

## Studies on the Araceae of Sulawesi I: New Taxa of *Schismatoglottis* and *Homalomena*, and a Preliminary Checklist and Keys for Sulawesi

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*Schismatoglottis inculta* Kurniawan & P. C. Boyce and *Homalomena vittifolia* Kurniawan & P. C. Boyce are described and illustrated as a new species from Sulawesi. Recognition of these novelties takes the aroid flora of Sulawesi to 41 species of which 15 (> 35%) are endemic. None of the 17 recorded genera are endemic, and one (*Colocasia*) is non-indigenous. Two species occur as adventives (*Alocasia macrorrhizos* and *Amorphophallus paeoniifolius*), and one (*Colocasia esculenta*) occurs semi-naturalized as an escape from cultivation as a carbohydrate crop. A preliminary checklist of the Araceae of Sulawesi is offered, and keys to the genera, and to the Sulawesi species of *Schismatoglottis* and *Homalomena*, are presented.

Key words: Araceae, Sulawesi, *Schismatoglottis*, *Homalomena*

While recent years has seen a marked increase in knowledge of the woody flora of Sulawesi (e.g., Keßler *et al.* 2002), the herbaceous and mesophytic flora remains one of the least well-documented for any of the larger landmasses in SE Asia. Nonetheless, recent progress with Zingiberaceae (see [www.dalbergpoulsen.com](http://www.dalbergpoulsen.com)) and orchids (e.g., O'Byrne 1999, O'Byrne & Vermeulen 2000, 2004, 2005, 2006, 2008a, 2008b, 2009, Thomas & Schuiteman, 2002, Vermeulen & O'Byrne 2003a, 2003b, 2008), has begun to reveal an extraordinarily rich herbaceous and mesophytic flora, wherein appear to be contained a tantalizingly large percentage of endemic species.

Aside from a preliminary study of the aroids part of Kolaka Regency, South-East Sulawesi (Bramantyo & Santika 2008), to date no extensive aroid-focussed fieldwork has been undertaken, although through the activities of general collectors several novel aroids, some of them spec-

taular, have been described in recent years, e.g., *Alocasia balgooyi* A. Hay (Hay 1998), *A. megawataiae* Yuzammi & A. Hay (Yuzammi & Hay 2003), *A. suhirmanniana* Yuzammi & Hay (Yuzammi & Hay 1998), *Rhaphidophora sabit* P. C. Boyce (Boyce 2000), and *Schismatoglottis eymae* A. Hay (Hay & Yuzammi 2000)

During a recent visit to Bali Botanic Gardens the third author had the opportunity to examine a remarkable collection of living aroids from Sulawesi amassed since 2000 by staff of the gardens. A considerable percentage of these collections without doubt represent taxonomic novelties. Although the majority were sterile at the time of the visit, two collections were flowering and this enabled formal descriptions to be compiled and types prepared. These two species are described below.

Including the two novelties proposed here the aroid flora of Sulawesi now comprises 40 species in 16 genera (none endemic) with one (*Colocasia*)

non indigenous. Fifteen (35%) of the 40 species are endemic to Sulawesi, two species [*Alocasia macrorrhizos* (L.) G. Don and *Amorphophallus paeoniifolius* (Dennst.) Nicolson] occur as adventives and one (*Colocasia esculenta* (L.) Schott) is frequently encountered semi-naturalized as an escape from cultivation as a carbohydrate crop. These data are compiled from collections at BO, K, L, and living plants at Bali and at the Kebun Raya, Bogor. Taxonomy is from the last author's on-going 'Araceae of Sunda & Wallacea' checklist (Boyce & Croat, unpubl. data), Nomenclature is as per IPNI ([www.ipni.org](http://www.ipni.org)) and in part from 'Kew World Checklist of Selected Plant Families'—<http://www.kew.org/wcsp/>. See Appendix 1.

**Schismatoglottis inculta** Kurniawan & P. C. Boyce, **sp. nov.**—Fig. 1.

Petiolis longitudinaliter costatis, foliis oblongo-saittatis, venis lateralibus primariis subpectinatis, contextis vegetativis aromaticis statim cognetur. In spatha solo poro laterali aperienti *S. plurinervia* accedens, sed caule hypogaeo (non epigaeo), staminodiorum appendice multo elongata et contextis aromaticis distincta. Praesentia staminodiorum appendice elongata *S. subundulatae* similis, sed immediate foliis oblongo-sagittatis (non anguste lanceolatis), petiolis costatis, habitatione mesophytica (non theophytica) distincta.

*Typus.* Indonesia, Sulawesi Tenggara Province, Kabupaten Kolaka, Kecamatan Uluiwoi, Silui village, Mount Silui, 11 May 2008, *Bramantyo Tri Adi Nugroho BM58*, cultivated in Bali Botanic Garden, Indonesian Institute of Sciences-LIPI (Kebun Raya Eka Karya Bali), under Garden Accession E20100312, (holo- THBB [dried specimen and inflorescences in alcohol]; iso- BO).

