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Studies on the *Alocasia* Schott (Araceae-Colocasieae) of Borneo II: *Alocasia baginda*, a New Species from Eastern Kalimantan, Indonesian Borneo

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Alocasia baginda Kurniawan & P. C. Boyce is described and illustrated from an unspecified locality in eastern Kalimantan, Indonesian Borneo, and is inserted into a modified key to Bornean *Alocasia*. Recognition of *A. baginda* takes to 23 the *Alocasia* described from Borneo, of which 22 are endemic.

Key words: Araceae, *Alocasia*, Borneo, endemic, Kalimantan

Hay (1998) recognized 19 indigenous *Alocasia* species for Borneo, of which 18 are strictly Borneo endemic, many very locally so, with the other (*A. robusta* M. Hotta) extending as far as the Anambas Islands. Eight of Hay's species were then novel. Subsequently, an additional three new species have been described for Borneo (Hay 2000, Boyce 2007), all endemic. Since 2002 fieldwork by the second author has revealed a 14 further undescribed (as yet not worked up) species in Sarawak, while a recent somewhat cursory examination of herbarium material from Sabah (KNP & SAN) indicated at least six additional novelties. This total of 42 taxa is overwhelmingly based on collections from Sarawak, Sabah, and Brunei (i.e., less than one third of the total landmass of Borneo). Kalimantan, comprising more than 70% of the land area of Borneo, remains very poorly known, and it is thus highly probable that Borneo harbors at least 50 *Alocasia* species, the overwhelming majority of which can be expected to be endemic.

Alocasia baginda A. Kurniawan & P. C. Boyce, **sp. nov.**—Fig. 1

Alocasiae melo proxima, insigniter foliis rigidissimis crasse coriaceis fere perfecte peltatis, sed prompte distinguenda foliis adaxialiter laevibus (non subtiliter et valde rugosis) atro-opace viridibus partibus disparibus pallide griseis bullatis. Inflorescentiae specierum ambarum a prima visione leviter similissimae, sed in *A. baginda* spathae constrictio circa in parte media zonae florum staminatarum, dum in *A. melo* in parte apicali.

Typus. Indonesian Borneo, ex eastern Kalimantan, without exact locality, cultivated in Bali Botanic Garden, Indonesian Institute of Sciences-LIPI (Kebun Raya Eka Karya Bali), under Garden Accession E20081015 (holo- THBB [dried specimens and inflorescences in alcohol]; iso- BO!, K!, L!)

Small rather robust terrestrial *herb* 25–30 cm tall; *stem* shortly erect, developing in age into a short decumbent rhizome. *Leaves* up to 4 together, spreading; *petioles* 13–23 cm long, short sheathing in the lower 1/6–1/7, glabrous, pale green with scattered white speckles in the lower part; sheath persistent; *leaf blade* very broadly ovate to sub-orbicular, peltate, 10–18 cm long,

