



A new species of *Anadendrum* (Araceae – Anadendreae) from Vietnam

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Key words

Anadendrum chlorospathum
Gia Lai
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Abstract *Anadendrum chlorospathum* is described as a new species from Central Vietnam, unique in the genus by a glossy medium green spathe, flowers in which the perigone is shorter than the gynoeceum, and having anthers longer at anthesis than the filaments.

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INTRODUCTION

Anadendrum is a small genus of nomadic vines (sensu Zotz 2013) distributed from Sumatera to Sulawesi and the Philippines and from SW China to Jawa. Currently comprising 16 accepted published species, *Anadendrum* has been incompletely considered in a series of regional treatments (Alderwerelt 1920, Ridley 1925, Gagnepain 1942, Hotta 1986, Widjartini & Widjaja 1999, Boyce 2009, 2012, Boyce & Wong 2010, Li & Boyce 2010), but not revised in its entirety since Das Pflanzenreich (Engler 1905). The first account exclusively for Indochina was Gagnepain (1942), who treated three species: *A. montanum* Schott, *A. angustifolium* Engl. and *A. latifolium* Hook.f., however, none of these occur in the Indo-Chinese region, except perhaps the second (which possibly occurs in southern Cambodia – PCB sighting of sterile plants). *Anadendrum montanum* is restricted to Sumatera and southern Peninsular Malaysia while *A. latifolium* is known only from Peninsular Malaysia. For Vietnam Phạm (1993, 2000), following Gagnepain, recorded and illustrated 2 species, misidentified as *A. montanum* and *A. latifolium*. *Anadendrum* was similarly poorly served for the Flora of China (Li & Boyce 2010). Boyce (2009) described three new species from Thailand, viz. *A. griseum* P.C.Boyce, *A. marcesovaginatum* P.C.Boyce and *A. badium* P.C.Boyce, all restricted to the Isthmus of Kra. Boyce (2012) confirmed *A. angustifolium* for the Thai flora, but also only for the far south of Thailand and extending into Peninsular Malaysia, having overlooked the name *A. angustifolium* in the 2009 precursory account. In conclusion, with the possible exception of *A. angustifolium* in Cambodia, none of the *Anadendrum* species in Indochina, and by extension China, fit with published names.

During fieldwork in the late 1990s the first and last authors encountered a highly distinctive *Anadendrum* in Central Vietnam. Recently, the second author had the opportunity to collect and subsequently cultivate the same species which proved to be unique in the genus by the combination of a glossy medium green spathe, a perigone much shorter than the gynoeceum, and anthers longer than the filaments at anthesis and is here described as a new species: *A. chlorospathum* V.D.Nguyen, Q.D.Dinh & P.C.Boyce.

KEY TO SPECIES OF ANADENDRUM IN INDO-CHINA AND THAILAND

1. Spathe limb glossy medium green; perigone much shorter than gynoeceum; anthers longer than filaments at anthesis *A. chlorospathum*
1. Spathe limb creamy white, white, or creamy green with purple patches; perigone equalling or exceeding the gynoeceum; anthers shorter than filaments at anthesis 2
2. Leaf blade ovate-cordate to oblong, base truncate to weakly cordate or slightly cuneate, drying dull grey; spathe creamy green with scattered purple blotches; spadix with fertile portion not exceeding 2 cm long *A. griseum*
2. Leaf blade oblong-lanceolate, often somewhat falcate, base never cordate or truncate; drying pale brown, black-brown or chestnut brown; spathe whitish or greenish white; spadix with fertile portion exceeding 2.5 cm long 3
3. Petiole 12–20 cm; petiolar sheath extending 4/5 length of the petiole, degrading into fibres; peduncle spreading to declinate with the spadix erect, leaf blades drying black-brown *A. marcesovaginatum*
3. Petiole 4.5–12 cm; petiolar sheath extending to the base of the geniculum, marcescent and then deciduous but not fibrous 4
4. Leaf blade narrowly lanceolate, markedly unequal, the wider side basally slightly cordiform, the narrower cuneate, drying very pale brown; peduncle spreading at almost 90° to the shoot with spadix erect by a sharp bend in the junction of the spathe to peduncle *A. angustifolium*
4. Leaf blade oblong-lanceolate, somewhat falcate, very slightly oblique, drying chestnut-brown; peduncle erect with spadix orthotropic *A. badium*