Small herb to ca. 25 cm tall with vegetative tissues weakly aromatic (terpenoids). *Stem* very condensed, epigeal, slender, ca. 10 mm diam. *Leaves* many together (to ca. 20); petiole 9.5–22.5 cm long, ca. 2.5 mm wide, slender, somewhat flexuous, D-shaped in cross-section, upper margins minutely hyaline-alate, especially towards the insertion of the blade, petiole weakly longitudinally ridged, sheathing in the lower ca. 1/3; wings of sheath fully attached tapering terminally and furnished with a minute auricle, membranous, closed, petiole medium green more-or-less heavily stained deep reddish-purple, distal-most

part shading to green with red-purple speckles; blade hastate, 11.5–16.5 cm long, 5–10.5 cm wide, very dark semi-glossy green adaxially, paler abaxially and matte, usually somewhat quilted between the primary and interprimary lateral veins, posterior lobes 2–6 cm long, divergent at ca. 45° to petiole, somewhat forward-curved, subacute, apex acute to acuminate for ca. 1 cm, tipped with a minute tubule to ca. 1 mm, blade margins sinuate-crispulate; midrib abaxially prominent, especially near the base; primary lateral veins 12–14 on each side of the midrib, irregularly interspersed with barely lesser interprimaries, subpectinate, diverging at 85–90°, those towards the tip rather sharply acropetally deflected before reaching the margin, abaxially somewhat raised, adaxially impressed with the blade tissue quilted; secondary venation arising from both the midrib and the bases of the primary veins, occasionally forming a 3-veined set arising from the mid-rib, all venations running to a sharply-defined marginal vein ca. 1 mm from the margin; tertiary venation abaxially forming a very weakly defined irregular reticulum. *Inflorescences* several together in a loose sympodium, with several such sympodia arising simultaneous from different shoot tips; first inflorescence subtended by a short pale green cataphyll, subsequent inflorescences separated by a shorter prophyll, seemingly up to four inflorescences per sympodium; peduncle to 7–10 cm long, 2–3 mm wide, somewhat flexuous, whitish green. *Spathe* 4.5–5 cm long, very pale green in bud, the limb tuning white and the lower spathe glossy medium green post anthesis; lower spathe obliquely ovoid, ca. 1 cm long, ca. 9 mm wide, differentiated from the limb by a distinct constriction; spathe limb ovate-lanceolate, 3.5 cm long, the tip apiculate, at staminate anthesis the spathe limb remaining closed except for a ca. 2 mm circular opening at the limb margins junction with the lower spathe, at staminate anthesis spathe limb inflating and becoming curving-fornicate, minutely gaping along the margins, but not otherwise opening, later falling by abscission at the lower spathe. *Spadix* ca. 3.5 cm long, sessile, pistillate zone ca. 1 cm long, very weakly conic-cylindric, obliquely inserted on peduncle,

