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Research article

The phylogenetic placement of a new species of *Amomum* (Zingiberaceae) from the Philippines

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During recent fieldwork in Pasonanca Natural Park, Zamboanga City, Philippines, we collected a ginger species belonging to *Amomum* sensu stricto that resembled the Bornean endemic *Amomum stenosiphon*. In phylogenetic analyses based on ITS *trn*K/*mat*K sequences, the Philippine collections formed a monophyletic group but did not group with *A. stenosiphon* in the ITS tree whereas they are sister to each other in the *trn*K/*mat*K tree. Also, one autapomorphic site in the ITS region was found for the Philippine collections. Nevertheless, the Philippine collections are morphologically distinct and differ from *A. stenosiphon* by their longer petioles, more narrow and ovate laminae, and fewer flowers per flowering shoot, and we describe here a new species, *Amomum zamboangense*, named after the type locality. We provide a colour plate and a preliminary assessment of its conservation status. Since *Amomum dealbatum* has previously been reported from the Philippines, two species of *Amomum* s.s. are now known to occur in the country.

Keywords: *Amomum dealbatum*, *Amomum stenosiphon*, *Elettariopsis*, endangered, ITS, *trnK/matK*

[Correction added on September 1, 2025 after first online publication: The copyright line was changed.]

Introduction

The genus *Amomum* Roxb. of the family Zingiberaceae was the second-largest genus in Zingiberaceae until De Boer et al. (2018) divided it into six genera using molecular and morphological evidence reflecting the evolution. *Amomum* in a strict sense is now reduced to approximately 64 species (Hlavata et al. 2023) distributed in mainland Asia (including China, India, Indochina), Sri Lanka, Southeast Asia (excluding Sulawesi and Seram), New Guinea including the Bismarck Archipelago, and tropical regions of Australia (Xia et al. 2004, De Boer et al. 2018, Hlavata et al. 2023). It is

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characterised by the combination of the following traits: usually long-petiolate leaves, a radical compact inflorescence, a well-developed fan-shaped and a more or less trilobed anther crest, and winged fruits.

Approximately 30 species within *Amomum* s.s. were formerly placed in *Elettariopsis* Baker, a genus of small herbs distributed mainly in Southeast Asia west of the Wallace line excluding the Philippines. The leafy shoots with one or few leaves, separate flowering shoots, bracteoles usually open to the base (or almost so), and a petaloid anther crest differentiate it from morphologically related genera (Kiew 1982, Picheansoonthon and Yupparach 2007). Since the flowers of most taxa have similar coloration and forms (Smith 1990) and resemble some *Amomum* s.s. species, several papers suggest that *Elettariopsis* is not well distinguished from *Amomum* s.s. and De Boer et al. (2018) sunk it in *Amomum* s.s. using molecular evidence as support.

Hlavata et al. (2023) constructed phylogenetic trees using traditional methods (ITS-based phylogeny) as well as applying a targeted enrichment NGS approach (HybSeq using 449 nuclear genes) to investigate genome size evolution in *Amomum* s.s. They divided *Amomum* s.s. into four groups (A, B, C, and D). Group D mostly consists of species that were formerly placed in *Elettariopsis* and was further divided into three subgroups: D1, D2, and D3. The study also produced a chloroplast gene tree and discovered that it was nearly congruent with the nuclear gene tree, differing only in the positions of clades A and B. The nuclear and chloroplast trees, however, were not congruent with the rDNA- and ITS-based trees they also produced, and thus they concluded that using rDNA markers alone is not suitable and reliable for reconstructing the evolution of deeper/basal nodes.

Although *Amomum dealbatum* Roxb. was formally reported by Acma (2014) to occur in the Philippines, De Boer et al. (2018) did not map any species of *Amomum* s.s. there. Two Philippine species, *Amomum luzonensis* Elmer and *Amomum warburgii* (K.Schum.) K.Schum. are currently unplaced due to insufficient data (Docot et al. 2022).

Members of *Amomum* s.s. are used as spices and ornamentals (e.g. *Amomum subulatum* Roxb., Bisht et al. 2011), known to have medicinal importance (e.g. *Amomum sericeum* Roxb., Leong-Škorničková and Newman 2005), and even used for hunting bandicoots in Papua New Guinea (e.g. *Amomum maximum* Roxb., Bau and Poulsen 2007).

During fieldwork in Pasonanca Natural Park, Zamboanga City, Philippines, performed in November 2023, we made a collection resembling species from Borneo, namely *Amomum kerbyi* (R.M.Sm.) Škorničk. & Hlavatá and *Amomum stenosiphon* K.Schum., both of which were formerly placed in *Elettariopsis*. This study aims to identify this collection using morphological and molecular data.

Material and methods

The total genomic DNA of the specimens R.V.A Docot et al. 444 and 465 were extracted using the DNeasy Plant Mini Kit (Qiagen®, Germany) following the manufacturer's protocol. The PCR mix and thermal profile used by Docot et al. (2019) were used to amplify the ITS region. PCR products were sent to Macrogen© (Seoul, Korea) for purification and sequencing services. The newly generated sequences were assembled and edited in Geneious Prime ver. 2025.03 (https://www.geneious.com) and were aligned using Muscle 3.7 (Edgar 2004) in the CIPRES portal (Miller et al. 2010) to the data matrix used in this study.

A total of 54 ITS and 34 *trn*K/*mat*K region accessions representing 34 species were used to create the phylogenetic tree of *Amomum* s.s. This study ensured that all groups are represented in both ITS and *trn*K/*mat*K trees, most importantly Group D which is represented mostly by species formerly placed in *Elettariopsis*. Two samples of *Aframomum* K.Schum. (*Aframomum angustifolium* (Sonn.) K.Schum. and *Aframomum cereum* (Hook.f.) K.Schum.), two *Renealmia* L.f. (*Renealmia polypus* Gagnep. and *Renealmia thyrsoidea* (Ruiz & Pav.) Poepp. & Endl.), and *Siphonochilus kirkii* (Hook.f.) B.L.Burtt were used as outgroups (Appendix I for the complete accession details of all sequences).

