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ARISAEMA MADHUANUM, A NEW SPECIES OF ARACEAE FROM INDIA

K. M. MANUDEV & S. NAMPY

Arisaema madhuanum, a new species of Araceae from the southern Western Ghats, is described and illustrated. The new species is morphologically allied to *Arisaema attenuatum*, from which it differs in having subulate neuters on the male spadix, a wide-mouthed spathe tube with the margins dilated into broad auricular extensions, and an erect to arching, oblong-lanceolate spathe limb with a narrow constricted basal region. The new taxon belongs to *Arisaema* sect. *Sinarisaema* Nakai.

Keywords. *Arisaema attenuatum*, *Arisaema madhuanum*, India, sect. *Sinarisaema*, southern Western Ghats.

INTRODUCTION

The genus *Arisaema* Mart. (Araceae) with about 200 taxa (Govaerts *et al.*, 2014) is distributed from northeastern Africa through tropical, subtropical and warm-temperate East Asia to North America. Karthikeyan *et al.* (1989) listed 44 species and nine varieties in India. Since then a few more taxa have been described from India (Yadav *et al.*, 1993, 1997; Thiyagaraj & Daniel, 1999; Gusman, 2003, 2006; Tetali *et al.*, 2004; Sardesai *et al.*, 2006; Puneekar & Kumaran, 2009) bringing the total number to 48 species, one subspecies, and 12 varieties including the new species described here.

As part of a revision of *Arisaema* in India, the authors have made extensive surveys in different localities over the past three years. During a recent trip to Oosimala Top in Valparai, Coimbatore District, Tamil Nadu, we came across an interesting specimen of this genus in evergreen forests higher than 1300 m above sea level. Following consultation of the relevant literature and a detailed study, the specimen was identified as a new species, which is here described and illustrated.

SPECIES DESCRIPTION

Arisaema madhuanum* Nampy & Manudev, *sp. nov.

Arisaema madhuanum is close to *A. attenuatum* E.Barnes & C.E.C.Fisch., from which it differs in having a male spadix with subulate neuters, a wide-mouthed spathe tube with the margins dilated into broad auricular extensions, and an oblong-lanceolate spathe limb with a narrow constricted basal region as opposed to

a male spadix usually without neuters, mouth of the spathe tube not dilated into auricular extensions, and a triangular or elongate-lanceolate spathe limb with the base as wide as the mouth in the latter. – Type: India, Tamil Nadu, Coimbatore District, Valparai, Oosimala Top, 1344 m, 10°18.546'N 76°59.987'E, 10 vii 2012, *Manudev & Santhosh Nampy* 5092 (holo CALI; iso MH). **Fig. 1.**

