et al. *AR-2390* (SAR). **Betong**. Roban, Jalan Ulu Krian, Sungai Kabo, Rumah Kih, 01°46′38.8″N 111°28′25.1″E, 27 Dec. 2011, *P.C.Boyce & Wong Sin Yeng AR-3734* (SAR). **Sarikei**. Sungai Lepong, 01°57′12.9″N 111°30′34.9″E, 8 Dec. 2005, *P.C.Boyce* et al. *AR-1602* (SAR); Sungai Lepong, 01°57′14.0″N 111°30′35.2″E, 27 Dec. 2012, *P.C.Boyce & Wong Sin Yeng AR-4097* (SAR).

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