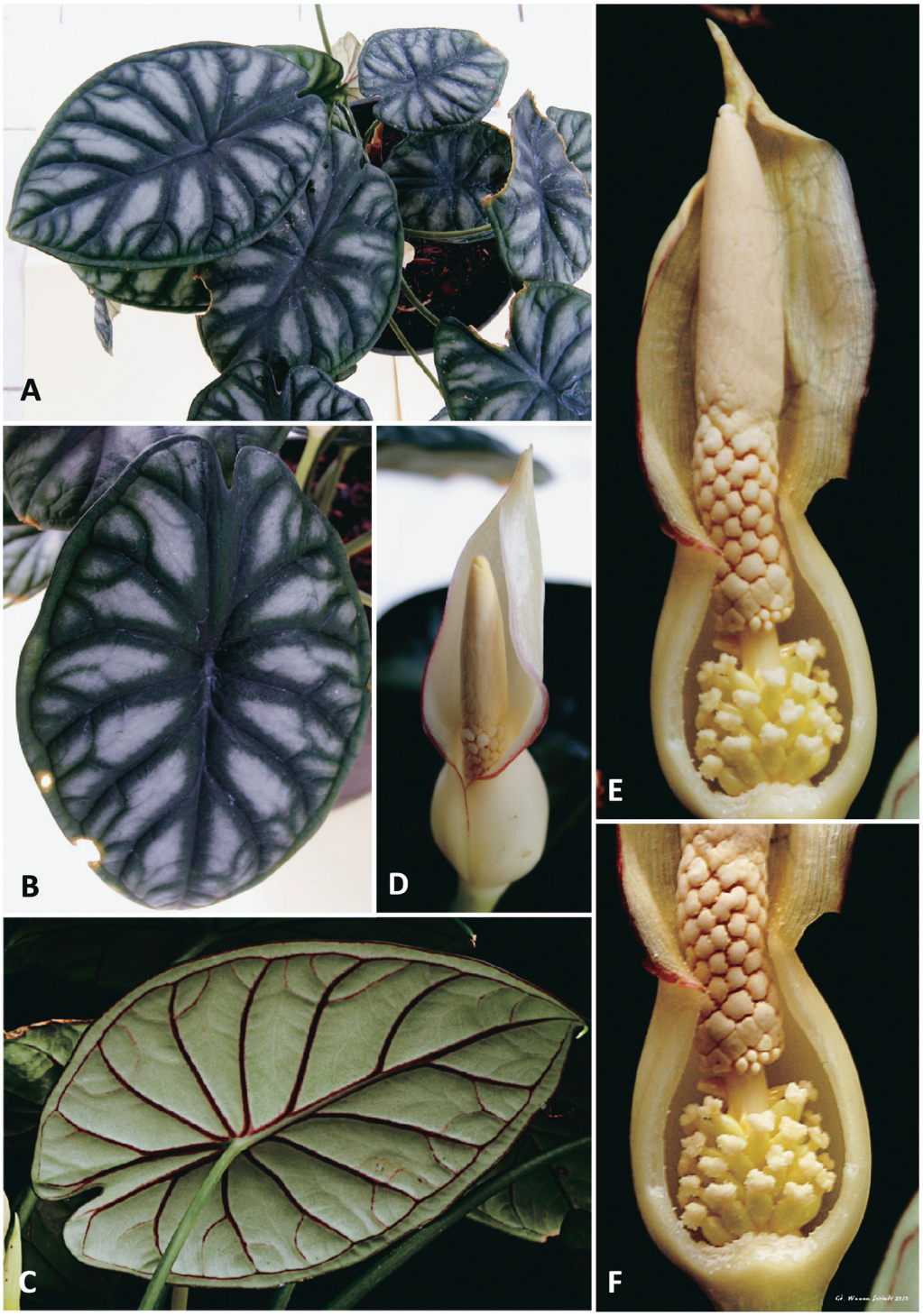

FIG. 1. *Alocasia baginda* Kurniawan & P. C. Boyce. A: Type plant in cultivation. B: Leaf blade, adaxial surcace. Note the pale gray bullae. C: Leaf blade, abaxial surface showing the red venation. D: Freshly opened inflorescence. E: Inflorescence at late male anthesis, lower part of spathe partially removed. Note that the spathe limb is now semi-translucent. F: Detail of the pistillate and staminare flower zones. Note that the lowermost synandrodes are divided into staminodes. Note, too, the ascending pistils. Images by Dewi Lestari and Gede Wawan Setiadi.

7–12 cm wide, stiffly and thickly coriaceous, adaxially matte dark green, with contrasting pale grey bullate portions blade defined by the primary and marginal veins, pale green abaxially, with the distal part of the midrib, primary and marginal veins deep red, apex acuminate to apiculate for ca. 1 cm, thence mucronate for 4 mm; posterior lobes united for 75–90% of their length, 1/2–1/3 the length of the anterior, with the posterior costae diverging at 20°, anterior midrib with 3–4 primary lateral veins on each side, diverging at 35° (distal ones) to 80–85° (proximal ones); *secondary venation* impressed adaxially. *Inflorescence* pairs solitary, each subtended by narrowly membranous prophyll and surrounded by a single membranous cataphyll; *peduncle* 12–13 cm long, greenish white, exceeding cataphyll; *spathe* 5–6 cm long; *lower spathe* abruptly constricted 1.5–2 cm from the base, lower spathe ovoid; *spathe limb* erect even after anthesis, narrowly elliptic-triangular, 3–3.5 cm long, acuminate for ca. 5 mm, externally creamy white, interior glossy creamy white, deep red along the limb margin as far as constriction, limb late in anthesis becoming somewhat semi-translucent with the venation remaining opaque, thence semi-deliquescent; *spadix* distinctly shorter than to subequalling the spathe, 4–4.5 cm long, stipitate; *stipe* cylindrical, 2–3 mm long, creamy white; *pistillate flower zone* 6–7 mm long or about 1/5 the spadix length; *pistils* rather loosely arranged, ascending; *ovaries* ovoid, 1.5–2 mm long, ca. 1.5 mm diam., greenish to ivory; *style* short 0.5–1 mm, < 1 mm diam.; stigma 2–3-lobed, the variation in lobe number present in a single inflorescence, creamy ivory; *sterile interstice* slender, 2–3mm long, partly naked below and with 6–7 synandrodia above; lowermost synandrodia deeply lobed into almost separate staminodes, the rest rhombohexagonal in plain view, 1–1.5 mm diam.; *staminate flower zone* cylindric to subcylindrid, 10–11 mm long, ca. 1/4 the length of the spadix, 1/3–1/2 held within the lower spathe chamber, ivory; *synandria* densely arranged, rhombohexagonal in plan view, convex-topped, 1–1.5 mm diam.; thecae slightly overtopped by the synconnective; *appendix* 1.75–2 cm long, ca. spadix length, narrowly conic, pale cream. *Infructescence* and *fruits* unknown.

