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Novitates Bruneienses, 6. *Alocasia azlanii* (Araceae), a New Species from Brunei

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Alocasia azlanii is described as a new species and the fifth Bornean member of the Cuprea Group of *Alocasia*. It is distinguished from its closely related congeners by its leaf venation and the staminate zone of the spadix not entirely accommodated within the lower spathe chamber.

Key words: *Alocasia*, Araceae, Borneo, Brunei, Colocasieae, Cuprea Group

The genus *Alocasia* Schott (Araceae – Colocasieae) was revised for West Malesia and Sulawesi by Hay (1998), who also briefly chronicled its taxonomic history and provided a discussion of the morphology of the genus. His terminology is followed in this paper. Hay (1998, 2000) documented Borneo, where 19 of the 21 known species are endemic, as the main node of diversity and New Guinea, where 10 of its 11 species are endemic, as a secondary node of diversity. However, subsequent fieldwork has led to a new estimate of 40 species for *Alocasia* in Borneo (Boyce 2007).

Here we report a new species of *Alocasia* recently collected in Brunei (Fig. 1). Its affinities are manifestly with the Cuprea Group of Hay (1998), in that it typically has nearly completely peltate adult leaves that alternate with long cataphylls, and the staminate zone of the spadix is mostly to completely within the lower spathe. The group includes the horticulturally well-known *A. cuprea* (C. Koch & Bouché) C. Koch (Burnett 1984) which is a large plant reaching c. 80 cm tall, and small herbs, such as *A. beccarii* Engl., *A. minuscula* A. Hay, *A. peltata* M. Hotta, and *A. azlanii*, described here, barely, 30 cm tall. *Alocasia azlanii* has a solitary inflorescence which is also frequent among small herbs of the Cuprea Group. On the other hand, *A. azlanii* has a superficial resemblance in leaf form and coloration to *A. infernalis* P. C. Boyce (Scabriuscula Group), which also has spathes constricted in the staminate zone but the leaves are not interspersed with cataphylls. We name *A. azlanii* after plant collector Azlan Pandai of the Brunei National Herbarium, whose enthusiasm in searching out aroids in the field has brought about many rewarding finds.

Taxonomic treatment

Alocasia azlanii K. M. Wong & P. C. Boyce, **sp. nov.** —Figs. 1–2

Alocasia azlanii has similarities to *A. beccarii* and *A. peltata* in being small herbs with peltate glabrous leaves; *A. azlanii* differs from *A. beccarii* by the conspicuous marginal and intramarginal veins of its leaf blades (*A. beccarii* has only a clear marginal vein), from *A. peltata* by the interprimary collective veins formed by confluent secondary veins in the leaf anterior lobe (*A. peltata* does not have confluent secondary veins) and the staminate zone of its spadix being only partially within the lower spathe chamber (in *A. peltata* the staminate zone is entirely with-

in the lower spathe chamber), and from both in its occurrence in mixed dipterocarp forest (the other two species are found in *kerangas* forest, with *Alocasia peltata* only occurring above 800 m asl).

Typus. BRUNEI, Tutong District: Rambai, Ladan Hills Forest Reserve, Benutan Dam catchment forest, tributary of Sungai Benutan, alluvial forest, 7 June 2015, flowering, *K. M. Wong, Azlan & Jangarun WKM 3433* (holotype BRUN, isotype SING).