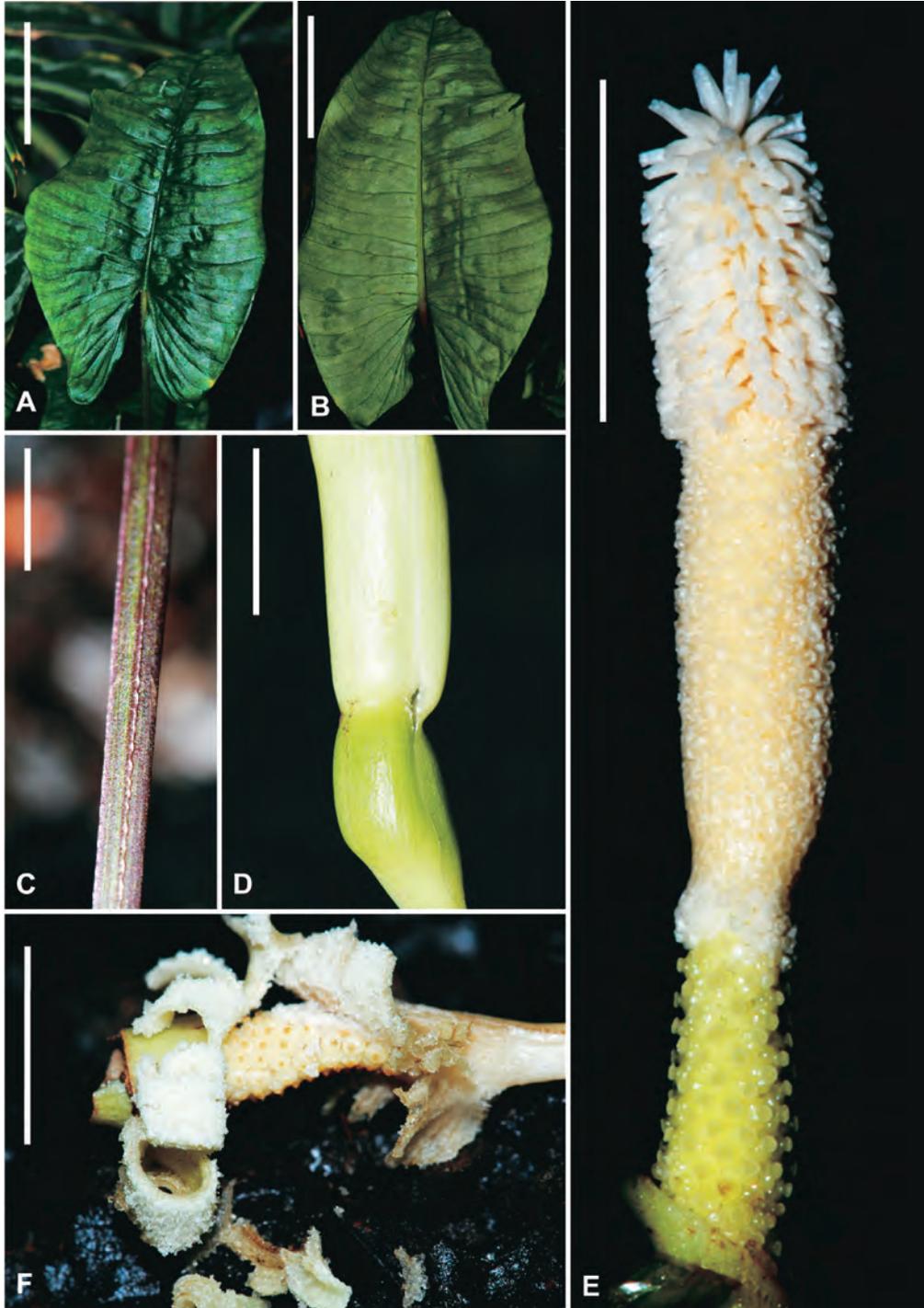


FIG. 1. *Schismatoglottis inculta* Kurniawan & P. C. Boyce. A: Leaf blade adaxial view. B: Leaf blade abaxial view. Note the subpectinate primary venation. C: Detail of petiole showing the minutely hyaline-alate upper margins and faint longitudinal ridges. D: Inflorescence at staminate anthesis, note the circular opening at the limb margins junction with the lower spathe, and the dusting of powdery pollen. E: Spadix at pistillate anthesis, spathe artificially removed. F: Infructescence showing the persistent spathe abscising basally and splitting into longitudinal strips that curl awards to reveal the fruit. Scale bars: A & B = 6cm; C = 5mm; D & E = 1cm. Photographs by Peter C. Boyce and Agung Kurniawang.

very pale green; pistils crowded or somewhat lax, globose, ca. 75 mm diam.; stigma very shortly stipitate, button-like, papillate, about half the diameter of the ovary; subpistillar staminodes confined to a single row around the base of the pistillate zone pearl-like or briefly stipitate, white, ca. 7 mm wide; sterile interstice ca. 2 mm long, wider than the top of pistillate zone and narrower than the base of the staminate zone, lower part densely covered with compressed globose white staminodes, upper part with more conventional staminodes resembling fertile flowers; staminate flower zone cylindrical, ca. 1.3 cm long, ca. 5 mm diam., dirty white; staminate flowers crowded, ca. 0.3 mm diam., stamens two per flower, truncate with flat rims around the C-shaped pores; appendix bluntly cylindrical, somewhat wider than the staminate zone, ca. 1 cm × 6 mm, covered with a shaggy mass of much-elongated staminodes to 2.5 mm long, many tipped with a bifid staminate remain, while. *Fruiting spathe* obliquely urceolate, ca. 2 cm long, abscising basally and splitting into longitudinal strips that then curl awards to reveal the fruit. Fruit compressed-globose, very pale yellowish white, stigma button-like, orange brown.

*Distribution.* Sulawesi Tenggara, known only from the type locality.

*Ecology.* Forested riversides on steep limestone slopes, reddish limestone-derived soils; up to 1000 m a.s.l.

*Etymology.* The trivial epithet derives from the Latin *incultus* ‘untidy’ in allusion to the appendix staminodes.

*Notes.* *Schismatoglottis inculta* is a remarkable species immediately distinguished from all other *Schismatoglottis* by the combination of a hastate leaf blade, ribbed petioles, tissues aromatic (terpenoids) when crushed, a spathe limb not opening wide at anthesis but rather developing a small pore-like opening at the junction of the limb margins with the lower spathe at pistillate anthesis, while at staminate anthesis the spathe limb inflates, the margins open slightly, and then the limb closes and is shed together with the spent part of the spadix. In the latter mechanics the inflorescence of *S. inculta* resembles that of *Schis-*

*matoglottis corneri* A. Hay, and also *Hestia longifolia* (Ridl.) S. Y. Wong & P. C. Boyce, although from either it differs by many characters of the inflorescence and vegetative morphology (see Hay & Yuzammi 2000, Wong & Boyce 2010). When fruiting *S. inculta* is readily characterized by the persistent lower spathe abscising at the base, near the junction with the peduncle, with the spathe walls then tearing and curling upwards, and not from the tip, with the longitudinally torn strips of the spathe recurving, as is the situation in almost all *Schismatoglottis*.

Aromatic vegetative tissues and ribbed petioles are shared one other morphotaxon of *Schismatoglottis*: the Nervosa Complex (Wong 2010). From the Nervosa Group *S. inculta* may be distinguished by the hastate leaves, a spathe limb barely opening at anthesis (vs opening wide and then deliquescent-caducous during staminate anthesis), an appendix comprised of long a brush-like head of staminodes, and a fruiting spathe abscising from the base. Interestingly, many of the Nervosa Complex are limestone obligated.

The remarkable staminodes that clothe appendix approach those occurring in Sulawesi endemic *S. subundulata*. *Schismatoglottis inculta* is readily distinguished from *S. subundulata* by the hastate leaf blade, ribbed petioles, aromatic vegetative tissues and mesophytic (not rheophytic) habit. It is nonetheless interesting that two seemingly not closely related Sulawesi endemic species should produce such a similar appendix. It would be interesting to observe whether their pollination strategies are similar. The spathe limb producing an opening at the junction of the lower spathe, and furthermore barely opening during anthesis is shared with both *S. plurivenia* and *S. subundulata*.