Distribution. Eastern Kalimantan, without exact locality.

Ecology. Unknown. The species to which *A. baginda* shares closest morphological similarities are locally endemic and obligately associated with limestone (e.g., *A. regina* N. E. Br.—NE Sarawak: Mulu and *A. reginula* A. Hay—E Sabah: Bukit Tabin), or ultramafics (*A. melo* A. Hay, P. C. Boyce & K. M. Wong—E Sabah: Telupid). It is expected that *A. baginda* will reveal similar geological preference once it is relocated in the wild. It is perhaps worth to note that *A. baginda* most closely resembles *A. melo* and *A. reginula* and that perhaps a search of ultramafic and limestone outcrops is in order.

Etymology. The trivial epithet is from the Bahasa Indonesia honorific title denoting 'King' or 'Majesty'. The choice was influenced by the 'tradition' of applying regal epithets in the genus *Alocasia*, notably to species, such as this, with considerable horticultural merit.

Notes. *Alocasia baginda* most closely resembles *A. melo*, notably in the very stiffly thickly coriaceous almost completely peltate leaf blades and pale green glabrous petioles. Vegetatively it is readily distinguished from *A. melo* by the leaf blades adaxially smooth (not finely and strongly rugose), and dark matte green, with contrasting pale grey bullate portions of the blade. Inflorescences of both species are superficially very similar, although the spathe constriction in *A. baginda* is situated about mid-way up the staminate flower zone; whereas that of *A. melo* coincides with the top of the staminate zone, resulting in both the staminate and pistillate zones being enclosed in the lower spathe.

Alocasia reginula also closely approaches *A. baginda*, but is readily differentiated by leaf blades adaxially very dark black-green with white primary and secondary venation, and with wholly deep red abaxial surfaces.

Alocasia baginda may be inserted in the Key in Boyce (2007) after modifications to couplet 16:

16. Adaxial leaf blade surface strongly and minutely rugose with the tertiary venation raised. (ultramafics: Sabah) ..... *A. melo*
16a. Adaxial leaf blade surface smooth, secondary venation impressed or not 17
17. Leaf blade variegated 18
17a. Leaf blade not variegated 20
18. Leaf blades thickly and stiffly subsucculent, adaxially matte 19
18a. Leaf blades thinly leathery, somewhat glossy (limestones: SW Sarawak) ..... *A. reversa*
19. Adaxial leaf blade surface very dark black-green with white impressed primary and secondary venation; abaxial surface deep red (limestone: Sabah: Bukit Tabin) ..... *A. reginula*
19a. Leaf blades adaxially dark green with conspicuous pale grey bullae; abaxial surface palegreen with the distal portion of mid-rib, and primary and marginal veins deep red (Eastern Kalimantan) ..... **A. baginda**
20. Leaf blades with conspicuous intramarginal vein and marginal vein; laminae broadly to narrowly elliptic, with the base cuneate; male zone wholly within the lower spathe (above 800 m, Borneo) ..... *A. peltata*
20a. Leaf blades with more or less conspicuous marginal vein only; laminae various; male zone wholly or partly within the lower spathe (mostly below 500 m, Borneo) 21
21. Primary lateral veins numerous, 8–10 on each side of midrib; secondary venation striate; in peat swamp forest (peat swamp forest: Sarawak) ..... *A. minuscula*
21a. Primary lateral veins much fewer; secondary venation clearly colocasioid, but not forming interprimary collective veins 22
22. Leaf blades thickly coriaceous to subsucculent; male zone of spadix within lower spathe Chamber 23
22a. Leaf blades thinly coriaceous or sub-membranous; male zone only partly included 24
23. Leaf laminae broadly ovato-elliptic, adaxially pale matt grey, abaxially greenish whitewith conspicuous deep red axillary glands abaxially; petioles puberulent; fruiting spathe magenta (Kapit, evergreen upper hill forest on sandstones above 500 m asl) ..... *A. chaii*
23a. Leaf blade narrowly elliptic to ovate to narrowly obovate, mid green above, slightly paler with inconspicuous pale green axillary glands; petioles glabrous fruiting spathe pale green (NW Borneo, kerangas below 500 m) ..... *A. beccarii*
24. Laminae ascending (adult plants) to weakly spreading (juveniles), thinly and weakly coriaceous, lustrous deep purple-black; petioles minutely puberulent; infructescences deflexed (sandstone: Kapit) ... *A. infernalis*
24a. Laminae pendent to weakly spreading (adult & juvenile plants), thinly, stiffly coriaceous; never deep purple-black; petioles glabrous; infructescences erect (limestones) 25
25. Leaf blades dark green throughout and somewhat darker around midveins; inflorescences to ca. 6 together; stigma mostly tri-lobed (limestones: Gua Niah) ..... *A. venusta*
25a. Leaf blades grey-green and dark blue-green around veins; inflorescences solitary to paired; stigma mostly bi-lobed (limestones: SE Sarawak) ..... *A. reversa*

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