

# Studies on Schismatoglottideae (Araceae) of Borneo XXXXVI: *Fenestratarum mulyadii*—A second species for a recently described genus

Peter C. Boyce\*

Honorary 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

\*corresponding author

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## ABSTRACT

A second species of the recently established genus *Fenestratarum* is described, from Kalimantan Timur, Indonesian Borneo, as *Fenestratarum mulyadii*. This new species represents an over 600 km eastwards extension to the known range of the genus. *Fenestratarum mulyadii* is figured in colour, and compared to *Fenestratarum culum* in an identification key.

## KEY WORDS

Rheophytic, Kalimantan Timur, basalt

## INTRODUCTION

Shortly following approval and return of the proofs describing *Fenestratarum* (Boyce & Wong, 2014), a highly distinctive new species clearly assignable to *Fenestratarum* flowered in cultivation. It is described below.

KEY TO THE SPECIES OF *FENESTRATARUM*

1. Leaf blades linear, stiffly leathery, margins smooth; petiole and peduncle glabrous; spathe limb white . . . . . *F. culum*
- Leaf blades very narrowly oblong, softly leathery, margins strongly undulate; petiole and peduncle velvety; spathe limb green . . . . . *F. mulyadii*

***Fenestratarum mulyadii*** P. C. Boyce & S. Y. Wong, **sp. nov.** Type: Indonesian Borneo, Kalimantan Timur, Kutai Barat, Laham, Long Ma Au, Sungai Mahakam, 00°16'24.30"N 115°21'8.64"E, 14 Nov. 2014, *Mulyadi AR-5000* (holotype BO!; isotype SAR!).

**Diagnosis**

*Fenestratarum mulyadii* is distinguished from *F. culum* by the leaf blades with strongly undulate (vs smooth) margins, the velvety (vs glabrous) petioles and peduncles, and by the predominantly green spathe limb with more extensive fenestrations.