Maximum-likelihood (ML) and Bayesian inference (BI) phylogenetic trees of each region were constructed using RAxML-HPC2 on ACCESS ver. 8.2.12 (Stamatakis 2014) and MrBayes on ACCESS ver. 3.2.7a (Huelsenbeck and Ronquist 2001), respectively, both performed in the CIPRES portal (Miller et al. 2010). A general time reversible model (GTR + I + Γ) was used for both ML and BI analyses as indicated by the Akaike information criterion (AIC) implemented in Modeltest ver. 3.06 (Posada and Crandall 1998). Bootstrap support values were obtained by running 1000 replicates and were categorised according to Kress et al. (2002) standard cut-off values. Four Markov chain Monte Carlo (MCMC) chains were performed for 10 million generations with trees sampled every 1000th generation. To confirm convergence, values for potential scale reduction factor (PSRF) and standard deviation of the split frequencies between two runs were considered. Tracer ver. 1.7.1 (Rambaut et al. 2018) was used for an additional convergence test to check if each parameter had an effective sample size (ESS) > 100. Trees saved prior to convergence were discarded as burn-in (10 000 trees), creating a 50% majority-rule consensus tree constructed from the remaining trees. Posterior probability values greater than 0.95 are considered strong evidence of a well-supported clade. The data matrices and trees produced in this study have been deposited in Zenodo (https://doi.org/10.5281/zenodo.14996155).

Specimens relevant to *Amomum* s.s. and radically flowering gingers in the Philippines held at BM, BO, E, FEUH, FI, GH, K, L, NY, PNH, and US including types were examined. Protologues and taxonomic revisions of relevant species were also reviewed and scrutinized. The extent of occurrence (EOO) and area of occupancy (AOO) of the species were calculated using the geospatial conservation assessment tool (GeoCAT) (Bachman et al. 2011: http://geocat.kew.org/). Together with some data from the field including habitat quality and threats observed, the generated EOO and AAO

values were used to assess the preliminary conservation status of the species using the International Union for Conservation of Nature (IUCN) criteria (IUCN Standards and Petitions Committee 2021).

Results and discussions

Phylogenetic placement of the Amomum species from the Philippines

The ITS region dataset yielded the highest number of parsimony-informative characters with 15.58% (124 out of 796 bp) with outgroups and 12.44% (99 out of 796) without outgroups. Whereas the *trn*K/*mat*K region obtained 2.62% (73 out of 2790 bp) with outgroups and 0.98% (27 out of 2790 bp) without outgroups. All groups (A, B, C, and D) from Hlavata et al. (2023) were recovered in both ITS and *trn*K/*mat*K trees of this study (Fig. 1). Some groups, however, are poorly supported, including groups B and D in the *trn*K/*mat*K tree. The groupings in the ITS tree produced in this study are congruent to the ITS-based tree of Hlavata et al. (2023), while the *trn*K/*mat*K tree is congruent to the nuclear gene tree of the same paper. The Philippine collections (R.V.A. Docot et al. 444 & 465) appeared monophyletic inside group D2 both in the ITS and *trn*K/*mat*K trees (Fig. 1) produced by the ML analysis, whereas they formed a polytomy with *A. kerbyi* and *A. stenosiphon* in the trees produced by the Bayesian analysis. Nevertheless, its position in *Amomum* s.s. confirms it is indeed a species of *Amomum*.

In the ITS tree produced by the ML analysis, all accessions of *A. stenosiphon* (Fig. 2A–B) from Borneo did not group with the Philippine collections (Fig. 1a). Instead, *A. stenosiphon* formed a poorly supported group with *A. kerbyi* (Fig. 2C–D) also from Borneo. Altogether, they formed a weakly supported group and appeared in group D2 which is predominantly Sundaland species. On the other hand, *A. stenosiphon* appeared sister with the Philippine collections in the *trn*K/*mat*K tree produced by the ML analysis (Fig. 1b). Also, *A. kerbyi* appeared basal to them. Altogether, they formed a weakly supported group within group D2.

This study also identified autapomorphic sites among the sequences of *A. kerbyi, A. stenosiphon*, and the Philippine collections using MEGA ver. 11 (Tamura et al. 2021). In the ITS region using eight sequences, we found one autapomorphic site at position 230 using two accessions for the Philippine collections and at position 503 using three accessions for *A. kerbyi*. Unfortunately, none was found from the three accessions of *A. stenosiphon*. The same result goes between the six *trn*K/*mat*K sequences of the three species (with two accessions each); although four variable sites were detected, all are for one accession only. Exploring additional DNA regions will uncover more autapomorphic sites between the three species.

The ITS and *trn*K/*mat*K regions have been consistently used since Kress et al. (2002) in resolving phylogenetic relationships within Zingiberaceae despite being not usually congruent to each other, particularly at the inter-specific level. Based on recent studies, the ITS region is one of the best DNA barcode candidates for identifying species within Zingiberaceae, specifically the ITS2 region (Shi et al. 2011, Tan et al. 2020). This could explain the separation of the Philippine collections from *A. stenosiphon* in the ITS tree of this study, but only one autapomorphic site was found and the backbones are not well supported. It is also not surprising that the backbone values between the Philippine collections, *A. kerbyi*, and *A. stenosiphon* are poorly supported in the *trn*K/*mat*K tree since this region is conserved. Nevertheless, the Philippine collections are morphologically distinct from these two species. We recommend using a targeted enrichment next-generation sequencing (NGS) method to obtain strong backbone support to resolve the relationship between the three species and such may potentially also uncover if there was a hybridization event between them.

