

# Studies on *Schismatoglottideae* (Araceae) of Borneo LVII: *Bucephalandra filiformis* – a new species from Maligan, Sarawak, Malaysian Borneo

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## ABSTRACT

*Bucephalandra filiformis* is described as a new species with uniquely stiff linear leaf blades, illustrated from living plants from the Maligan Range (Sarawak & Sabah, Malaysian Borneo), and inserted into the

most recent identification key to *Bucephalandra* species.

## KEY WORDS

Rheophytes, sandstone, upper hill forest.

## INTRODUCTION

Fieldwork in the Maligan Range (straddling the border of Sarawak & Sabah, Malaysian Borneo) resulted in collection of several puzzling rheophytic aroid species. One of these has now flowered in cultivation and proven to be a previously undiscovered species of *Bucephalandra*, unique in the genus by the stiff linear leaf blades. It is here described as *Bucephalandra filiformis* S. Y. Wong & P. C. Boyce, **sp. nov.** Recognition of this novelty takes *Bucephalandra* to 30 described species.

Dimensions in the descriptions are derived from fertile (i.e., mature) plants. Seedlings have overall smaller measurements.

Geological occurrences recorded in this paper are verified by the excellent geological map of Tate (2001).

*Bucephalandra filiformis* may be inserted in the key to *Bucephalandra* species presented in Wong & Boyce (2014a) as follows:

2. Appendix staminodes verrucate or brain-like . . . . . **3**  
– Appendix staminodes smooth ..... **7 (“6”)**
3. Leaf blades linear, stiff . . . . .  
. . . . . ***Bucephalandra filiformis***  
– Leaf blades never linear, usually not stiff; if stiff then never linear
- 4, etc., = 5, etc., in Wong & Boyce (2014a).

***Bucephalandra filiformis*** S. Y. Wong & P. C. Boyce, **sp. nov.** Type: Malaysian Borneo, Sarawak, Limbang, Lawas, Maligan Range,

Air Terjun Payeh Maga, below Camp 2, 04° 26' 15.1"N 115° 31' 27.9"E, 9 Sep 2014, P. C. Boyce *et al.* AR-4915 (holotype SAR – alcohol!; isotype: M – alcohol!). **Figure 1.**

## Diagnosis

*Bucephalandra filiformis* is immediately distinguished from all other species of the genus *Bucephalandra* by the stiff linear leaf blades.

## Description

Small solitary obligate rheophytic herbs to c. 8 cm tall. **Stem** initially erect, later shortly creeping and rooting with active portion sub-erect, c. 5 mm in diam.. **Leaves** up to c. 15 together, spreading to sub-erect; **petiole** 1–2 cm long × c. 2 mm in diam., dorsally narrowly and shallowly canaliculate, ventrally longitudinally ribbed, reddish brown, sheathing at extreme base, wings extended into a very narrowly triangular ligular portion 2–3.5 cm long, light red to brownish; **blade** linear, 7 – 11 cm long × 4 – 6 mm wide, stiff, semi-matte deep olive green adaxially, much paler greenish white with the blade margin finely deep green, base cuneate, apex acute (narrow leaf blades) to aristate (wider leaf blades), apiculate for 2 – 3 mm; **midrib** abaxially and adaxially prominent, adaxially concolorous with blade, abaxially dull red; **primary lateral veins** two, arising from leaf blade base and running along the margin; **interprimary veins** hardly differentiated, together totalling c. 15 per side, diverging at c. 30° and running to a marginal vein;



**Figure 1.** *Bucephalandra filiformis* S. Y. Wong & P. C. Boyce

**A. & B.** Plants in habitat on moss-covered sandstone boulders. **C.** Habitat. **D.** Inflorescence at pistillate anthesis. **E.** Spadix at pistillate anthesis, nearside portion of spathe artificially removed, note that scale-like staminodes of interstice, and staminate flowers, are still erect. **F.** Detail of spadix at staminate anthesis; that the staminate flowers have reflexed and changed to salmon-pink, and that the interstice staminodes have reflexed note, too, that stigmas have darkened and are no longer receptive. **A–H** from *AR-4186*. Images © P.C. Boyce.

