

## Two New Species of the Genus *Arisaema* (Araceae) from Northern Vietnam

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### Abstract

The genus *Arisaema* Martius includes about 210 species distributed mainly in Asia but with outlying species groups in North America and Mexico, east and central Africa and the Arabian Peninsula (Govaerts, *et al.* 2002). In Vietnam, 13 species belonging to 3 sections have been so far recorded although this figure is certainly lower than the expected total of species present. In this paper, two new species from the tribe Arisaemateae are described, based on recent collections from Northern Vietnam.

### The new species

*Arisaema averyanovii* V.D. Nguyen & P.C. Boyce sp. nov.

*Ex affinitate A. yunnanensis et A. penicillatii ab utroque spathae lamina brunneo et appendice spadice ad medium flore sterilibus multo brevioribus tantum instructa. A. yunnanensis et A. penicillatii tangentiis caudice tuberoso, foliis trifoliolatis, appendice spatham inferiorum exsertans similis.*

*Typus:* Vietnam, Cao Bang province, Halang district, *Averyanov* s.n. (*holotypus* HN).

[Plates 1-3]

Deciduous herb up to 50 cm tall. Tuber subglobose, whitish, 1-2 cm in diam., many small shoots around tuber. Roots at apex of tuber, slender and short, few. Leaf solitary; petiole light brown or violet, 30-50 cm long, sheathing portion 13-15 cm long, encased; prophyll not observed; 2-3 cataphylls, to 15 cm long; free part 25-

30 cm long; lamina trifoliate; middle lobe petiolulate, petiolule 5-10 mm long, elliptical shape, base obtuse; lateral veins 7-8 pairs, conspicuous; lateral lobes diverging at 90° to middle lobe, petiolulate, petiolules 3-4 mm long, blade ovate to lanceolate, 8-10 cm long, 2.8-3.8 cm wide, exterior base round or obtuse, interior base slightly cuneate, apex acute, acuminate 8-12 mm, terminating with a 2 mm auricles at mouth; spathe limb deltoid, erect or a little fornicate, 2.5 cm long, 15-17 mm wide, deep brown, the margins light green, apex acuminate-cuspidate. Female inflorescence not observed. Male spadix subequalling spathe, substipitate, fertile portion violet, conical, 11 mm long, 5 mm wide at base, flowers rather dense; appendix dark violet, subulate, lower portion rather stout, 12 mm long, with several tiny sterile flowers, 0.3-0.5 mm long, upper portion attenuate, own curved following the profile of the spathe limb. Male flower sessile, each comprised of 2-3 stamens; anther ellipsoid, dehiscing by an apical slit.

**Ecology:** Wet evergreen broad leaved secondary forest with remnants of primary elements on slopes and bluffs of limestone mountain, at 500-550 m alt.

**Etymology:** The species is named after the collector of the type specimen, Prof. Leonid Averyanov (Komarov Institute of Botany, Russia).

**Notes:** *Arisaema averyanovii* was first collected by Averyanov in Cao Bang province, and living specimens were grown in Hanoi by the first author, where they subsequently flowered - and proved to be an undescribed species. *A. averyanovii* is most similar to both *A. yunnanensis* Buchet and *A. penicillatum* N.E.Br. by having a tuberous stem, trifoliate leaves and a subulate appendix exerted from spathe tube. It also resembles *A. yunnanensis* by having a solitary leaf, and is close to *A. penicillatum* by having a spathe with a white area at the lamina base. It differs from both species by having a brown spathe, and an appendix with very few and very tiny sterile flowers at the middle. In *A. penicillatum*, the sterile flowers distributed at top and middle of appendix are more numerous, and much longer; in *A. yunnanensis* the appendix is naked.

Based on descriptions prepared by the first author, *A. averyanovii* was previously mentioned by Gusman & Gusman (2003) as *Arisaema* sp. "Sin Ho".

***Arisaema rostratum*** V.D. Nguyen & P.C. Boyce, **sp. nov.**

*Arisaema rostratum*, *A. pingbianense*, *A. penicillatii* et *A. grapsospadix tangentis staminis connectivo prominenti cornuto violaceus* differt.

*Typus*: Vietnam, Ha Giang province, Vi Xuyen, district, Cao Bo, Tay Con Linh (22° 46' 22" N 104° 49' 33" E), *Nguyen Van Du 6A* (*holotypus* HN).

**[Plates 4-7]**

Evergreen, rhizomatous herb, 40-60 cm tall. Rhizome stout, 10-20 cm long, 1-2.5 cm in diam., grey-brown outside, dark brown inside, covered with dried, dark or light brown cataphylls, and with visible leaf scars. Roots abundant, 10-15 cm long. Leaves 2-3 together; petiole lower part formed into a pseudostem 16-20 cm long 1-1.5 cm in diam., enclosed by 3 cataphylls, free part slender 6-7 cm long, c. 5 mm in diam, pale grey, with many pink elongate spots; leaf blade light green, trifoliate, lobes petiolulate, petiolule 6-12 mm long at middle lobe, 4-6 mm at lateral lobes, lobes ovate to lanceolate; lateral lobes 5.5-8 cm long, 2-3.7 cm wide, base oblique, more obtuse than at outside; middle lobes 8-10.5 cm long, 3-4 cm wide, base attenuate, apex cuspidate with a 1-3 mm arista. Cataphylls pinkish light brown, shortest 2.2 cm, longest about ½ petiole 11.5-16.5 cm. Inflorescence solitary; peduncle shorter than free part of petiole, 4-5.8 cm long, 2-3 mm in diam., resembling petiole in colour; spathe pale green, light brown dorsally, lower part cylindrical-convolute into a tube, 4-5.5 cm long, 1.5-2 cm in diam., margin without auricles, base white outside spathe limb triangular, equaling or shorter than lower part, fornicate or not, 4.5-5 cm long, with a white area basally, cuspidate, reflexed or recurved; spadix rather stout, much exserted from tube, 6.5-8.5 cm long; fertile flower part cylindrical, 3.5 cm long c. 2.5 cm wide, stamens scattered; appendix matte green at base, dark brown at apex, rather stout, curved following the profile of the spathe limb, 5 cm long, 1.5 mm wide, lower part smooth, upper part covered by many sterile flowers; sterile flowers filiform, 4-7 mm long, ca. 0.3 mm wide, yellow-green. Male flowers stipitate to 1 mm long, each comprised of 3-4 stamens; anthers elongate-ellipsoid, 1.8 mm long; with a prominent horn-like connective exserted from anthers, connective 0.2-1 mm long, violet.