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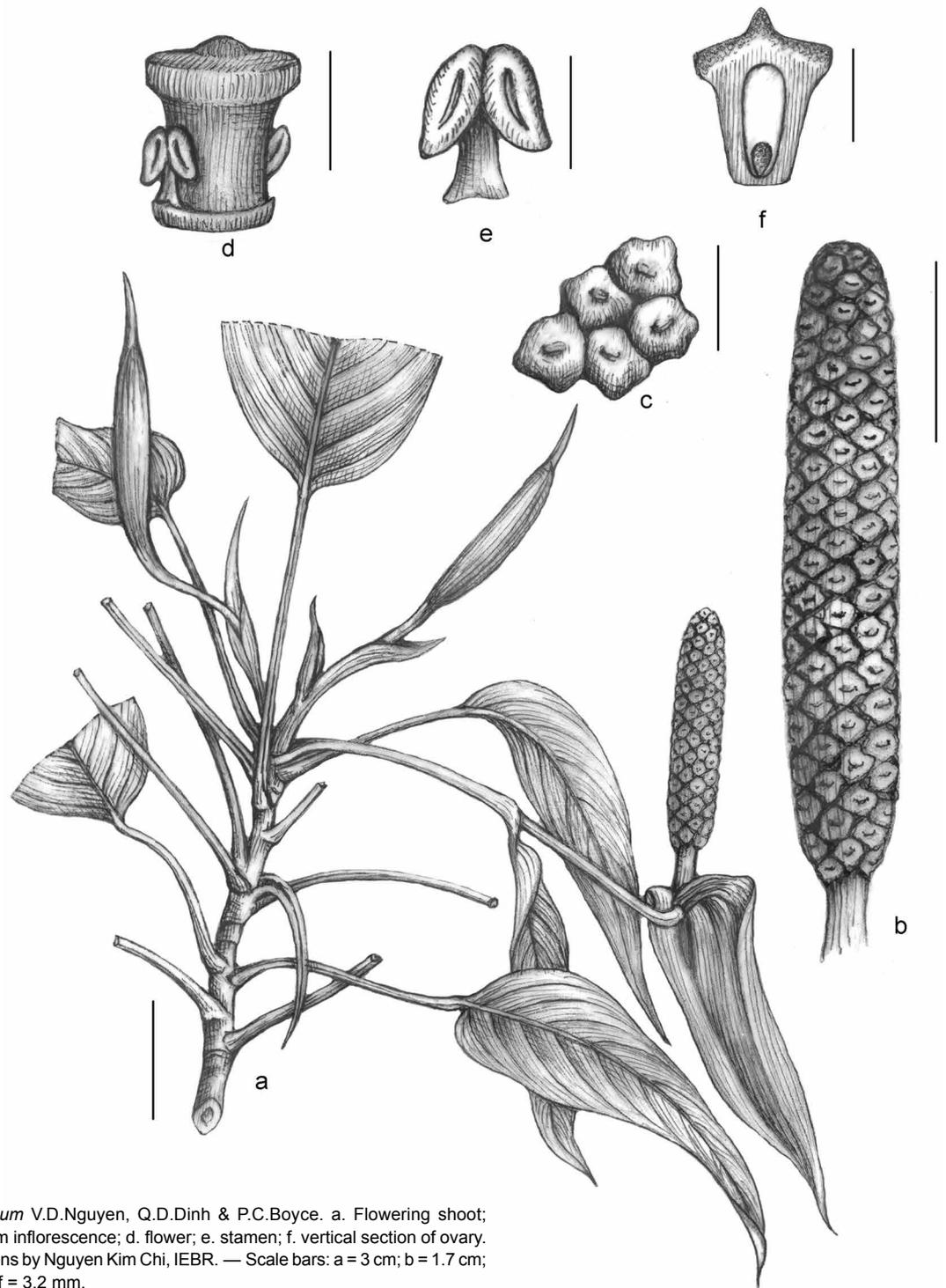


Fig. 1 *Anadendrum chlorospathum* V.D.Nguyen, Q.D.Dinh & P.C.Boyce. a. Flowering shoot; b. spadix; c. flowers separated from inflorescence; d. flower; e. stamen; f. vertical section of ovary. Illustration made from type specimens by Nguyen Kim Chi, IEBR. — Scale bars: a = 3 cm; b = 1.7 cm; c = 5 mm; d = 3.6 mm; e = 2 mm; f = 3.2 mm.

Anadendrum chlorospathum V.D.Nguyen, Q.D.Dinh & P.C.Boyce, *sp. nov.* — Fig. 1, 2

Anadendrum chlorospathum is unique in the genus by a glossy medium green spathe, flowers in which the perigone is much shorter than the gynoeceium, and anthers longer than the filaments at anthesis. — Type: *Dinh QD & Le TH KB032* (holo HN; iso K), Vietnam, Gia Lai province, K'Bang district, So Pai village, E108°34'39" N14°19'34", 781 m elevation, 26 Apr. 2017.

Etymology. The species name reflects the uniquely green spathe.

