

A New Species of *Rhaphidophora* Hassk. (Araceae-Monstereae) from Borneo

P.C. BOYCE

Malesiana Tropicals, Suite 9-04, Tun Jugah Tower,
No. 18, Jalan Tunku Abdul Rahman 93100 Kuching, Sarawak, Malaysia

Abstract

Rhaphidophora typha P.C.Boyce, a new species from Borneo distinguished by its remarkably long peduncle and leaves abaxially grey-glaucous, is described and illustrated.

Introduction

Revisionary work on *Rhaphidophora* (Boyce, 1999, 2000a, 2000b, 2001a, 2001b) has highlighted that although Borneo has a relatively few species (13 species excluding the one described here), five (excluding that described here) are endemic compared with 15/1 (total/endemic) in Peninsular Malaysia and 15/4 in Sumatera. Thus Borneo, with the exception of the Philippine Islands (11/7), has the richest level of *Rhaphidophora* endemism in Sunda – although these data are insignificant compared with New Guinea and tropical Australasia (30/29). Boyce (2001a) speculated that the paucity of *Rhaphidophora* species recorded for Borneo was an artefact of inadequate collecting.

Since the above publications, the author has had the opportunity to spend an extended period undertaking fieldwork in Sarawak. While astonishingly productive in locating novel terrestrial aroids, this fieldwork has generally supported the impression that the species complement of climbing aroids in Borneo is, indeed, meagre. Nonetheless, undoubtedly further lianescent novelties still await discovery. One such novelty, a herbarium specimen originating from Brunei, was located during a study visit to the Singapore Herbarium (SING) in January 2004 and was subsequently collected in Sarawak. It is described here.

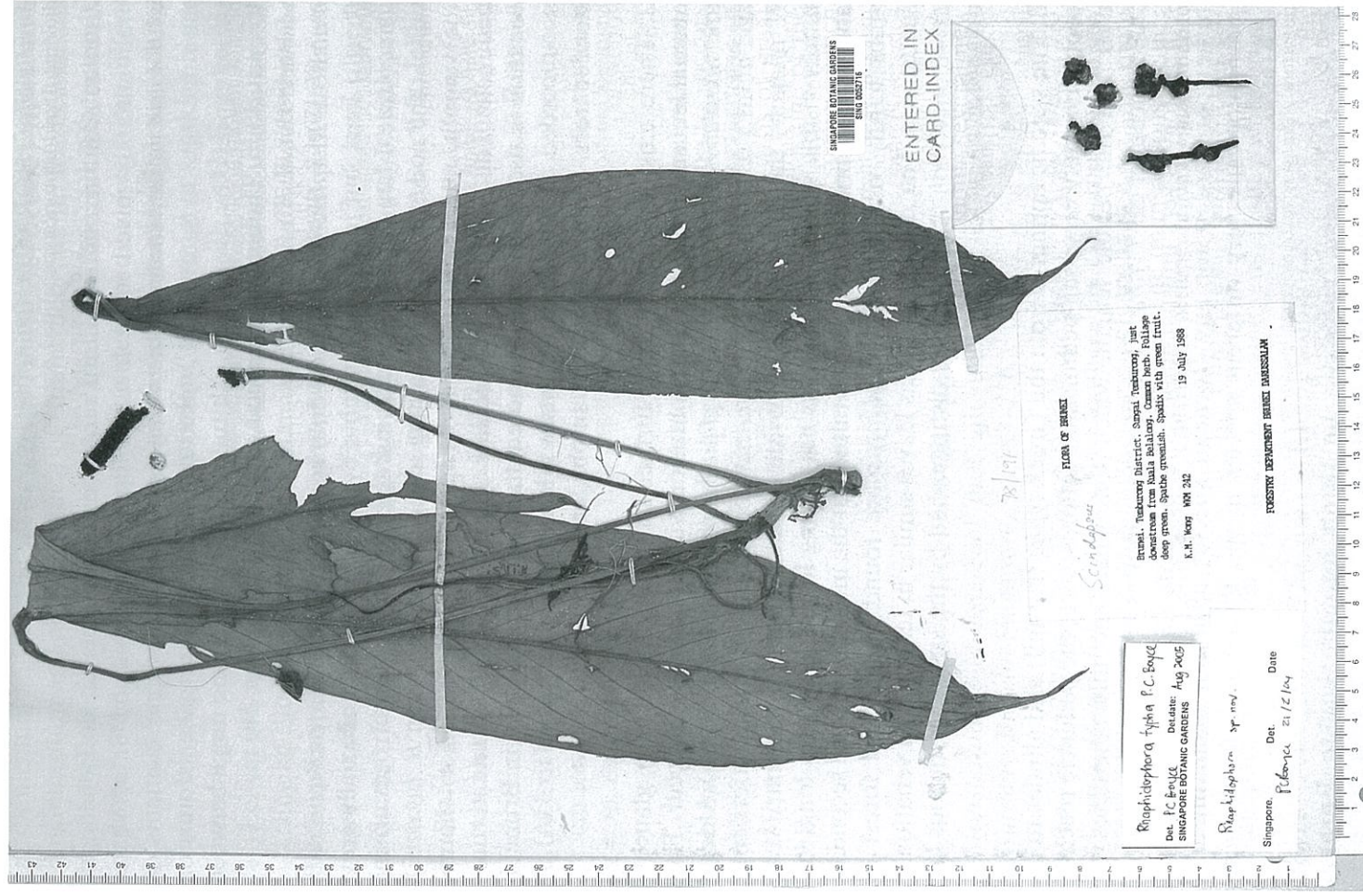
***Rhaphidophora typha* P.C. Boyce, sp. nov.**