Dioecious, perennial herbs, to 115 cm tall. *Corms* subterranean, depressed globose or subglobose, 2–3 × 3–4.5 cm, brownish, wrinkled, cream inside. *Roots* many, on top of the corm surrounding the pseudostem, rose-tinged; offsets c.8, surrounding the pseudostem, purplish or dark brown-black, globose, sometimes one or two below the roots slightly elongated. *Pseudostem* 35.5–50 cm long, pale green with brown mottling, ligule not prominent. *Cataphylls* 3, rarely 4 (fourth one usually degraded); outer 1.8–3 cm long, pale brown, apex acute-obtuse, mucronulate, slightly keeled; middle 12–16 cm long, brown-purple with greenish-white or cream mottling/lesions, apex obtuse or orbicular, mucronate; inner 30–39 cm long, brown-purple with greenish-white or cream mottling, obtuse or orbicular at apex, mucronate. *Leaf* single, radiatisect; petiole 38–50 cm long, 0.5–2 cm thick, pale green with brown mottling formed of vertical streaks; leaflets 7–10, sessile, subequal, gradually cuneate at base, lamina obovate-spathulate, 13–40 × 2.2–11 cm, acuminate at apex, margins entire, undulate, bright green above, pale beneath, lateral veins up to 25 pairs, intra-marginal vein c.0.5 cm apart from the margins. *Inflorescence* dioecious, probably emerging after the leaf; peduncle 33.5–66 cm long, 0.5–0.7 cm thick, mottled as in petiole, pale purple towards the distal end, exerted by 5–17 cm from the pseudostem. *Spathe* 18–20 cm long including the limb portion; tube of spathe cylindric, funnel-shaped towards the mouth, 8–9 cm long, 1–2.5 cm wide, pale to purple basally, greenish distally, dark purplish within, with white longitudinal stripes along the veins; mouth open, wide, margins dilated into a prominent auricular extension about 1 cm wide, margins of auricle slightly revolute, 4.5 cm wide in the mouth region and suddenly narrowing into the limb; spathe limb oblong-lanceolate, 10–11 cm long, 2–2.5 cm wide, yellowish-green with 5 white to hyaline longitudinal stripes along the veins, two paler stripes flanking three larger stripes in the middle, margins curved back at the base of the limb forming a neck-like constriction immediately after the mouth, apex acuminate with a slightly swollen tip, erect and arching forward at the distal end. *Male spadix* sessile, just reaching the mouth, 8–9 cm long, slender, terete, base slightly thickened, c.0.3–0.5 cm wide, gradually tapering to a filiform often curved distal portion, fertile region 2.5–3.3 cm long at the base; appendix sessile, c.3 mm thick basally and narrowly tapering, purplish basally and greenish distally to a filiform apex. *Neuters* 8–9, subulate, 2–6 mm long, scattered along the basal 1–1.5 cm of the appendix, curved down, often paired from the base, purplish-green. *Male flowers* sessile or shortly stipitate towards the distal end of the fertile zone, each consisting of 2–9 purple anthers; stipe to 1 mm long; anthers reniform, 0.6–0.8 × 0.5–0.7 mm, dehiscing through an apical slit. *Female flowers* not seen. *Fruiting spike* 4–6 cm long, 2.5–3.5 cm wide; peduncle erect; berries ovoid-globose, compactly arranged, green when young, 2-seeded.