In addition to the species described here, there are several additional *Schismatoglottis* originating from Sulawesi in cultivation in Bali BG. While these have yet to flower, their vegetative morphology is highly suggestive that they are also undescribed. Based on these collections it seems probable that the total number of *Schismatoglottis* species for Sulawesi exceeds 15, with the majority likely endemic.

Hitherto four three species of *Schismatoglottis* have been recorded for Sulawesi, of which two (the recently described *S. eymae* A. Hay, and *S. subundulata* (Zoll. ex Schott) Nicolson) are endemic. Of the remainder *S. plurivenia* Alderw. is to date recorded from Sulawesi, the Talud Islands, and the Philippines, while *S. calyptrata* (Roxb.) Zoll & Moritzi is, as treated by Hay & Yuzammi (2000), a widespread (occurring throughout the range of the genus) and highly polymorphic taxon. The currently recognized *Schismatoglottis* for Sulawesi may be keys as follows:

#### Key to *Schismatoglottis* of Sulawesi

- 1a. Petioles longitudinally ribbed; leaves oblong-sagittate, veins arising at almost 90° to mid-rib (sub-pectinate); plant tissues aromatic (terpenoids) when crushed ..... ***S. inculta***  
 1b. Petioles smooth; leaves various, veins arising at 45°–60° from mid-rib; plant tissues not aromatic  
 2a. Leaves lanceolate to narrowly elliptic; spadix subcylindric; sterile interstice well defined and fully occupied by staminodes ..... 3  
 2b. Leaves broadly elliptic to ovato-sagittate; spadix hourglass-shaped; sterile interstice ill-defined ..... 4  
 3a. Stem pleioanthic, erect to decumbent and epigeal; Talaud Islands and Central Sulawesi ..... *S. plurivenia*  
 3b. Stem hapaxanthic, hypogeal; widespread in tropical Asia ..... *S. calyptrata*  
 4a. Appendix bluntly conoid with elongate upward-facing staminodes, especially in the upper part; South Sulawesi ..... *S. subundulata*  
 4b. Appendix subcylindric with closely-packed flat-topped staminodes; Central Sulawesi ..... *S. eymae*

***Homalomena vittifolia*** Kurniawan & P. C. Boyce, **sp. nov.**—Fig. 2.

A speciebus celebicis ceteris foliis lineari-ellipticis marginibus conspicue crispulatis, petioli vagina terminaliter truncata et, singulariter, spadice sessili distinguenda.

*Typus.* Indonesia, Sulawesi Tenggara Province, Kabupaten Kolaka, Kecamatan Tirawuta, Lalingato village, Uluisimbone forest, 23 May 2008, *Bramantyo Tri Adi Nugroho BM88*, cultivated in Bali Botanic Garden, Indonesian Institute of Sciences-LIPI (Kebun Raya Eka Karya Bali), under Garden Accession E20100342, (holo- THBB [dried specimens and inflorescences in alcohol]; iso-BO!).

Small evergreen rheophytic herbs to ca. 15 cm tall. *Stem* pleioanthic, erect ca. 5 mm thick, me-

dium green, internodes to ca. 1.5 mm long. *Leaves* many together; forming a subspreading rosette, petiole sharply channelled adaxially, rounded abaxially, spreading, 8–10 cm long, microscopically velutinous, matte medium green; petiolar sheath 3.5–4 cm long, ca. 1/3 length, sheath spreading, persistent, somewhat transparent, the margins somewhat stained pinkish red, lower clasping part in-curved, terminal part truncate, and margins somewhat erose; blade linear-elliptic, 12–18 cm long, 1.5–2.2 cm wide, thinly and rather softly leathery, matter mid-green adaxially, abaxially paler olive-green, margins weakly sinuous and conspicuously crispulate, base acute-cuneate, tip acute with margins minutely incurved-fornicate, apiculate for ca. 1 mm; midrib prominently rounded-raised abaxially, adaxially impressed, ca. 1.5 mm wide, with ca. 3 primary lateral veins on each side, these diverging at 15° from the midrib, abaxially raised and somewhat darker than the blade, adaxially slightly impressed; interprimary veins ca. 1/2 width of the primary lateral veins; secondary venation conspicuous, darker than the blade (abaxially), somewhat reticulate; tertiary venation very irregularly forming weakly reticulate veinlets, all veins running into a slightly thickened intermarginal vein. *Inflorescences* up to 4 together, together, erect at anthesis, later declinate; peduncle to ca. 3.5–4 cm long, ca. 1 mm diam., pale green. *Spathe* ca. 2 cm long, not constricted, matte pale green externally, somewhat shiny pale green internally, with a terminal short mucro to ca. 1.5 mm long, spathe opening at anthesis by inflation and thence by a broad slit, later closing by which time spadix has extended to project beyond the tip of the closed spathe. *Spadix* ca. 1.5 cm long, 2.5 mm diam., sterile at the tip by the non-development of the staminate flowers, sessile; *pistillate flower zone* ca. 2.5 mm long; pistils few, usually only 3 spirals, obliquely globose, ca. 1 mm tall, 0.8–0.9 mm diam. greenish white, stigma on a thick, obliquely-extended stipe, minutely disk-like, 0.2–0.3 mm diam.; each pistil with a single staminode situated on ventral side of the flower relative to the base of the spadix; interpistillar staminodes globose, almost sessile, ca. 0.2 mm

