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Arisaema muratae (Araceae), a new species from western Yunnan, China

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Arisaema muratae G. Gusman & J.T. Yin is described as a new species native to western Yunnan, China, along the border with Myanmar. *Arisaema muratae* belongs in section *Sinarisaema*. Its morphological characters are discussed and compared to other closely related species.

Key words: Araceae, *Arisaema* sect. *Sinarisaema*, new species, taxonomy

Recently, in 2000, living material of an unnamed *Arisaema* species was introduced in cultivation by a Chinese nursery. Its origin was given as Gaoligongshan, at 1900 m altitude. On the other hand, long before its introduction in the trade, the second author got a photo of the same plant in flower, taken in the field near Sima, west of Yingjiang, not far from the Myanmar–China border. Later, another photo taken in Longling County, also near Yingjiang, was in the hands of the first author and showed a population of the same plant. This plant appeared different from all other *Arisaema* species previously known (Gusman 2006), mainly by a striking yellow spathe-limb.

Before describing the plant, it was thus essential to find it again in the wild in order to collect herbarium material of known origin and get more information about its habitat. This was done by the first author, who went to Yingjiang in June 2006 and eventually came across such plants, now in cultivation at Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. Today, it is clear that these plants have to be recognised as a new species in sect. *Sinarisaema*.

Arisaema muratae G. Gusman & J.T. Yin, *sp. nova* (Fig. 1)

Foliis similibus affinis A. concinno Schott sed tuberculo haud stolonifero atque spathae limbo sulfureo differt et ab A. jingdongense H. Peng & H. Li differt spathae tubo et limbo cum striis.

Type: China. Yunnan, Dehong Prefecture, Yingjiang County, in forest, beside stream, alt. 1250 m, 24.VI.2006 *Yin Jian-Tao 868* (holotype HITBC 115265). — Paratype: Same locality, 22.VI.2004 *Gusman GG00153* (BR).

Etymology. *Arisaema muratae* is named in honour of Professor Jin Murata, University of Tokyo, who has made great contributions to the understanding of Asian Araceae.

Terrestrial and perennial deciduous herb up

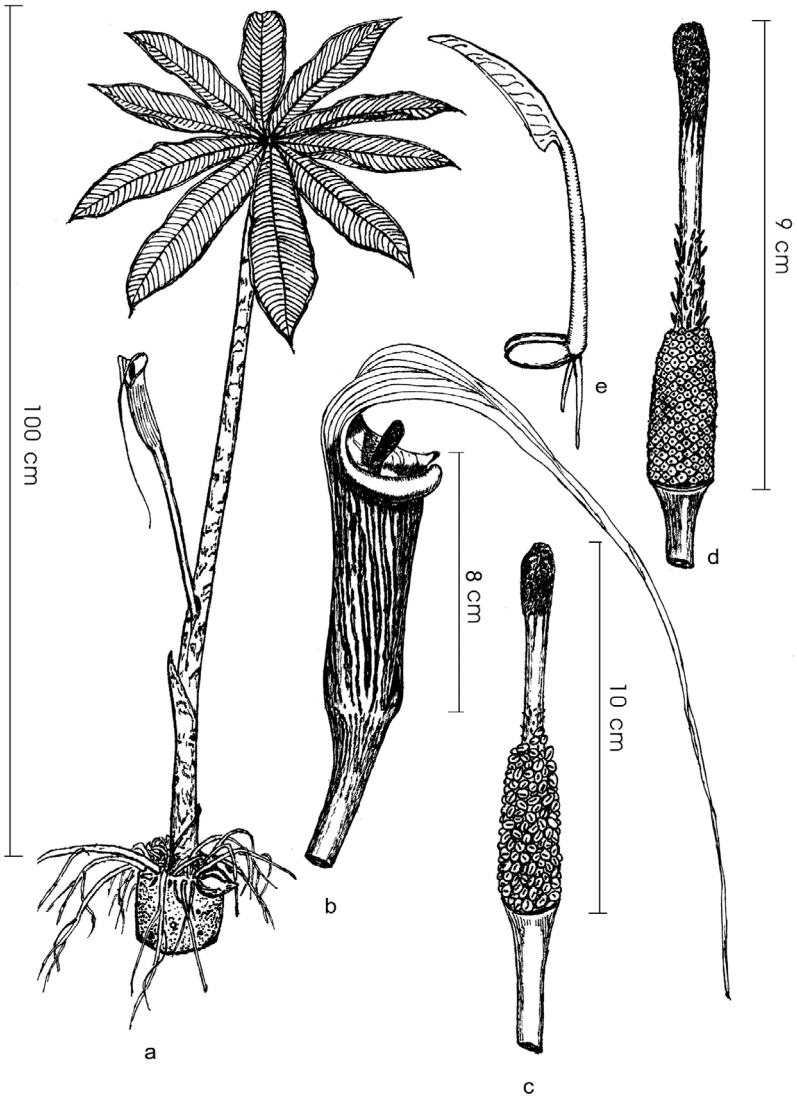

Fig. 1. *Arisaema muratae* (from holotype and paratype, drawn by Mr. Wen Huang). — **a**: Flowering plant with tuber. — **b**: Inflorescence. — **c**: Male spadix. — **d**: Female spadix. — **e**: Seedling.