Evergreen, medium sized nomadic vines to 2 m. *Juvenile shoots* stoloniferous on ground; stem 5–6 mm diam, with conspicuous nodes giving a segmented appearance, internodes 5–10 cm long, active portions green, ageing brown, rooting to 15–20 cm long at internodes. *Adult shoots* climbing; stem cylindrical, 4–6 mm diam, segmented in appearance by the presence of abrupt nodes, internodes 2–2.5 cm long, drying black; clinging

roots 3–4 cm long, feeding roots 20–100 cm long, reaching to ground. *Leaves* distichous, scattered on juvenile and climbing sterile shoots, forming a dense fan in flowering shoots; petiole geniculate, 6–8 cm long, sheath extending to the geniculum, 3–7 by 1–4 mm wide, membranous, marcescent, degrading into long pieces, grey-green; leaf blade weakly oblique, elliptic to lanceolate, oblong, 5.5–16 by 2.7–5.5 cm wide, base obtuse to round, apex acuminate, apiculate 2–2.5 cm long, tip with spike 1–2 mm; dark green above, paler and slightly glaucous beneath when fresh, drying grey brown (air-dried) to black grey (alcohol preparation prior to drying); lateral veins 4–7 per side, prominent, 1–2.5 cm distant; interprimary veins well distinguished from minor veins, 1–1.2 mm distant; highest order veins reticulate; first inflorescence of a flowering event preceded by a much smaller leaf with petiole sheath 7–10 cm long, 1.3–1.8 cm wide, enclosing peduncle, upper portion free



Fig. 2 *Anadendrum chlorospathum* V.D.Nguyen, Q.D.Dinh & P.C.Boyce. a. Flowering shoot; b. adult stem; c. young infructescence; d–e. ripe infructescences; f. spadix; g–i. flowers in spadix cross section. — Photos: a–f. Dinh Quang Diep; g–i. Nguyen Van Du.

of petiole, very narrow and short, forming a much-reduced blade, 1–1.3 cm long by 1–1.2 mm wide. *Inflorescence* 1–3 in each floral shoot; peduncle spreading and carried at almost 90° to the shoot with spadix erect by a sharp bend at the junction of spathe to peduncle, peduncle cylindrical, 7–18 cm long, c. 1–2.5 mm diam, enclosed by preceding leaf sheath to over 1/2 length (first inflorescence in sympodium) by cataphylls (subsequent inflorescences); spathe elliptic to oblong ovate, c. 9.5 cm long by 2.5 cm wide, apex long-acuminate, caducous, glossy medium green internally, somewhat less glossy externally; spadix stipitate, stipe rather stout, 1.2–1.7 cm long by 2–2.5 mm diam; fertile portion cylindrical to slightly conical, size 6–7.5 by 0.6–1 cm, flowers congested, at anthesis initially white, later becoming green and eventually orange-red post-anthesis; flowers bisexual; perigone very short, inconspicuous, 0.6–0.7 mm tall, forming a ring at base of gynoecium; stamens 2.5–3 mm long, filaments broadly conical, 1.5–2 mm long, anther 3 mm long; gynoecium obpyramidal, tetragonal, white when young, c. 5 by 3 mm; ovary 1 locule, 1 ovule; stylopodium rhomboidal, truncate, top c. 3 by 3 mm; stigma transverse-linear, 2/3 length of surface. *Fruits* berries, obovate, apex truncate, hexagonal, 6–7 mm diam, initially dark green ripening through yellow to scarlet.

Distribution — To date known only from K'Bang district, Gia Lai province.

Habitat & Ecology — Secondary evergreen broad leaf forest and evergreen moist shady forest between 300–781 m elevation, dominated by *Lithocarpus* sp. and *Dysoxylum* sp.

Phenology — *Anadendrum chlorospathum* flowers in the late March to the end of April, fruits matured in the end of April to May.

Conservation status — *Anadendrum chlorospathum* is commonly found in K'Bang district, Gia Lai province, Central Vietnam. Possible threat would be the reduction of forest area of the Tay Nguyen plateau owing to expansion of agriculture land. Based on the IUCN (2018) threat assessment criteria, *A. chlorospathum* should be assigned the NT status (Near Threatened) A2ac+3bc+4abc.

Other specimens examined. VIETNAM, Gia Lai Province, K'Bang district, Song lang, 24 Apr. 1978, N.H. Hien 424 (HN); K'Bang district, 25 Apr. 1978, L.K. Bien 806 (HN); K'Bang district, 5 Dec. 1978, L.K. Bien 997 (HN); K'Nak, 24 June 1998, N.V. Du & P.C. Boyce 1315 (HN, K).

Notes — This paper is to be considered very much a first attempt at understanding the taxonomy of *Anadendrum* for Indo-China. As with the precursory account for the Flora of Thailand (Boyce 2009) wherein comments on interpretation of historical material that are equally pertinent here, a pragmatic approach is being used to at least attach names to the most distinct taxa until such time as someone is able to undertake a much needed field-based revision for the genus throughout its entire range.

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