Morphology of the *Amomum* from the Philippines and possible match with known species

First of all, this study compared the Philippine collections to *Amomum luzonense* and *Amomum warburgii*. *Amomum luzonense* was described using a fruiting collection (*A.D.E. Elmer 15645*) from Mount Bulusan, Sorsogon. Unfortunately, the type specimen cannot be located and was likely destroyed during the Second World War when the Bureau of Science, Manila, went up in flames. Based on the protologue, *A. luzonense* is up to 1.5 m long, has papyraceous floral bracts, and yellowish brown fruits, and is likely related to *Wurfbainia mindanaensis* (Elmer) Škorničk. & A.D.Poulsen. The newly collected *Amomum* species, however, is only up to 60 cm long and has non-papyraceous floral bracts, and dark purple fruits.

Amomum warburgii was described using a collection from Mindanao which was likely destroyed at Berlin Herbarium (B) during the Second World War. Merrill (1923) noted that he saw the type at B as resembling a *Costus* L. species (perhaps a radically flowering Costaceae) and thus, less likely conspecific with our collections. Based on these elements, the two aforementioned names cannot be applied to our new collections.

Based on the molecular data presented, the Philippine collections are related to *A. kerbyi* and *A. stenosiphon* both occurring on the neighbouring island of Borneo. Their characteristics are similar to most species found within group D: few leaves; separated flowering shoots; white labellum with yellow in centre edged by red lines on each side; and petaloid anther crest. In fact, these characters previously distinguished *Elettariopsis* at some degree from its related genera inside the tribe Alpinieae.

Amomum kerbyi was described from a plant collected in Sarawak and uniquely separate from the Philippine collections and *A. stenosiphon* by the shorter petioles, linear lamina (Fig. 2D), and the bracteoles split to base (Table 1). *Amomum stenosiphon* (Fig. 2A) shared most similarities with the Philippine collections. Both may reach up to 60 cm in height and have up to 4 cm long petioles (Table 1). One may

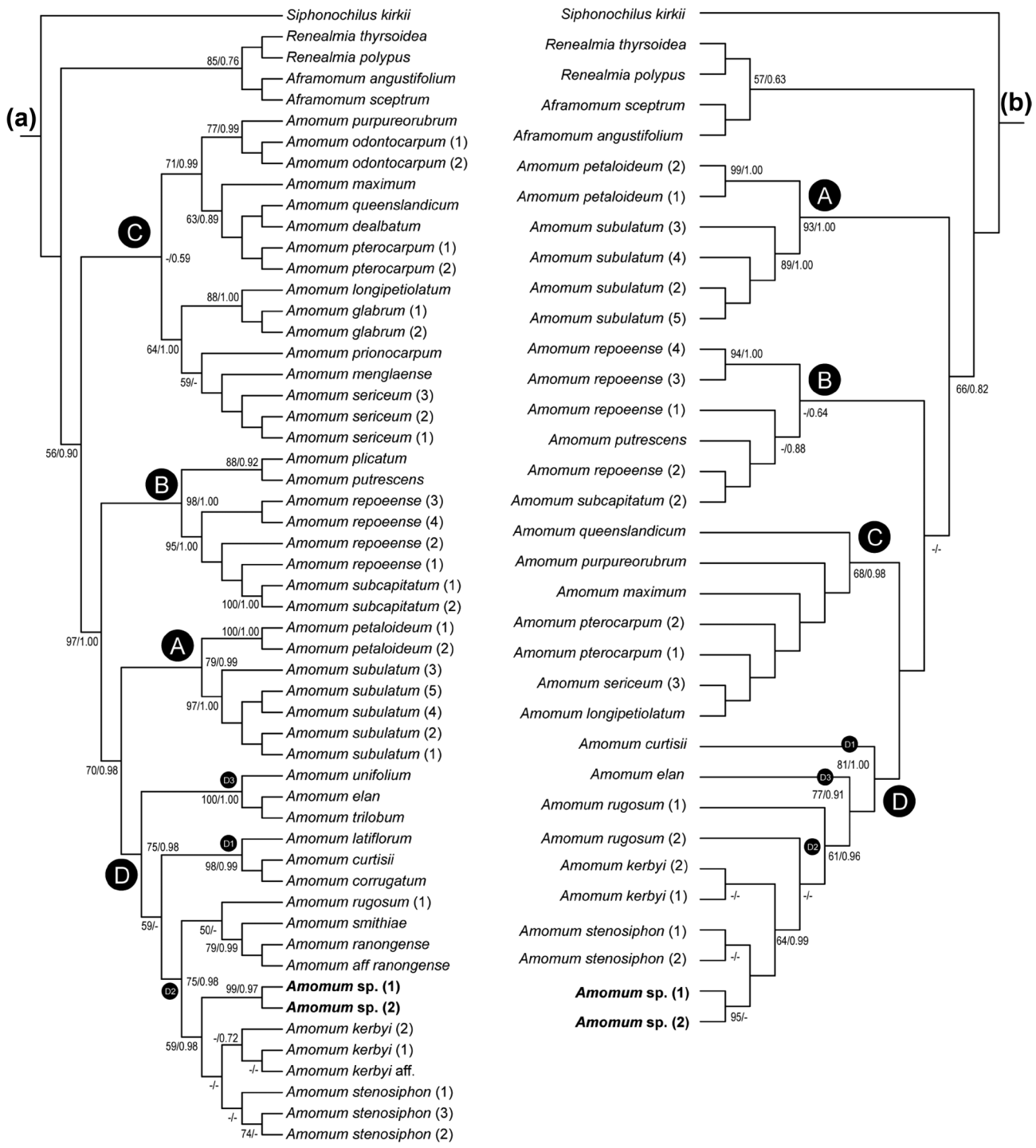


Figure 1. Maximum likelihood phylogenetic trees of *Amomum* s.s. based on ITS (a) and *trn*K/*mat*K (b) sequence data. Groups based from Hlavatá et al. (2023) are indicated. Bootstrap values obtained from maximum likelihood and posterior probabilities from Bayesian inference are provided on the branches. A dash (–) denotes bootstrap and posterior probability values < 50%/< 0.5. Taxa included in this study for the first time are marked in bold, while additional material downloaded from GenBank is in normal font.

easily differentiate the two species using their vegetative parts. First of all, the margin of the ligule of *A. stenosiphon* is reddish while it is light green in the Philippine collections (Fig. 4C–D). Second, the shape of the lamina of the Philippine collections is narrowly ovate whereas that of *A. stenosiphon* is elliptic (Fig. 2A). It should be noted that the lowermost laminae of the Philippine collections are usually elliptic and smaller than those in the upper part.