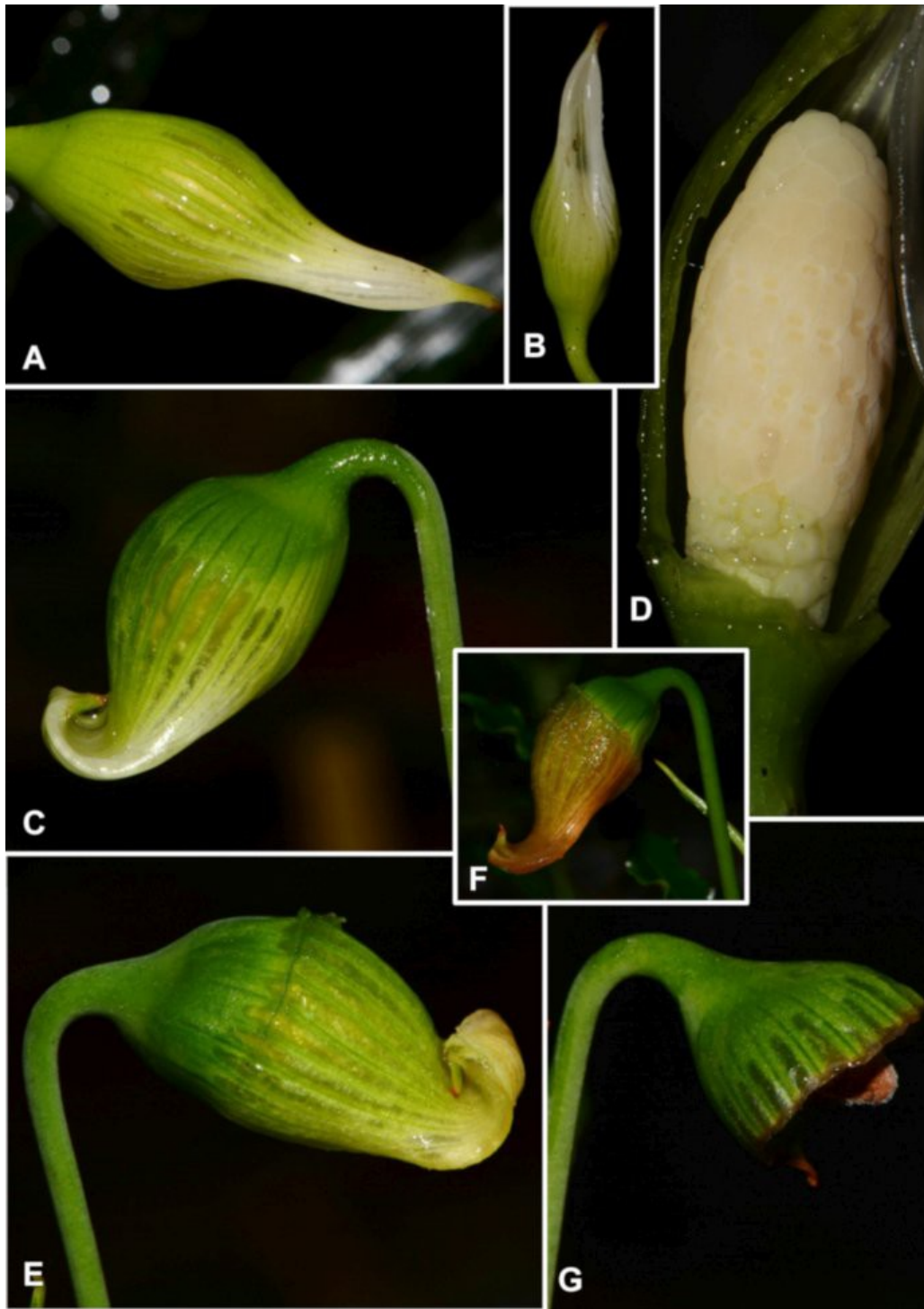
**Description**

Small obligate tufted rheophytes to ca. 15 cm tall. **Stem** compact, later elongating to ca 5cm, erect ca. 1 cm in diam., basally with copious strong roots and occasional stiff stilt-roots. **Leaves** many together, forming a neat rosette; **petiole** ca. 1.5 cm long, basal third broadly sheathing and swollen, ca. 3 mm wide, pale velvety green, remainder of petiole D-shaped in cross-section, dark velvety green; **petiolar sheath** with wings extended into a narrowly triangular ligular

caducous portion ca. 2.5 cm long; **blade** softly coriaceous, very narrowly oblong with margins strongly undulate 7–12 cm long × ca 8 mm wide, base cuneate, apex sub-acute and apiculate for ca 2 mm, adaxially deep velvety green, abaxially matte pale olive green; **midrib** abaxially and adaxially sharply prominent; **primary lateral veins** ca. 4 on each side, meeting at the tip and there coalescing to form the apiculate point; **secondary venation** forming an obscure tessellate pattern. **Inflorescence** solitary, but with up to four produced in sequence, alternating with solitary foliage leaves; **peduncle** slender, somewhat exceeding the leaves, ca. 7 cm long × 2 mm in diam., medium velvety green, uppermost part curving forward to hold the inflorescence at ca. 80° to the peduncle. **Spathe** ca. 2.7 cm long, ca. twice length of spadix; **spathe limb** broadly lanceolate with the lower part with large transparent areas separated by opaque green veins, terminally extended into a prominent white rostrum ca. 1 cm long, limb opening at pistillate anthesis by a ventral elliptic fissure with incurving margins, limb lower part of limb inflating at staminate anthesis and then caducous by deliquescence at junction with persistent lower part after staminate anthesis, falling in



**Figure 1.** *Fenestratarum mulaydii* P. C. Boyce & S. Y. Wong. **A–E.** Plants in habitat, Type locality. **A & E.** General view of plants in habitat. **B.** Flowering plant. **C.** Post anthesis plant. **D.** Fruiting plant. **A–E** from *AR-5000*. Images © Mulaydi. Used with permission.