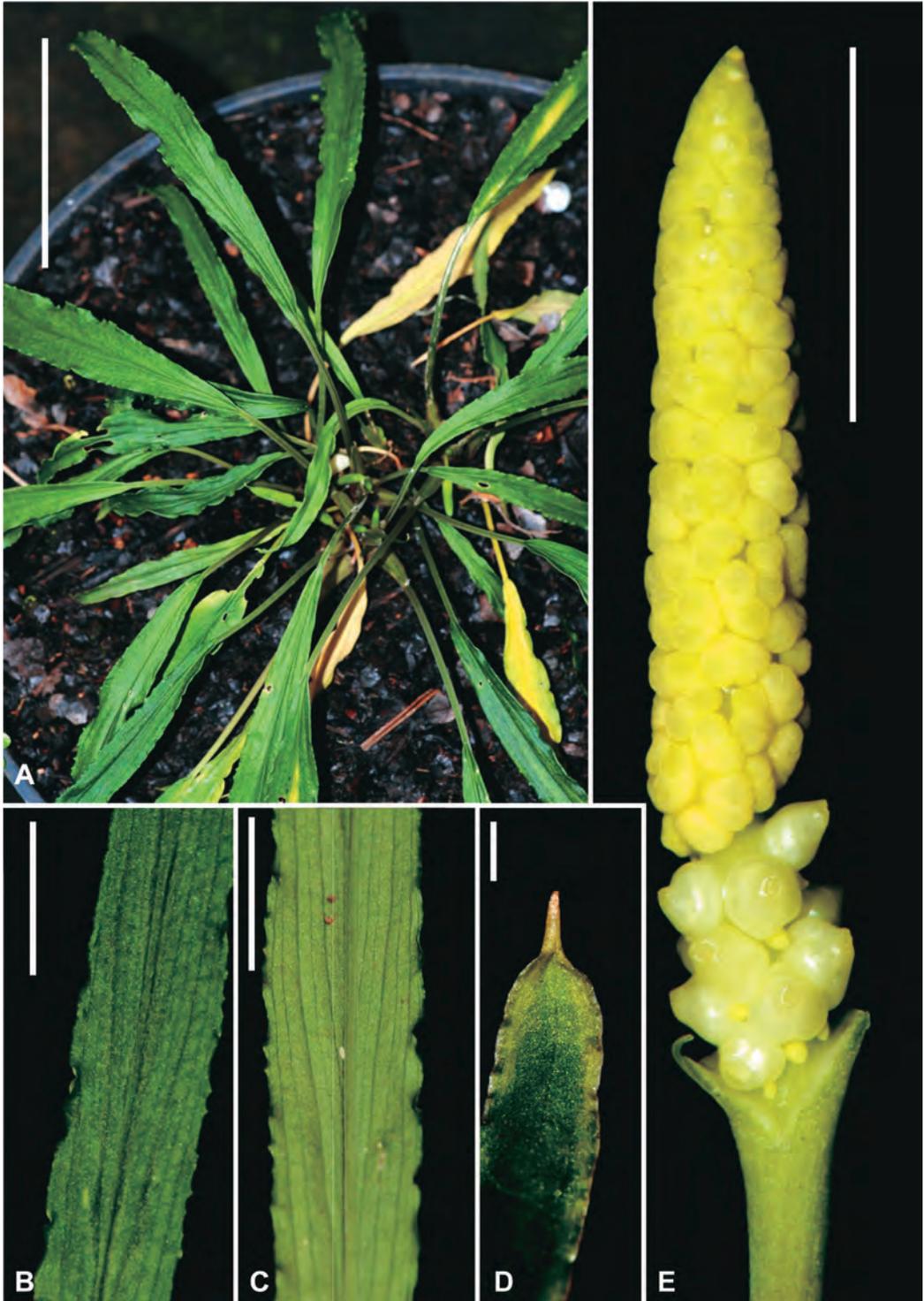


FIG. 2. *Homalomena vittifolia* Kurniawan & P. C. Boyce. A: Type plant in cultivation at Bali B.G. B: Portion of leaf blade, adaxial view. Note the crispulate margins. C: Portion of leaf blade, abaxial view. D: Leaf tip, adaxial view. E: Spadix at female anthesis, spathe artificially removed. Scale bars: A = 4cm; B & C = 2cm; D = 1mm; E = 5mm. All from *Bramantyo Tri Adi Nugroho BM88*. Photographs by Peter C. Boyce and Agung Kurniawan.

long, yellow; suprapistillar interstice zone absent or very short, less than 0.1 mm, naked, pale green; *staminate flower zone* 1 cm long, apex acute, obliquely inserted relative to pistillate flower zone; *staminate flowers* broadly globose-dumbbell shaped, almost all consisting of two stamens, stamens rounded, ca. 0.5 mm tall, 0.5 mm long, ca. 1 mm wide, yellowish green, anther thecae opening by a broad terminal slit. *Infructescence* declinate, pale green. *Fruits* and seeds not observed.

*Distribution.* Known only from the type locality.

*Ecology.* Very humid wet forest along riversides, on reddish soil with a limestone layer; up to 1000 m a.s.l.

*Etymology.* From Latin, *vitta* 'a ribbon' + *folia*, in allusion to the long ribbon-like leaves, an unusual morphology for *Homalomena*.