Differences are also seen in their reproductive parts (Table 1). The flowering shoot of the Philippine collections has up

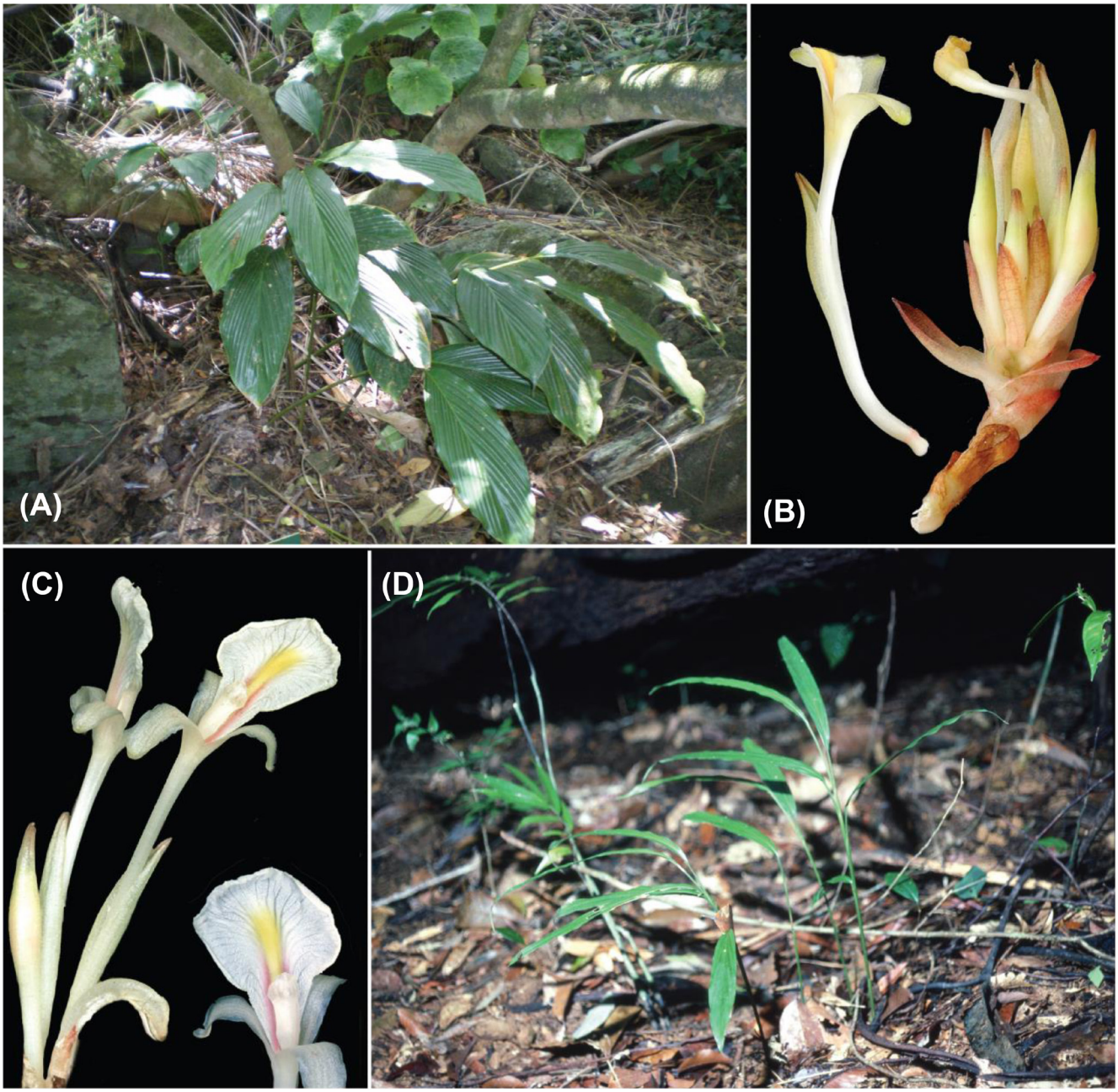


Figure 2. (A) Habit of *Amomum stenosiphon,* (B) inflorescence and a detached flower of *A. stenosiphon,* (C) inflorescence and flower close up of *A. kerbyi,* (D) habit of *A. kerbyi.* Based on (A): living collection at Lyon Arboretum, Hawaii, collected by J. Mood in Sabah; (B): living collection at the Royal Botanic Garden Edinburgh 20110282*A collected in West Kalimatan; (C): type plant at the Royal Botanic Garden Edinburgh collected by R. Kerby in Sarawak in 1977 (cf. E00279168); (D): A.D. Poulsen 74 (AAU), Brunei. Photos by: (A): J. Mood; (B): M. F. Newman; (C): RBGE; (D): A. D. Poulsen.

to three flowers whereas *A. stenosiphon* has up to six (Fig. 2B). The colour of the floral bracts of *A. stenosiphon* is said to vary from reddish white to pinkish brown while the Philippine collections are white and only brownish at the apex (Fig. 3K). The bracteole of the Philippine collections is unilaterally split in the upper third (ca 8 mm fissure). The calyx tube (Fig. 3M) is white in the Philippine collections (not brown to light yellow). Unfortunately, there was no fruiting material available of *A. stenosiphon* to examine. But in Lamb et al. (2013), the fruits were described as dark purple-red, and angular to 2.5 × 2 cm which are also features of the Philippine collections (Fig. 3U).