Rhaphidophora typha a pluribus speciebus generis *Borneensibus* combinatio foliorum subtus griseo-glauca, veneris laminorum valde reticulatis et pedunculum inflorescentia alta demi petiolorum laminae differt. – TYPUS: Brunei Darussalam, Temburong District. Sungai Temburong, just

downstream from Kuala Belalong. 19 July 1988, K.M. Wong WKM 242 (SING, holo.; BRUN!, K!, L!, iso).
Figure 1.

Slender liane to 3 m in height; *seedling stage* and *pre-adult plants* not observed; *adult shoot* clinging and flowering terminally with inflorescence soon displaced (well before infructescence maturity) and thus physiognomically lateral; *stems* smooth, mid- to dark green, with long, sparse petiolar sheath fibre on the most recently matured portions, internodes up to 10.5 cm x c. 7 mm, separated on still-leafy portions by deep brown clasping leaf base, this up to 6 mm long; *flagellate foraging stems* not observed; *climbing roots* few, arising from the nodes, velvety; *feeding roots* frequently stilt-like in terrestrial individuals, adhering to the climbing surface and reaching the ground in climbing individuals, smooth; *leaves* spiro-distichous, distally clustered on adult shoots; *cataphylls* and *prophylls* membranous, soon drying and falling and only rarely persisting as scattered long fibres; *petiole* narrowly canaliculate, 18–24 cm x c. 2 mm, smooth, apical geniculum prominent in dried material, up to 3.5 cm long, basal geniculum also prominent, up to 1.5 cm x 6 mm; *petiolar sheath* prominent, extending to the apical geniculum, soon degrading into semi-persistent long fibres; *lamina* entire, narrowly-oblongate, 34–35 x 7–7.5 cm, when fresh thinly leathery with adaxial surface matt pale olive-green and abaxial surface obscurely grey glaucous, drying papery with adaxial surface mid-orange-brown and abaxial surface slightly grey-glaucous, base long-decurrent, apex acuminate-attenuate; *midrib* prominently raised abaxially, level adaxially; *primary venation* pinnate, raised abaxially, slightly impressed adaxially; *interprimaries* subparallel to primaries, slightly raised abaxially, ± flush adaxially, forming a weak reticulum distally; *secondary venation* prominently reticulate, raised abaxially; *tertiary venation* a network of broadly spaced tessellate veins arising at c. 90° from the midrib and crossing the primaries and interprimaries; *inflorescences* solitary; *peduncle* terete, up to 18 cm x 2 mm; *spathe* not observed but, based on observing young infructescences, seemingly caducous; *spadix* cylindrical, sessile, inserted level on peduncle, 6.5 cm x 6 mm, green in juvenile fruiting stage; *stylar region* rhomb-hexagonal, c. 1.5 x 1.2 mm, truncate; *stigma* elliptic, longitudinally orientated, up to 0.75 mm, prominent in dried material; *anthers* not observed; mature *infructescence* not observed.