Herbs, 10–28 cm tall (Fig. 1). *Stem* slender, 8–10 mm in diameter, condensed with the internodes nearly as wide as long. *Leaves* several, together, interspersed with lanceolate cataphylls to c. 6 cm long, drying brown; *petiole* pale green, glabrous, sheathing in the lowest 1/7 or less; *blade* (Fig. 1, 2A) broadly ovate-elliptic, 16–20 × 8.5–11 cm, upper surface dark coppery purplish green, lower surface pale green, thinly coriaceous, spreading to sub-pendent; anterior lobe widest, usually c. a fifth to a quarter the distance distal to petiole insertion; margin somewhat broadly sinuate; anterior costa with 2 or 3 primary lateral veins on each side, diverging at c. 45–60º and upcurving into a conspicuous intramarginal vein 2–4 mm from the margin and inner to a marginal vein; primary lateral veins prominent on both surfaces of the blade; secondary venation confluent and forming interprimary collective veins; posterior lobes almost completely united save for a 4–8-mm incision at the extreme base of the leaf; combined posterior lobes cuneate, 5–7 cm long. *Inflorescence* (Fig. 1, 2B) solitary; peduncle slightly shorter than petiole at anthesis, c. 6.5 cm long, 2.5 mm in diameter; *spathe* c. 6 cm long; lower spathe narrowly ovoid, c. 2.8 cm long, 1.1 cm in diameter, separated from limb by a weak constriction; limb c. 3 cm long, lanceolate, pale green or nearly white; *spadix* shorter than the spathe, c. 5 cm long, 1.5 mm diameter at the base, stipitate for c. 1–2 mm; *carpellate zone* (Fig. 2C) c. 12 mm long; pistils arranged in 5 or 6 spirals, white; ovaries subglobose, sessile, c. 1.5 mm diameter, glabrous; style c. 0.5 mm long, 0.5 mm in diameter, with 3 conjoined sub-triangular stigmatic lobes each c. 0.5 mm long and 0.5 mm wide at base; *sterile interstice* c. 2 mm long; synandroidea more or less clavate, c. 1.5 mm wide, white; *staminate zone* (Fig. 2B) partially held within lower spathe, c. 16 mm long including c. 5 mm portion above spathe constriction; synandria rhombo-hexagonal, with sinuous margins, c. 1.5–2 mm wide, white; thecae mostly in pairs, not concealed by synconnective; *appendix* somewhat isodiametric with staminate zone at base, subcylindric, tapering in upper third, c. 2.4 cm long, white. Peduncle of infructescence c. 10.2 cm long, 3.5 mm in diameter. Persistent lower spathe c. 4.1 cm long, 1.8 cm in diameter; fruits (Fig. 2D) globose, sessile, to c. 8 mm in diameter, glabrous, glossy white.

Distribution. Known only from the Tutong district of Brunei, documented from a single population and apparently rare.

Habitat. Well-shaded moist ground above flood level on banks of a shallow tributary of the Benutan river, which drains mixed dipterocarp forest on sandy clays.

Provisional IUCN conservation assessment. The IUCN status (IUCN 2012) proposed here is Data Deficient as *Alocasia azlanii* is so far documented only from a single locality in the Ladan Hills Forest Reserve, Tutong district, although at this locality there are no imminent threats within the Benutan catchment forest.

The key here is adapted from that produced in Boyce (2007), to show the essential differences among the five species of the Cuprea Group currently known for Borneo, as well as the superficially similar *Alocasia infernalis*.

FIG. 1. *Alocasia azlanii*, showing habit (left) and leaf blade turned over and upside down (right). From *Wong, Azlan & Jangarun WKM 3433* (BRUN).