With the molecular and morphological evidence presented, the *Amomum* sp. from the Philippines is recognized here as new to science and is described below.

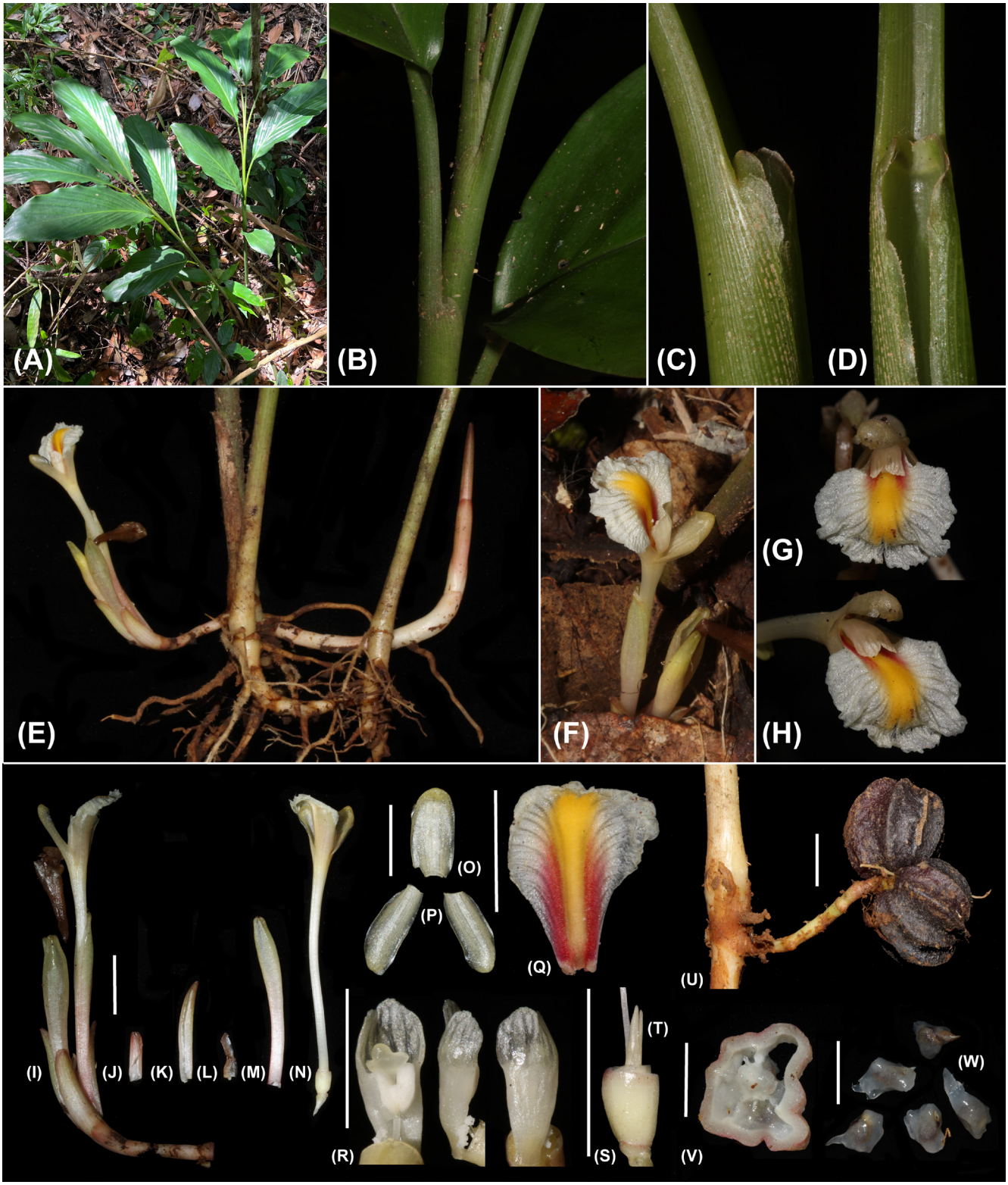


Figure 3 . *Amomum zamboangense* sp. nov. (A) Habit, (B) leaf attachment, (C) ligule (side view), (D) ligule (back view), (E) base showing the roots, rhizome, and inflorescence, (F) inflorescence, (G) flower (front view), (H) flower (side view), (I) inflorescence (detached), (J) peduncular bract, (K) floral bract, (L) bracteole, (M) calyx, (N) flower (showing the corolla lobe), (O) dorsal corolla lobe, (P) lateral corolla lobes, (Q) labellum, (R) stamen (front, side, back view), (S) ovary, (T) epigynous glands, (U) infructescence with two fruits attached, (V) cross section of a fruit, (W) seeds. Scale bars = 1 cm. (A)–(T): R.V.A. Docot et al. 444; (U)–(W): R.V.A Docot et al. 465. Photos by R. V. A. Docot.

Table 1. Comparison between *Amomum zamboangense, A. stenosiphon,* and *A. kerbyi*. Characters in bold are unique to *A. zamboangense*.

Morphological characters	*Amomum zamboangense* sp. nov.	*A. stenosiphon*	*A. kerbyi*	*A. dealbatum*
Height (cm)	16–60	40–60	30–60	100
Number of leaves per leafy shoot	3–7	2–7	3–6	7–12
Ligule margin colour	Light green	Reddish	Light green	Brown
Petiole length (cm)	**4–9**	1.5–4	0.2–1	2–4
Lamina shape	**Narrowly ovate**	Elliptic	Linear	Oblong
Lamina apex	Acuminate to attenuate	Acuminate	Caudate	Acute
Maximum number of flowers per flowering shoot	**3**	6	6	25
Floral bract colour	White with brownish apex	Reddish white to pinkish brown	Greenish white	Brown
Calyx colour	White, apex yellowish	Light yellow or brown	White, apex reddish	Translucent white

Extension of the native distribution of *Amomum* s.s. to the Philippines

As discussed above, the Philippines was excluded from the native distribution of *Amomum* s.s. in recent papers, even though *A. dealbatum* was already reported in the country (Acma 2014). Based on herbarium specimens, *A. dealbatum* is widespread as far as north in Ilocos Norte (Luzon), south in Zamboanga Region (Mindanao), and even on the island of Palawan. The addition of the *Amomum* sp. from Zamboanga City reinforces the floristic similarities between Borneo and the Philippines which also serves to further bridge with *Amomum* s.s. species in New Guinea and Australia (Fig. 4).