Figure 1. *Rhaphidophora typha* P.C. Boyce Holotype specimen (SING) showing the diagnostic long-pedunculate inflorescence.



Distribution: BORNEO: Brunei and Sarawak.

Habitat: Although habitat is not recorded on the type, Kuala Belalong is predominantly mixed moist lowland dipterocarp forest on Setap shales with some gallery forest in the valley bottoms and *kerangas* elements on the ridge tops. In Sarawak, *R. typha* occurs in riverine or gallery forest on shales exposed by river action. Altitudes in Kuala Belalong range between 15 and 350 m. The Sarawak collection cited below is from 240 m.

Notes: 1. *Rhaphidophora typha* bears some resemblance to *R. beccarii* (Engl.) Engl. but is readily separable by the much thinner abaxially grey-glaucous leaf laminae, the slender, less thickly-rooted stems (roots arising only at the nodes in *R. typha*, rooting along the internodes in *R. beccarii*), the smooth, not scaly feeding roots and the markedly longer, thinner peduncle. The prominently reticulate secondary and tessellate tertiary venation is also noteworthy. As noted, the ecology of *R. typha* in Brunei is not recorded. In Sarawak it grows as a low climber (rarely up to 3 m) on slender trees, while *R. beccarii* is an obligate rheophyte.

2. There exist in Borneo three further lianescent aroids with glaucous abaxial leaf surfaces with which confusion with *R. typha* might occur. They are: *Scindapsus longipes* Engl., *S. glaucescens* (Engl. & K.Krause) Alderw. and an as yet undescribed *Anadendrum*. *Scindapsus longipes* differs from *R. typha* by the stiffly coriaceous ovate leaf lamina with the primary veins hardly visible while *S. glaucescens* has oblong leaves up to 1 m long with abaxially the primary lateral veins raised but the interprimary and secondary veins hardly visible. Both *Scindapsus* are found only in hill forest on sandstones. The *Anadendrum* has leaves similar in texture and venation to those of *R. typha* but is readily distinguished by the strictly distichous leaf arrangement.

3. The specific epithet is from the Greek *typhē* (cat-tail) and alludes to the proportionately very long-pedunculate inflorescence, the peduncle reaching over half the petiole length, which somewhat fancifully resembles the inflorescence of *Typha* (Typhaceae - Poales). Such inflorescence morphology is very unusual among long-petiolate *Rhaphidophora* and not hitherto recorded for any Bornean species although occurring in a morphologically very different species in the Philippines, *R. monticola* K.Krause.

4. *Rhaphidophora typha* can be fitted into the key to Bornean *Rhaphidophora* (Boyce 2001a) as follows:

- 3a. Geniculum and abaxial surface of lamina pubescent..... 4
 3b. Geniculum and abaxial surface of lamina glabrous or glaucous 5
 4a. Plants flowering on clinging stems. Leaves of mature plants extensively perforated, active shoot tips with black mucilage **6 R. foraminifera**
 4b. Plants flowering on free lateral stems. Leaves of mature plants lacking or with only with scattered, perforations; active shoot tips lacking black mucilage **12. R. puberula**
 5a. Leaves always shingling, even in flowering individuals. Flowering on clinging shoots **8. R. latevaginata**
 5b. Leaves spreading in adult and flowering individuals. Flowering on free or clinging shoots 6
 6a. Stems scabrid to asperous. Spathes exterior minutely puberulent **9. R. lobbii**
 6b. Stems smooth. Spathes (where known) exterior glabrous 7
 7a. Abaxial surface of lamina glaucous. Peduncle up to 18 cm long **R. typha**
 7b. Abaxial surface of lamina never glaucous. Peduncle not exceeding 10 cm long 8
 8a = 7a, etc., in Boyce (2001a)