**Figure 2.** *Fenestratarum mulyadii* P. C. Boyce & S. Y. Wong. **A & B.** Inflorescence at pistillate anthesis. Note fused lower spathe margins. **C.** Inflorescence at staminate anthesis. Note changes in spathe shape. **D.** Spadix at pistillate anthesis, nearside spathe artificially removed. **E.** Inflorescence at end of staminate anthesis, spathe limb starting to degrade and separate from persistent lower portion. **F.** Inflorescence post-anthesis; **G.** Persistent lower spathe shortly after shedding spathe limb. As fruits develop the peduncle straightens to present the slash-cup upwards. **A–G** from *AR-5000*. Images © P. C. Boyce.



a single but deliquescent piece together with the spent parts of the spadix; **lower spathe** with fully fused margins, forming an ellipsoid, later globose chamber during anthesis, dark green, persistent after anthesis and forming an erect 1 cm × 1 cm funnel-form structure subtending the developing fruits. **Spadix** sub-fusiform, 15–20 mm long × 5 mm wide; **pistillate flower zone** cylindrical, comprised of ca 3 spirals of flowers, narrower than remainder of spadix, accounting for slightly more than ¼ of spadix, ca 3 mm long × 4 mm in diam., with an incomplete row of squat polygonal glossy white staminodes at base; **pistils** crowded, sub-globose, ca. 1 mm in diam., very pale greenish white; **stigma** sessile, discoid, as wide as pistil, smooth with a central indentation, white; **sterile interstice** ca 1.5 mm long × 5–7 mm in diam., composed of a single row of polygonal staminodes, these 1 mm long × 0.5–1 mm wide, white; **staminate flower zone** wider than remainder of spadix, about ½ of entire spadix length, 5–6 mm long × 5–7 mm in diam., very pale creamy white; **staminate flowers** large, spirally arranged, each composed of two stamens, truncate, rhomboid from above, ca. 2 mm long × 1.5 mm wide; **thecae** set in pits on the top and bottom (with respect to the spadix axis) of each stamen separated by a conspicuous broad, slightly domed connective; **appendix** ca 2 mm long, tapering, obtuse; **appendix staminodes** squat rhomboidal, very pale creamy white. **Infructescences** erect. **Fruiting spathe** funnel-form, ca. 1 cm long × ca. 1 cm wide, dark green with a scar along rim; **fruits** obpyriform, ca 3 mm long,

stigmatic remain raised, darker green; **seeds** not seen.

**Distribution** — *Fenestratarum mulyadii* is so far known only from the Type locality.

**Ecology** — *Fenestratarum mulyadii* is rheophytic on mossy Neogene basalt river boulders under rather open perhumid lowland forest at ca 130m asl.

**Etymology** — The trivial epithet is for Mulyadi, the original collector of this and numerous other exceptionally interesting aroid species.

**Notes** — *Fenestratarum mulyadii* occurs over 600 km east of the only known locality of *Fenestratarum culum*, and on quite different (acid) geology. It is highly probable that additional novel *Fenestratarum* species occur between these range extremes, as likely as not highly localized and geologically obligated.

## ACKNOWLEDGEMENTS

This is part of an on-going research which is funded by the Ministry of Higher Education, Malaysia by the Exploratory Research Grant Scheme Vote No. NRGS/1089/2013-(03) and Fundamental Research Grant Scheme Vote No. FRGS/STWN10(01)985/2013(26). Biodiversity Centre are gratefully acknowledged.

## REFERENCES

- Boyce, P. C. & S. Y. Wong. 2014. Studies on Schismatoglottideae (Araceae) of Borneo XXXXIII: *Fenestratarum culum* - A new genus and species from Kalimantan Barat, Indonesian Borneo. *Aroideana* 37E(2): 4–10.