Taxonomic treatment

***Amomum zamboangense* Docot sp. nov. (Fig. 3)**

A species similar to *Amomum stenosiphon* K.Schum. by the overall reproductive parts but differing in having 4–9 cm long petioles (versus 1.5–4.0 cm), narrowly ovate lamina



Figure 4. New native distribution range of *Amomum* s.s.

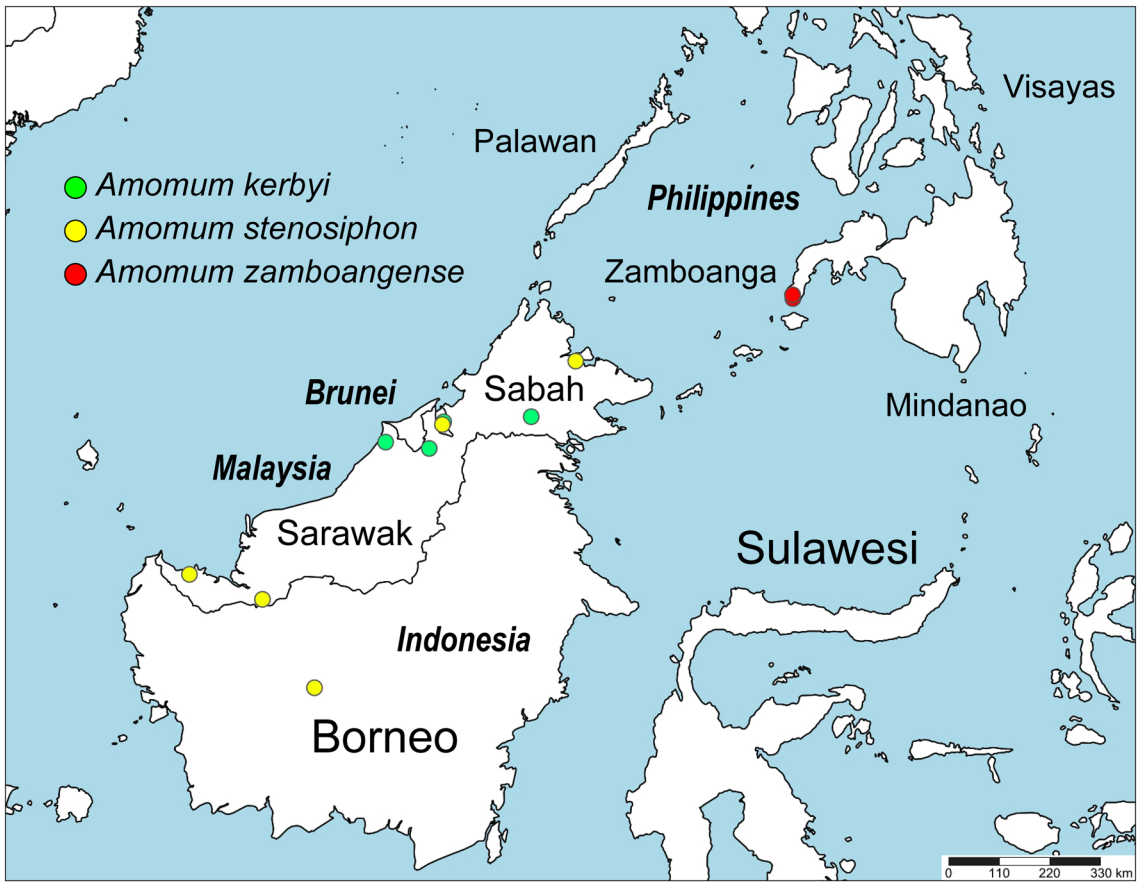


Figure 5. Distribution map of *Amomum zamboangense* sp. nov., *A. stenosiphon,* and *A. kerbyi.*

(versus elliptic), and up to 3 flowers per flowering shoot (versus up to 6).

Type: Philippines. Mindanao, Zamboanga City, Pasonanca Natural Park, Barangay Baluno, Sitio Prupem, 7°0′57.34″N, 122°1′52.69″E, 718 m a.s.l., 1 Nov. 2023, R.V.A. Docot et al. 444 (holotype: PNH; isotypes: E, FEUH incl. spirit).

Etymology

The epithet refers to the Zamboanga region where the new species was discovered.