**secondary** and **tertiary venation**  $\pm$  obscure. **Inflorescence** solitary; **peduncle** exceeding petioles, 4–7 cm long  $\times$  c. 1.5 mm in diam., somewhat longitudinally ridged, reddish. **Spathe** slender-fusiform, not constricted, c. 3 cm long; **lower spathe** obliquely funnel-form, green, persistent; **limb** gaping at pistillate anthesis, then caducous, white shading to green at junction with lower persistent spathe, limb acuminate for c. 1 cm and apiculate for c. 4 mm, apiculum green. **Spadix** 2 – 2.5 cm long; **pistillate zone** c. 5 mm long  $\times$  c. 1.5 mm in diam., with c. 2 spirals of pistils; **pistils** weakly rhombic-globose, c. 0.5 mm in diam., bright green; **stigma** sessile, umbonate, c.  $\frac{1}{2}$  diameter of ovary, producing a conspicuous meniscus-like droplet at anthesis, later (post-anthesis) sunken centrally; **pistilodes** 2–4 at base of pistillate zone, compressed clavate, c. 0.5 mm long and wide, waxy white; **interstice** with 2 rows of **scale-like staminodes**, these c. 2 mm long  $\times$  1.5 mm wide, ventrally gibbose, margin spatulate, creamy white, erect during pistillate anthesis, reflexing prior to staminate anthesis; **staminate zone** c. 5 mm long  $\times$  c. 4 mm in diam., consisting of c. 3 rows of flowers; **staminate flowers** during pistillate anthesis ascending to display almost entire ventral surface, reflexing during staminate anthesis to present ventral surface lowermost, creamy yellow ageing during staminate anthesis to salmon-pink, thecae paler and somewhat translucent; **stamen** comparatively large, c. 2 mm long; **filament** small, stout; **connective** strap-shaped; **thecae** inserted ventrally, ellipsoid, c. 1 mm long  $\times$  c. 0.5

mm wide, smooth; **thecae horns** c.  $\frac{1}{5}$  length of associated theca, setaceous, outward-pointing; **appendix** ellipsoid, 1 – 1.5 cm long  $\times$  c. 5 mm in diam., cream; **appendix staminodes** obpyramidal, tops irregularly polygonal, lower ones well-defined, terminal ones coalesced, truncate, 0.5–1 mm in diam., weakly verrucate and somewhat glossy, cream. **Infructescences** not seen.

*Ecology* — Rheophytic on semi-shaded mossy sandstone boulders in wet upper hill forest at about 850 m asl.

*Distribution* — *Bucephalandra filiformis* is known only from the Maligan Range.

*Etymology* — From the Latin feminine adjective *filiformis*, threadlike, denoting the form of the leaf blades.

*Notes* — The stiff very narrow leaf blades of *Bucephalandra filiformis* have no equal in the genus *Bucephalandra* although similar leaf blades occur in *Fenestratarum culum* P. C. Boyce & S. Y. Wong, *Aridarum montanum* Ridl., and in some forms of the highly polymorphic (and likely polyphyletic) *A. canlescens* M. Hotta. All are obligate rheophytes.

Observations of flowering plants revealed that the staminate flowers change colour from creamy white to salmon-pink as anthesis progresses from pistillate (when the staminate flowers are erect with the ventral surface exposed) to staminate (staminate

flowers reflexing reflexing to place ventral surface lowermost). These movements are emulated by the scale-like staminodes of the interstice. See Wong & Boyce (2013) for a summary of the role of the interstice staminodes in *Bucephalandra*.

In general *Bucephalandra* species are plants of low elevations, with rather few of the 30 recognized species occurring about 400 m asl and only three other species occurring at altitudes higher than that of *B. filiformis*: *Bucephalandra kishii* S. Y. Wong & P. C. Boyce, *B. magnifolia* H. Okada & Y. Mori, and *B. tetana* S. Y. Wong & P. C. Boyce (Wong & Boyce 2014a).

*Other material examined (Paratype):*  
MALAYSIAN BORNEO: **Sarawak:**  
Limbang, Lawas, Maligan Range, Air Terjun  
Payeh Maga, below Camp 2, 04° 26' 15.1"N  
115° 31' 27.9"E, 9 Sep 2014, *P. C. Boyce et al.*  
*AR-4916* (SAR – alcohol!; M – alcohol!).

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