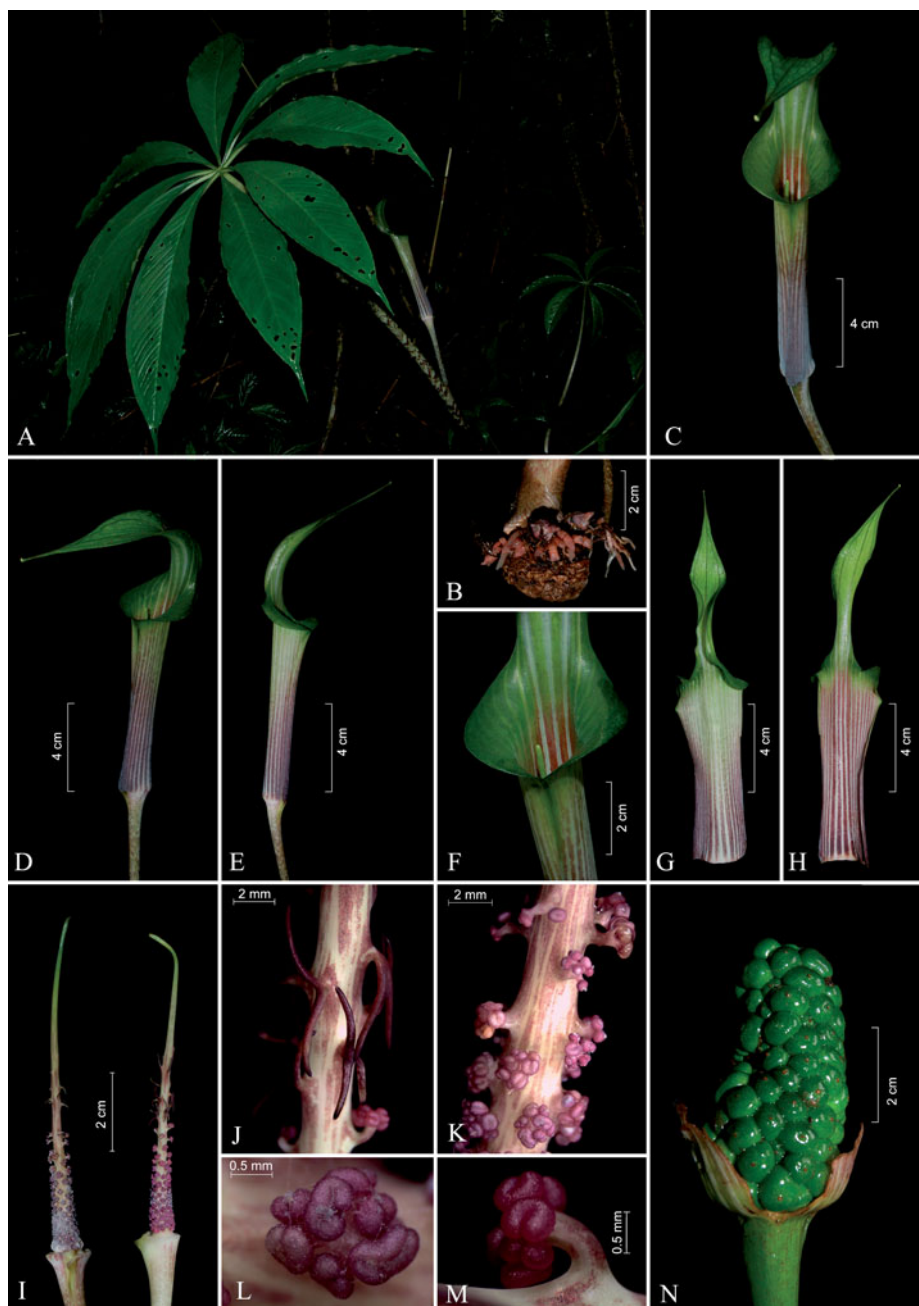


FIG. 1. *Arisaema madhuanum* Nampy & Manudev. A, habit; B, corm with cormlets; C, male inflorescence – front view; D–E, male inflorescence – side views; F, mouth of spathe tube; G, spathe – back view; H, spathe – front view; I, male spadix; J, neuters – note the branching; K, male fertile region; L–M, male flowers; N, fruiting spike. All from the holotype.

Distribution. India; known only from the type locality.

Habitat and ecology. *Arisaema madhuanum* grows along the margins of evergreen forests near tea plantations at Oosimala Top, above 1300 m. A population of 31 plants was observed at the type locality, including two fruiting female plants. One of the infructescences had remnants of the spathe tube as well as a dried filiform appendix at the apex. The female plants were robust and larger than the male plants.

Flowering and fruiting. Probably from the onset of monsoon; flowers and young fruits observed in July.

Etymology. The new species is named after Dr P. V. Madhusoodanan, former Professor and Head, Department of Botany, Calicut University, who guided the second author to the field of taxonomical research.

Notes. *Arisaema madhuanum* is a deciduous species with tuberous underground stem, radiate leaflets, a spadix appendix just reaching the mouth of the tube and subulate neuters, and falls into *Arisaema* sect. *Sinarisaema* Nakai. It is morphologically close to *Arisaema attenuatum* E.Barnes & C.E.C.Fisch. and also to *A. tylophorum* C.E.C.Fisch., both endemic to the southern Western Ghats, in having a slender to almost filiform appendix. However, the new species can be easily distinguished from both of them by having a wide-mouthed spathe tube, and by the erect to arching limb with a narrow base.

Key to the allied species of Arisaema madhuanum in the southern Western Ghats

- 1a. Margins of tube-mouth widely auriculate; limb base narrower than mouth, margins curved back forming a neck-like constriction; neuters present in male spadix, often paired _____ *A. madhuanum*
- 1b. Margins of tube-mouth not auriculate; limb base as wide as mouth, margins not curved back; neuters usually absent from male spadix, not paired if present _____ 2
- 2a. Plants to 30 cm tall; spathe limb ovate, green without a white patch at the base; spadix appendix terminating in a distinct, minutely warted knob _____ *A. tylophorum*
- 2b. Plants above 40 cm tall; spathe limb triangular or elongate-lanceolate, green with a large white patch at the base; spadix appendix gradually tapering into a filiform apex without a knob _____ *A. attenuatum*

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