Description

Terrestrial herb forming loose clump. Rhizome 1.6–3.0 mm in diameter, white; rhizome scales thin, brown. Leafy shoots 16–60 cm long, arching at various degrees; pseudostems 18–30 cm, 3–5 per clump, 2–15 cm apart, 3.2–4.8 mm in diameter at base, with 3–7 leaves per leafy shoot; sheaths reticulate, glabrous, lower ones reddish-green, upper ones mid-green, with pubescent margin; ligule 2–3 × 4–5 mm, thin, light green, glabrous, with pubescent margin and emarginate apex; petiole 4–9 cm long, channeled, light green, glabrous; lamina narrowly ovate, 20–35 × 6–9 cm, the lowermost sometimes elliptic, mid-green and subcoriaceous above with light green midrib, light green beneath, plicate, glabrous at both sides, attenuate at base, with serrate margin towards the apex, attenuate or occasionally acuminate at the 18–22 mm long apex. Flowering shoot arising at the base of the leafy shoot or along the rhizome, 8–18 cm long, with 2–3 flowers, one opening at a time; peduncle 2–8 cm long; peduncular bracts up to 6, enclosing the base of the spike, ovate, 7–9 × 4–6 mm, reddish-white, glabrous, acute with a mucro at apex; fertile bracts narrowly ovate, 19–21 × 5–6 mm, white, glabrous, acute and cucullate at apex, brownish; bracteoles 12–14 × 3–4 mm (when flattened), brown, glabrous, unilaterally split in upper third with fissure ca 8 mm long, acute at apex; flowers up to 5.5 cm long; pedicel 1.0–1.5 mm long, white, glabrous; calyx tube 30–33 mm long with ca 8 mm fissure, white, becoming yellow towards the apices, glabrous, 3-dentate at apex; corolla tube 40–42 mm long, white, glabrous inside and outside; dorsal corolla lobe narrowly ovate, 12–13 × 5–6 mm, light yellow, glabrous, rounded and cucullate at apex; lateral corolla lobes narrowly ovate, 13–14 × 4–5 mm, light yellow, glabrous, rounded and cucullate at apex; labellum obovate, 17–18 × 13–14 mm, white, yellow in centre, fleshy, edged by red lines on each side from base, glabrous, with petaloid and crisped margin, rounded at apex; lateral staminodes absent; stamen 9–10 mm long; filament 2.5–3.0 mm long, white, glabrous; anther 5.0–5.5 × 4.0–4.5 mm; connective white, glabrous; anther crest cucullate, petaloid, 3.0–3.5 mm long and wide, generally rounded at apex but occasionally more or less asymmetrically emarginate; thecae ca 3 × 1 mm, white, glabrous, dehiscing laterally almost

for their entire length; style 5.0–5.5 cm long, white, glabrous; stigma ca 1.5 × 2 mm, with ovate hood at dorsal side; ostiole with hairy margin; epigynous glands 2, linear, 4.0–4.5 mm long, light yellow, glabrous, not enclosing the base of style; ovary subglobose, ca 4 × 3 mm, light yellow with a few red spots at base and apex, puberulent, trilocular; placentation axile. Infructescence embedded in the ground, 6–7 mm long; fruits subglobose, 19–21 × 25–26 mm, light red when young, becoming dark purple red with age, with 8–10 wings; seeds 11–15 per fruit, globose, ca 4 mm long and wide, black, enclosed by white aril.

Distribution and habitat

The species is so far known only in the southwest portion of Pasonanca Natural Park, Zamboanga City, Philippines (Fig. 5). It inhabits semi-shaded secondary forests at 700–1200 m a.s.l.

Provisional conservation status

Based on the IUCN Red List categories and criteria (IUCN Standards and Petitions Committee 2022), *A. zamboangense* is preliminarily assessed as Endangered (EN B2ab(iii), D). The area of occupancy (AOO) is estimated to be less than 500 km^2 (total AOO is 18 km^2) while the extent of occurrence (EOO) is estimated to be less than 5000 km^2 (total EOO is 0.104 km^2). Because the species is abundant within each location, the AOO was set on a defined cell width of 3 km. All three locations are within the Pasonanca Natural Park which is a protected watershed area in Zamboanga City, Philippines. No threats were observed unless development within the vicinity of the protected area continues. The assessment will be updated as *A. zamboangense* is likely to be present in undisturbed forests within Zamboanga region and more information will become available.

Additional specimens examined (paratypes)

Philippines. Mindanao, Zamboanga City, Pasonanca Natural Park, Barangay Upper La Paz, Tabo Tabo, 7°5′19.41″N, 122°1′35.40″E, 1129 m a.s.l., 2 Nov. 2023, R.V.A. Docot et al. 458 (E, FEUH); 7°5′13.27″N, 122°1′36.64″E, 1131 m a.s.l., 2 Nov. 2023, R.V.A. Docot et al. 465 (E, FEUH, P).

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Author contributions

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Data availability statement

This article has no additional data.

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Appendix 1. List of taxa sampled with GenBank accession numbers (ITS) and voucher information. GenBank accession numbers in bold font were generated for this study.