*Notes.* *Homalomena vittifolia* is a member of the Chamaecladon Supergroup (see Boyce & Wong, 2008), and is only the third species of *Homalomena* recorded for Sulawesi. The others, here treated as Sulawesi endemics, are *H. aeneifolia* Alderw. and *H. pusilla* Alderw. both part of the taxonomically labyrinthine *H. humilis* (Jack) Hook.f. complex. They may be distinguished as follows:

#### Key to *Homalomena* of Sulawesi

- 1a. Leaf blade linear-elliptic, up to 18 cm long, 2.2 cm wide, entire margin conspicuously crispulate; petiolar sheath terminally truncate; spadix sessile ..... ***H. vittifolia***
- 1b. Leaf blade not linear, up to 12 cm long, 5 cm wide, margins not or only very weakly crispulate (and then only towards base); petiolar sheath terminally cuneate; spadix stipitate ..... 2
- 2a. Leaf blade lanceolate, 5–7.5 cm long, 2–2.75 cm wide; spathe 1.5 cm long; spadix stipe ca. 2 mm long ..... *H. pusilla*
- 2b. Leaf blade ovate to ovato-oblong, 7.5–12 cm long, 3.5–5 cm wide; spathe 2 cm long; spadix stipe ca. 1 mm long ..... *H. aeneifolia*

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## APPENDIX 1. Preliminary Checklist to the Araceae of Sulawesi

‡ = endemic; § = none indigenous

For detailed synonymies see Govaerts & Frodin (2002); <http://www.theplantlist.org/>; <http://apps.kew.org/wcsp/>

### Key to the Aroid Genera of Sulawesi

- 1a. Lianes .....2
- 1b. Terrestrial mesophytes or geophytes, or free-floating .....8
- 2a. Flowers naked (lacking a perigone) or with perigone membranous and inconspicuous .....3
- 2b. Flowers conspicuously perigoniate .....4
- 3a. Flowering shoot with inflorescences always axillary or infra-axillary, if terminal then inflorescence solitary on a leafy shoot; flowers bisexual; ovary 3-locular, the locules 1-ovulate ..... *Pothos*
- 3b. Flowering shoots a branching system of spadices; flowers functionally unisexual, plants functionally dioecious; ovary 1-locular ..... *Pothoidium*
- 4a. Spathe in bud slender, long-slender-pedunculate, conspicuously long-beaked (beak to 1/3 length of entire spathe), opening with inside greenish white or white and conspicuously glossy-waxy; flowers with a membranous perigon of fused tepals; infructescence with discrete, truncate berries ripening red or orange; trichosclereids absent ..... *Anadendrum*
- 4b. Spathe in bud stout, short to long-stout-pedunculate, not conspicuously long-beaked, if beak present then less than 1/6 length of entire spathe, opening with inside yellow, orange, greenish or white, only moderately waxy; flowers naked; infructescence a monstercarp; trichosclereids present (but sparse in *Amydrium*) .....5
- 5a. Petiole sheath very short (not or only just exceeding the basal pulvinus); mature leaf blade pinnatisect, leaflets narrowly elliptic, with finely pointed tips; higher order venation completely reticulate; trichosclereids sparse ..... *Amydrium*
- 5b. Petiole sheath usually reaching to the tip of the petiole, or at least until the base of the terminal pulvinus; leaf blade mainly entire, if pinnatifid to pinnatisect then leaflets with blunt tips; higher order venation striate or reticulate; trichosclereids abundant (many ‘hairs’ apparent when a mature leaf blade is torn) .....6
- 6a. Ovules 2–6 or more, placentation parietal; fruits with more than one seed; juvenile plants never with variegated leaves .....7

- 6b. Ovules solitary, placentation basal; fruits with a solitary seed; juvenile plants often with variegated leaves ..... *Scindapsus*
- 7a. Ovules 8 or more, superposed on 2 (rarely 3) parietal placentas; seeds many, ellipsoid, straight, 1.3–3.2 mm long, 0.6–1 mm wide; testa brittle, smooth ..... *Rhaphidophora*
- 7b. Ovules 2–4(–6) at base of a single intrusive placenta; seeds few, curved, 3–7 mm long, 1.5–4 mm wide; testa bony and ornamented ..... *Epipremnum*
- 8a. Free-floating plants with leaves forming a conspicuous rosette with copious roots hanging beneath ... *Pistia*
- 8b. Terrestrial mesophytes or geophytes ..... 9
- 9a. Mesophytes. Flowers bisexual (spadix uniform), perigoniate; spathe opening completely flat, brilliant white at anthesis; spadix sweet smelling (eugenole, methyl eugenole)..... *Spathiphyllum*
- 9b. Mesophytes or geophytes; flowers unisexual (spadix zoned), naked; spathe not opening flat, never brilliant white at anthesis; spadix smell ranging from undetectable to foul, never sweet smelling ..... 10
- 10a. Tuberous-stemmed geophytes..... 11
- 10b. Mesophytes ..... 13
- 11a. Leaves decompose; inflorescences appearing before leaf emergence..... *Amorphophallus*
- 11b. Leaves hastate, or polyfoliolate-radiate; inflorescences produced with leaves ..... 12
- 12a. Leaves hastate; spadix monoecious; inflorescence strongly foul smelling; spathe limb large, deep purple, appendix rat-tail like; ripe fruits pale green enclosed by a persistent lower spathe..... *Typhonium*
- 12b. Leaves polyfoliolate-radiate; spadix dioecious; inflorescence odourless; spathe limb pale green to glossy brown, appendix short; ripe fruits bright red, exposed..... *Arisaema*
- 13a. Plants mostly suffruticose; fruits conspicuous red or pink berries not surrounded by a persistent spathe ..... *Aglaonema*
- 13b. Plants not suffruticose; fruits various, if red or orange red berries then surrounded by a persistent lower spathe ..... 14
- 14a. Entire spathe closing after anthesis and then persisting until fruit maturity; vegetative tissues usually aromatic (terpenoids)..... *Homalomena*
- 14b. Spathe limb shedding during or soon after anthesis, and lower spathe persisting until fruit maturity ..... 15
- 15a. Staminate flowers forming synandria ..... 16
- 15b. Staminate flowers not forming synandria..... *Schismatoglottis*
- 16a. Leaf blade abaxially with conspicuous waxy glands in axils of the primary veins; spathe limb deep yellow, somewhat spongy; infructescences erect, fruits medium-sized, ripening orange-red, odourless; seeds ca. 3–4 mm diam. .... *Alocasia*
- 16b. Leaf blade abaxially lacking glands; spathe limb various colours but not yellow and not spongy; infructescences pendent, fruits small, ripening yellowish brown, smelling variously of overripe fruit or vomit; seeds < 2mm long..... *Colocasia*