Other specimen seen: SARAWAK. Kapit Division, Nanga Gaat, Rejang Wood Concession, KM 55 road to Camp Gahada, 01° 44' 44.5"N; 113° 28' 32.3"E, 13 May 2004, P.Boyce, *Jeland ak Kisai & Jipomak Tisai AR-374* (SAR).

References

- Boyce, P. C. 1999. The genus *Rhaphidophora* Hassk. (*Araceae-Monsteroideae-Monstereae*) in Peninsular Malaysia, and Singapore. *Gardens' Bulletin* Singapore. **51**: 183–256.
- Boyce, P. C. 2000a. The genus *Rhaphidophora* Hassk. (*Araceae-Monsteroideae-Monstereae*) in the Southern and Western Indonesian Archipelago. *Gardens' Bulletin* Singapore. **52**: 101–183.
- Boyce, P. C. 2000b. The genus *Rhaphidophora* Hassk. (*Araceae-Monsteroideae-Monstereae*) in the Philippines. *Gardens' Bulletin* Singapore. **53**: 213–256.
- Boyce, P. C. 2001a. The genus *Rhaphidophora* Hassk. (*Araceae-Monsteroideae-Monstereae*) in Borneo. *Gardens' Bulletin* Singapore. **53**: 19–74.

Boyce, P.C. 2001b. The genus *Rhaphidophora* Hassk. (Araceae-Monsteroideae-Monstereae) in New Guinea, Australia and the Tropical Western Pacific. *Gardens' Bulletin Singapore*. **53**: 75–183.

Taxonomic Notes on Bornean *Litsea*, *Lindera*, *Neolitsea* and *Iteadaphne* (Lauraceae)

F.S.P. NG

Forest Research Institute Malaysia
52109 Kepong, Selangor, Malaysia

Summary

Litsea Lam., *Lindera* Thunb., *Neolitsea* Merr. and *Iteadaphne* Blume share a combination of many features that distinguish them collectively as a well-defined natural group from the rest of the Lauraceae. However, within the group, the genera are defined on features that are unsatisfactory whether considered individually or in combination.

- The main line of division is anther locule number: four versus two. This feature separates the 4-locular genera *Litsea* and *Neolitsea* from the 2-locular genera *Lindera* and *Iteadaphne*. However, there are several species on one side of the division that are mirrored by species on the other side, differing only by the anther locule number. In this revision, four such sets of twins are united as four species with variable anther locule number. One of these species is *Litsea cubeba* (Lour.) Pers., in which 2-locular and 4-locular anthers can occur even within the same flower.
- Another line of division uses a combination of leaf venation and floral merism, by which triveined dimerous *Neolitsea* has been distinguished from penniveined trimerous *Litsea*. These two-feature states are not fixed, and some authors have defined *Neolitsea* on dimery with or without triveined leaves. However, dimery itself is a variable feature and the type species, *Neolitsea cassia*, has been found to have both dimerous and trimerous flowers.
- *Litsea* species can be distinguished from *Lindera* if the fruit has a prominent cupule, but there are a few *Litsea* species without cupule development (e.g. *Litsea elliptica* and all the species with variable anther locule number), and these have often been misidentified as *Lindera*.
- *Iteadaphne* is distinguished from *Lindera* in its umbellules reduced to a single floret. By default, *Lindera* consists of species with 2–20 florets per umbellule. However, the number of florets in the umbellules is actually variable. The type species of *Iteadaphne* has itself been found to be part of a variable species, *Litsea subumbelliflora* (Blume) Ng, with 2 or 4 anther locules and 1–6