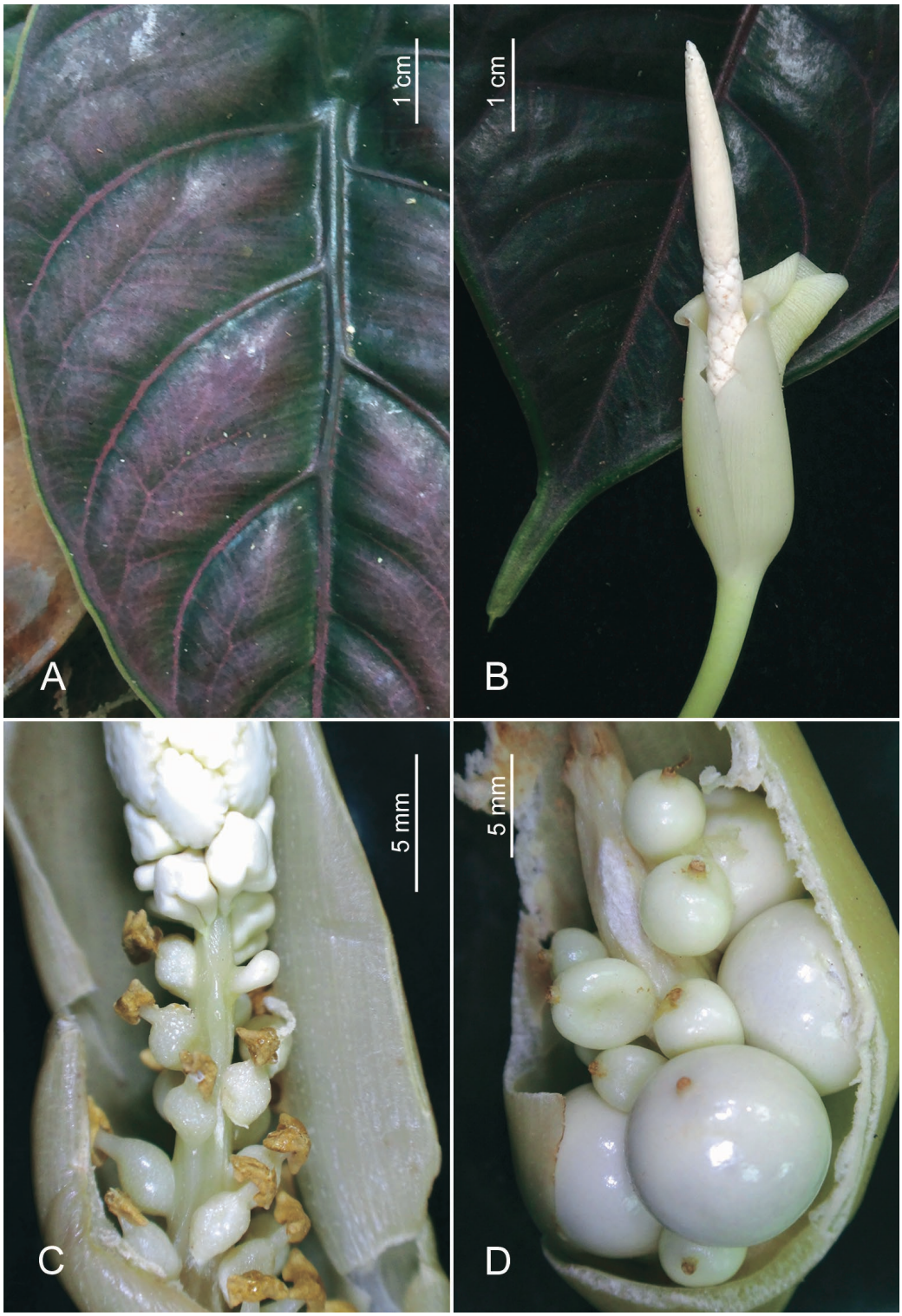

FIG. 2. *Alocasia azlanii,* showing detail of leaf venation on upper leaf surface (A), flowering part of inflorescence with upper spathe portion about to be shed (B), carpellate zone of spadix transitioning upward to staminate zone via a brief sterile interstice (C), and fruits (D). From *Wong, Azlan & Jangarun WKM 3433* (A–C from BRUN, D from SING).

Key to Bornean *Alocasia* species in the Cuprea Group
and the superficially similar *A. infernalis*

1a. Leaf blade metallic greenish brown or suffused pink, strongly bullate between primary veins; lower primary veins diverging at first at more than 90° ..... *Alocasia cuprea* (C. Koch & Bouché) C.koch
1b. Not this combination 2
2a. Leaf blade with conspicuous intramarginal vein and marginal vein, broadly to narrowly elliptic..... 3
2b. Leaf blade with more or less conspicuous marginal vein only, of various shapes 4
3a. Secondary venation in anterior leaf lobe distinct and forming clear interprimary collective veins; staminate zone of spadix only partially within lower spathe chamber (lowlands below 500 m asl) ..... ***Alocasia azlanii*** K. M. Wong & P. C. Boyce
3b. Secondary venation in anterior leaf lobe distinct to inconspicuous in more coriaceous leaves, not forming interprimary collective veins; staminate zone of spadix fully within lower spathe chamber (above 800 m asl) ..... *Alocasia peltata* M. Hotta
4a. Primary lateral veins 8–10 on each side of midrib; secondary venationparallel pinnate, not forming interprimary collective veins ..... *Alocasia minuscula* A. Hay.
4b. SPrimary lateral veins fewer than 8; secondary venation clearly colocasioid, forming interprimary collective veins..... 5
5a. Leaf blade thick coriaceous to subsucculent, spreading to subpendent; petiole glabrous ..... *Alocasia beccarii* Engl.
5b. Leaf blade thin coriaceous or submembranous, ascending (adult plants) to weakly spreading (juveniles); petiole pubescent..... *Alocasia infernalis* P. C. Boyce

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