*Aglaonema*

- Aglaonema commutatum* var. *warburgii* (Engl.) Nicolson, Smithsonian Contr. Bot. 1: 50 (1969).  
Representative Sulawesi collection: *O. Warburg* s.n. [B]
- Aglaonema densinervium* Engl., Bot. Jahrb. Syst. 37: 134 (1905).  
Representative Sulawesi collection: *S. H. Koorders 16174β* [BO, L]
- Aglaonema philippinense* Engl., Bot. Jahrb. Syst. 25: 21 (1898).  
Representative Sulawesi collection: *S. H. Koorders 16155β* [Syntype of: *Aglaonema simplex* f. *macrophyllum* Engl., nom. nud., BO, L]
- Aglaonema simplex* (Blume) Blume, Rumphia 1: 152 (1837).  
Representative Sulawesi collection: *S. H. Koorders 16179β* [BO, L]

*Alocasia*

- ‡ *Alocasia balgooyi* A. Hay, Gard. Bull. Singapore 50: 291 (1998).  
Representative Sulawesi collection: *M. M. J. van Balgooy 3812* [holotype B; isotypes K, L]
- ‡ *Alocasia celebica* Engl. ex Koord., Meded. Lands Plantentuin 19: 299 (1898).  
Representative Sulawesi collection: *S. H. Koorders 16162β* [holotype B; isotypes BO, L]
- ‡ *Alocasia megawatiae* Yuzammi & A. Hay, Aroideana 25: 70 ('2002' 2003).  
Representative Sulawesi collection: *Yuzammi 40048* [holotype BO, isotype NSW]
- ‡ *Alocasia suhirmaniana* Yuzammi & A. Hay, Telopea 7: 303 (1998).  
Representative Sulawesi collection: *Yuzammi s.n.* [holotype BO]
- § *Alocasia macrorrhizos* (L.) G. Don in R. Sweet, Hort. Brit., ed. 3: 631 (1839).

Representative Sulawesi collection: Cultivated plants in Bali Botanic Garden, no voucher yet prepared. — Note: It is not clear where, if anywhere, this species occurs wild. It has evidently been prehistorically distributed widely in tropical Asia as a subsistence crop and is now pantropical by introduction, and subsequent escape, as an ornamental.

#### *Amorphophallus*

§*Amorphophallus paeoniifolius* (Dennst.) Nicolson, Taxon 26: 337 (1977).

Representative Sulawesi collection: Cultivated plants in Bali Botanic Garden, no voucher yet prepared.

‡*Amorphophallus plicatus* Bok & H. J. Lam, Blumea 2: 33 (1936).

Representative Sulawesi collection: *W. Kaudern 243* [holotype S]

#### *Amydrium*

*Amydrium zippelianum* (Schott) Nicolson, Blumea 16: 126 (1968).

Representative Sulawesi collection: *O. Beccari P.S. s.n.* [type of *A. magnificum* (Engl.) Nicolson, lectotype B, FI-B]

#### *Anadendrum*

*Anadendrum montanum* Schott, Bonplandia (Hannover) 5(3): 45 (1857), *sensu* Engler (1905).

Representative Sulawesi collection: *A. Zippelius s.n.* [BO, L]

Note: *Anadendrum* is in urgent need of taxonomic revision. There are approximately 30 species in tropical Asia, the majority undescribed. The applied taxonomy to the Sulawesi species is highly conjectural.

#### *Arisaema*

*Arisaema polyphyllum* (Blanco) Merr., Publ. Bur. Sci. Gov. Lab. 27: 90 (1905).

Representative Sulawesi collection: *K. F. & P. B. Sarasin 645* [type of *Arisaema sarisinorum* Engl., holotype B]

#### *Colocasia*

§*Colocasia esculenta* (L.) Schott in H. W. Schott & S. L. Endlicher, Melet. Bot.: 18 (1832).

Representative Sulawesi collection: None, but numerous sight records for much of Sulawesi. —Note: Natural wild distribution is much obscured by cultivation since prehistoric times as a carbohydrate and green vegetable crop. Widely cultivated in the tropics and subtropics and doubtfully native throughout much of its modern range.