**Phenology**: The plant flowers in November and fruits in the following September.

**Habitat**: Under shaded evergreen forest of subtropical, limestone mountain slopes, near by streams, wet places. Collected at 1,310 m altitude.

**Notes:** *A. rostratum* belongs to the section *Fimbriata* (sensu Murata, 1984) on the basis of the rhizome, trifoliolate leaves, with petiolulate leaflets and appendix covered by filiform sterile flowers. In appearance its inflorescence resembles *A. pingbianense* H. Li, *A. grapsospedix* Hayata and *A. penicillatum* by the spathe limb with a white area at the base, and the apex of the appendix covered with short filiform sterile flowers. However, *A. rostratum* differs from all these species by its stamens having an elongate horn-like violet connective.

**Etymology:** The epithet refers to the prominent stamen connective.

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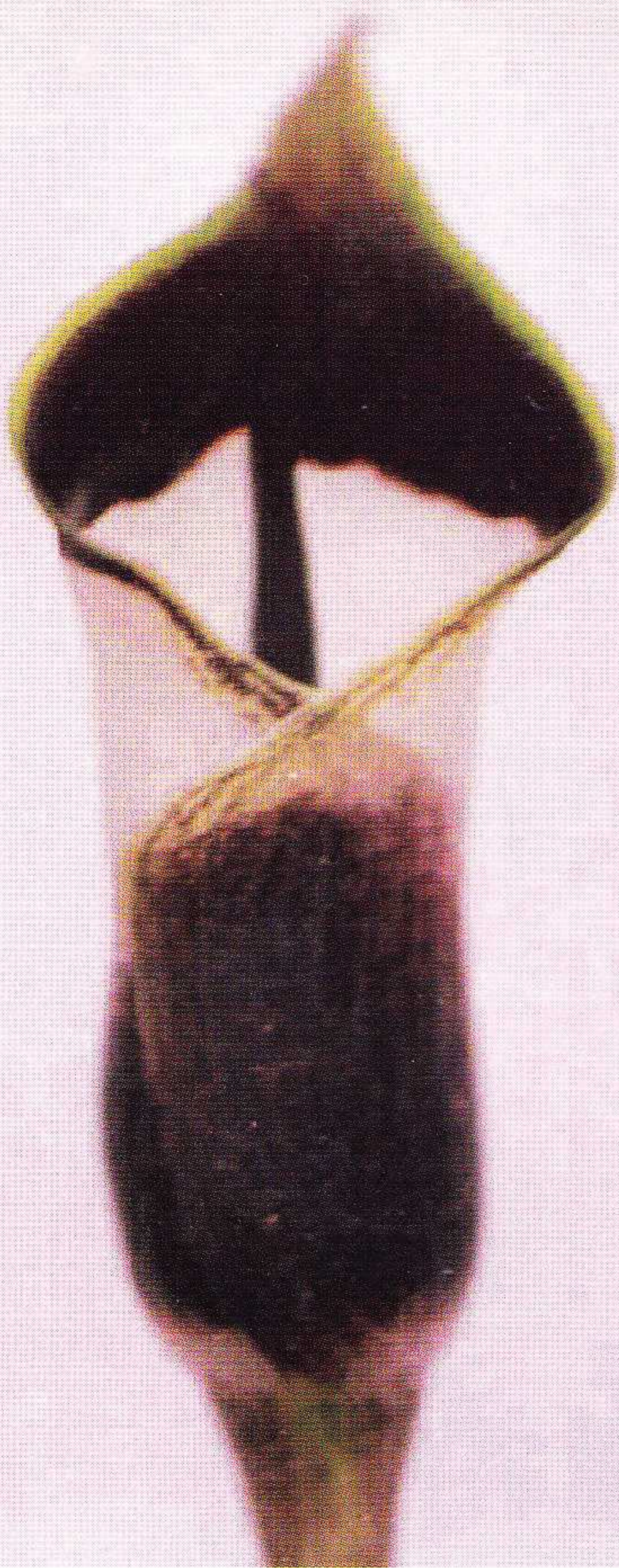


Plate 1: *Arisaema averyanovii* V.D. Nguyen & P.C. Boyce, inflorescence



Plate 2: *A. averyanovii*, spadix.

Plate 3: *A. averyanovii*, plant. [all photos by V.D. Nguyen]





**Plate 4:** *Arisaema rostratum* V.D. Nguyen & P.C. Boyce, habit, with inflorescence.

**Plate 6:** *A. rostratum*, close-up of spadix.



**Plate 5:** *A. rostratum*, inflorescence.

**Plate 7:** *A. rostratum*, close-up of male flowers.