Scientific name	Country of origin	GenBank accession (ITS)	GenBank accession (trnK/matK)	Reference/voucher
Aframomum angustifolium (Sonn.) K.Schum.	Madagascar	AF478704	AF478804	W.J. Kress 92-3403 (US)
Aframomum sceptrum (Oliv. & D.Hanb.) K.Schum.	Gabon	AF478706	AF478806	W.J. Kress 98-6268 (US)
Amomum corrugatum Škorničk., H.Đ.Trần & Luu	Vietnam	MW905293	–	H.Đ.Trần et al. 53 (E, SING, VNM)
Amomum curtisii (Baker) Škorničk. & Hlavatá	Thailand	KY438105	KY620245	M.F. Newman s.n. (E)
Amomum dealbatum Roxb	Laos	KY438014	–	V. Lamxay 1119 (E, NLS)
Amomum elan (C.K.Lim) Škorničk. & Hlavatá	Malaysia [ex cult. SBG]	KY438087	KY620262	J. Leong-Škorničková GRC-79 (SING)
Amomum glabrum S.Q.Tong (1)	Laos	KY438070	–	V. Lamxay 1157 (E, NLS)
Amomum glabrum S.Q.Tong (2)	China	AY351989	–	Y.M. Xia 722 (HITBC)
Amomum kerbyi (R.M.Sm.) Škorničk. & Hlavatá	Indonesia	AF478746	AF478845	W.J. Kress 96–5746 (US)
Amomum kerbyi aff. (R.M.Sm.) Škorničk. & Hlavatá (1)	Brunei	MW905340	SRR12824537	M. Dančák 2015/3004 (OL)
Amomum kerbyi aff. (R.M.Sm.) Škorničk. & Hlavatá (2)	Malaysia	MH396857	–	A.D. Poulsen & H. Mathisen 2956 (E, SAR)
Amomum latiflorum (Ridl.) Škorničk. & Hlavatá	Singapore	MW905313	–	J. Leong-Škorničková a et al. SNG-13 (SING)
Amomum longipetiolatum Merr.	China	AF478722	AF478822	W.J. Kress 99-6353 (US)
Amomum maximum Roxb.	China	AY351995	AY352025	Y.M. Xia 725 (HITBC)
Amomum menglaense S.Q.Tong	China	AY351996	–	Y.M. Xia 726 (HITBC)
Amomum odontocarpum D.Fang (1)	Laos	KY438046	–	V. Lamxay 1300 (E, NLS)
Amomum odontocarpum D.Fang (2)	Laos	KY438006	–	V. Lamxay 1322 (E, NLS)
Amomum petaloideum (S.Q.Tong) T.L.Wu (1)	China	KY438030	JF953210	Li Qingjun ZL365-4 (KUN)
Amomum petaloideum (S.Q.Tong) T.L.Wu (2)	China	KY438055	KY620228	W.J. Kress, T. Wood, Li 95-5508 (E)
Amomum plicatum Lamxay & M.F.Newman	Laos	KY438064	–	V. Lamxay 1191 (E, NLS, P, UPS)
Amomum prionocarpum Lamxay & M.F.Newman	Laos	KY438037	–	V. Lamxay 1303 (E, NLS, P)
Amomum pterocarpum Thwaites (1)	India	KY438065	KY509999	M.R. Vinitha 75254 (CALI)
Amomum pterocarpum Thwaites (2)	India	KY438081	KY510009	M.R. Vinitha 95679 (CALI)
Amomum purpureorubrum S.Q.Tong & Y.M.Xia	China	AY352000	AY352030	Y.M. Xia 727 (HITBC)
Amomum putrescens D.Fang	China	AY352002	AY352032	Y.M. Xia 728 (HITBC)
Amomum queenslandicum R.M.Sm.	Australia	AY352004	AY352034	Lyon Arbor. Kmn 1428 (HLA)
Amomum ranongense (Picheans. & Yupparach) Škorničk. & Hlavatá	Thailand	MW905331	–	J. Mood 3377 (PRC)
Amomum ranongense aff. (Picheans. & Yupparach) Škorničk. & Hlavatá	Thailand	MW905328	–	J. Mood 08P288 (PRC)
Amomum repoeense Pierre ex Gagnep. (1)	Vietnam	KY438040	KY620222	J. Leong-Škorničková & al. JLS-1619 (E, PR, SING, VNMN)
Amomum repoeense Pierre ex Gagnep. (2)	Vietnam	KY438019	KY620243	J. Leong-Škorničková & al. JLS-1637 (E, PR, SING, VNMN)

Amomum repoeense Pierre ex Gagnep. (3)	Vietnam	KY438059	KY620240	H.Đ. Trần & al. 67 (E)
Amomum repoeense Pierre ex Gagnep. (4)	Cambodia	KY438056	KY620237	J. Kanstrup 223 (E)
Amomum rugosum (Y.K.Kam) Škorničk. & Hlavatá (1)	Malaysia [ex cult. SBG]	KY438032	KY620267	J. Leong-Škorničková GRC-362 (SING)
Amomum rugosum (Y.K.Kam) Škorničk. & Hlavatá (2)	Malaysia	–	SRX9292164	J. Leong-Škorničková GRC-363 (SING)
Amomum sericeum Roxb. (1)	Thailand	KY438097	–	J. Mood 2019 (BKF)
Amomum sericeum Roxb. (2)	Laos	KY438034	–	V. Lamxay 1155 (E, NLS)
Amomum sericeum Roxb. (3)	Laos	KY438052	KY510018	V. Lamxay 2108 (NLS)
Amomum smithiae (Y.K.Kam) Škorničk. & Hlavatá	Malaysia [ex cult. SBG]	MW905322	–	ex cult. SBG20001092 (SING)
Amomum sp. (1)	Philippines	**PQ045858**	**PQ784268**	R.V.A. Docot et al. 444 (E, FEUH, PNH)
Amomum sp. (2)	Philippines	**PQ045859**	**PQ784269**	R.V.A. Docot et al. 465 (E, FEUH, P)
Amomum stenosiphon K.Schum. (1)	Malaysia	AF478748	AF478847	W.J. Kress 01–6847 (US)
Amomum stenosiphon K.Schum. (2)	Indonesia	MW905326	SRR12824526	Conlon et al. 41 (E)
Amomum stenosiphon K.Schum. (3)	Malaysia	MW905341	–	J. Mood 89P43 (PRC)
Amomum subcapitatum Y.M.Xia (1)	Laos	KY510022	–	V. Lamxay 2060 (NLS)
Amomum subcapitatum Y.M.Xia (2)	Laos	KY438076	KY510007	V. Lamxay 2058 (NLS)
Amomum subulatum Roxb. (1)	India	KY438086	–	J. Mood 3218 (ASSAM)
Amomum subulatum Roxb. (2)	India	KY438013	KY510015	M.R. Vinitha 92765 (CALI)
Amomum subulatum Roxb. (3)	India	KY438107	KY620253	M.R. Vinitha 103627 (CALI)
Amomum subulatum Roxb. (4)	India	KY438057	KY510013	J. Škorničková 71468 (CALI, SING)
Amomum subulatum Roxb. (5)	India	KY438095	KY510003	M.R. Vinitha 92709 (CALI)
Amomum trilobum Gagnep.	Vietnam	KY438077	–	M.F. Newman & J. Škorničková 1455 (E)
Amomum unifolium Gagnep.	Vietnam	KY438015	–	M.F. Newman & J. Škorničková 2002 (E)
Renealmia polypus Gagnep.	Central African Republic	KY438047	KY620263	D.J. Harris 7298 (E)
Renealmia thyrsoidea (Ruiz & Pav.) Poepp. & Endl.	Tropical America	AF478783	AF478884	W.J. Kress 99-6406 (US)
Siphonochilus kirkii (Hook.f.) B.L.Burtt	Tanzania	AF478794	AF478895	W.J. Kress 94-3692 (US)