#### *Epipremnum*

*Epipremnum nobile* (Schott) Engl. in A. L. P. de Candolle & A. C. P. de Candolle, Monogr. Phan. 2: 250 (1879).

Representative Sulawesi collection: *S. H. Koorders 16149β* [BO, L]

*Epipremnum pinnatum* (L.) Engl. in A. Engler, Pflanzenr. 37(IV.23B): 60–63, Fig. 25. (1908).

Representative Sulawesi collection: *S. H. Koorders 16164β* [BO, L]

#### *Homalomena*

‡*Homalomena aeneifolia* Alderw., Bull. Jard. Bot. Buitenzorg, III, 4: 176 (1922).

Representative Sulawesi collection: *Capt. L. van Vuurens's Exploration Expedition s.n. Cult Bogor. XI B X 112* [holotype BOKR]

‡*Homalomena pusilla* Alderw., Bull. Jard. Bot. Buitenzorg, III, 4: 175 (1922).

Representative Sulawesi collection: *Capt. L. van Vuurens's Exploration Expedition s.n. Cult Bogor. XI B X 57* [holotype BOKR]

‡*Homalomena vittifolia* Kurniawan & P. C. Boyce

Representative Sulawesi collection: See above description.

#### *Pistia*

*Pistia stratiotes* L., Sp. Pl.: 963 (1753).

Representative Sulawesi collection: None, but several sight records.

#### *Pothoidium*

*Pothoidium lobbianum* Schott, Oesterr. Bot. Wochenbl. 7: 70 (1857).

Representative Sulawesi collection: *E. F. de Vogel 3826* [BO, K, L]

#### *Pothos*

*Pothos cylindricus* C. Presl, Epimel. Bot.: 243 (1851).

Representative Sulawesi collection: *J. W. Grimes 1217* [BM, K]

*Pothos scandens* L., Sp. Pl.: 968 (1753).

Representative Sulawesi collection: *J. S. Burley & al. 4159* [BO, K, L].

*Pothos tener* Wall., in W. Roxburgh, Fl. Ind. 1: 454 (1820)

Representative Sulawesi collection: *J. S. Burley & al. 4136* [BO, K, L].

#### *Rhaphidophora*

‡*Rhaphidophora koordersii* Engl., Bot. Jahrb. Syst. 25: 6 (1898).

Representative Sulawesi collection: *S. H. Koorders 16166β* [holotype B; isotypes BO, L]

*Rhaphidophora korthalsii* Schott, Ann. Mus. Bot. Lugduno-Batavi 1: 129 (1863).

Representative Sulawesi collection: *S. H. Koorders 19641β* [BO, L]

*Rhaphidophora lobbii* Schott, Prodr. Syst. Aroid.: 379 (1860).

Representative Sulawesi collection: *J. W. Grimes 150*

[K].

*Rhaphidophora minor* Hook.f., Fl. Brit. India 6: 544 (1893).

Representative Sulawesi collection: *R. Schlechter 20698* [type of *R. celebica* K.Krause, holotype B]

‡*Rhaphidophora sabit* P. C. Boyce, Gard. Bull. Singapore 52: 161 (2000).

Representative Sulawesi collection: *Mor. Amir 144* [holotype BO; isotype L]

‡*Rhaphidophora sarasinorum* Engl., Bot. Jahrb. Syst. 37: 114 (1905).

Representative Sulawesi collection: *K. F & P. B. Sarasin 232* [lectotype B]

‡*Rhaphidophora teysmanniana* Engl. & K. Krause, in A. Engler, Pflanzenr. 37(IV.23B): 35 (1908).

Representative Sulawesi collection: *J. E. Teijsmann 11774* [holotype BO; isotypes BO, L]

#### *Schismatoglottis*

*Schismatoglottis calyptrata* (Roxb.) Zoll. & Moritzi in H. Zollinger, Syst. Verz.: 83 (1854).

Representative Sulawesi collection: *S. H. Koorders 17158β* [type of *Schismatoglottis calyptrata* var. *celebica* Koord., holotype BO]

‡*Schismatoglottis eymae* A.Hay, Telopea 9: 122 (2000).

Representative Sulawesi collection: *P. J. Eyma 3489* [holotype L; isotype BO, U]

*Schismatoglottis plurivenia* Alderw. Bull. Jard. Bot. Bu-

itenzorg, III, 4: 209 (1922).

Representative Sulawesi collection: *H. J. Lam 2999* [BO, L]

‡*Schismatoglottis subundulata* (Schott) Nicolson, Smithsonian Contr. Bot. 1: 61 (1969).

Representative Sulawesi collection: *C. G. G. J. van Steenis 10423* [BO, L]

‡*Schismatoglottis inculta* Kurniawan & P. C. Boyce

Representative Sulawesi collection: See above description.

#### *Scindapsus*

*Scindapsus pictus* Hassk., Tijdschr. Natuurl. Gesch. Physiol. 9: 164 (1842).

Representative Sulawesi collection: *O. Warburg 15726* [B]

#### *Spathiphyllum*

*Spathiphyllum commutatum* Schott, Oesterr. Bot. Wochenbl. 7: 158 (1857).

Representative Sulawesi collection: *S. H. Koorders 15898β* [BO, L]

#### *Typhonium*

*Typhonium roxburghii* Schott, Aroideae 1: 12 (1853).

Representative Sulawesi collection: Cultivated plants in Bali Botanic Garden, no voucher yet prepared.