to 1 m tall and 50 cm wide. Subterranean stem a subcylindrical tuber, 5–6.5 cm in diam. and ca. 5 cm high, green and brown outside, with short and globose offsets; roots thick and whitish. Pseudostem slightly shorter than petiole, 35 cm long, 3 cm wide at base, green with cream stripes and transverse vermillion markings. Cataphylls up to 50 cm long, olive-green or pink with dark and pale transverse markings. Leaf usually one. Petiole cylindrical, ca. 40 cm long and 2 cm across at base, smooth, similar in colour and pattern to pseudostem. Leaf blade radiate with up to 11 segments; leaflets, shiny green, underside glaucous, subsessile or shortly petiolulate, elliptic with deeply impressed veins above, 20–25 cm long and 6–7 cm wide; margins undulate, green, entire or serrate; apex long acuminate; base cuneate. Peduncle shorter than petiole, to 15 cm long and 1 cm across at base, olive-green, flushed pink and pruinose apically. Inflorescence unisexual, emerging when leaf unfolds and carried beneath foliage (Fig. 2). Spathe-tube cylindrical, up to 8 cm long and 18 mm wide, slender in the middle, 12 mm across; outside carmine with longitudinal pale stripes becoming yellow-green near mouth, white annulus at base; inside yellow-green with dotted purple stripes mainly in lower half; throat margin widely recurved

Fig. 2. *Arisaema muratae* (paratype). A flowering specimen.

Fig. 3. *Arisaema muratae* (paratype). Close-up of a female inflorescence.

and yellow-green. Spathe-limb horizontal, lanceolate, shorter than tube, ca. 5 cm long and 4 cm wide, slightly translucent, outside and inside yellow-green with paler veins; apex acuminate, ending in a tail, up to 15 cm long, yellow and turning carmine at end. Spadix either male or female. Male fertile part cylindrical to slightly conical, 4–5.5 cm long, 10–13 mm in diam., stamens densely arranged, each consisting of 2–4 anthers, stalked, thecae purple below and carmine above, dehiscent by elongated pores; pollen blue. Female fertile part slightly conical, 2–3 cm long, 10–15 mm in diam., ovaries bottle-shaped and densely arranged, pale yellow-green, unilocular, each containing ca. 3 basal ovules, fusiform; stigma penicillate, white and sessile. Spadix-appendix sessile, cylindrical and clavate, slightly protruding from spathe-tube, 4–5 cm long in male spadices, 5–6 cm long in female spadices, 4 mm in diam. above fertile part and 7 mm across at apex, whitish with carmine longitudinal stripes, obscure crimson and wrinkled at apex; projections stiff and upcurved, ca. 5 mm long, just above fertile part, absent or few in number in male spadices, numerous in female (Fig. 3). Fruiting spike cylindrical, ca. 10 cm long and 4 cm wide, borne on an upright peduncle. Receptacle pale pink. Berries densely packed, ca. 14 mm long and 8 mm across, red-orange, upper part smooth and rounded, each berry containing up to 3 seeds. Receptacle pale pink. Seeds globose, ca. 6 mm in diam., with a grey testa. Germination with a 1-foliolate eophyll.

This deciduous and tuberous species with radiate leaves is a member of sect. *Sinarisaema*. The most peculiar character of *A. muratae* is found in the colour and the shape of the spathe whose tube, magenta with white stripes, is topped by a yellow limb. It also has big cylindrical tubers, resembling those of *A. dahaiense* and *A. galeatum* of sect. *Arisaema*. An amazing character is its blue pollen, a colour exceptional in the genus, also recently mentioned in *A. pachystachyum*, a Thai species, of sect. *Fimbriata*.

Table 1. Comparison between *Arisaema muratae* and the three, morphologically closest species.

Arisaema	*muratae*	*concinnum*	*consanguineum*	*jingdongense*
Tuber stoloniferous	no	yes	no	unknown
Number of leaflets per blade	9–11	7–13	9–22	7
Leaflets ending in long threads	no	no	yes	no
Spathe-tube shape	cylindrical	cylindrical	funnel-shaped	funnel-shaped
Spathe-tube colour outside	carmine; pale stripes	white; green or magenta stripes	green; paler stripes	sulfur-yellow; unstriped
Spathe-limb colour outside	yellow-green; thin, pale stripes	green or magenta; wide, white stripes	green or dull brown; thin, pale stripes	sulfur-yellow; unstriped
Spadix appendage apex	wrinkled; obscure crimson	wrinkled; green or magenta	smooth; green	smooth; orange-yellow
Pollen	dark blue	cream	cream	unknown
Fruiting peduncle	erect	erect	nodding	unknown
Eophyll	1-foliolate	3-foliolate	1-foliolate	unknown
Altitude (m a.s.l.)	1000–1900	1700–3600	1000–3000	2400

As compared with other species in sect. *Sinarisaema*, *A. muratae* is morphologically close to *A. concinnum* and *A. consanguineum*. It resembles *A. concinnum* because the leaflets have deeply impressed veins on the upper surface and end in a long acuminate apex without the long threads present in *A. consanguineum*. The spathe has a cylindrical tube and the extremity of the spadix-appendix is wrinkled. In contrast, the tuber does not have the stoloniferous habit of *A. concinnum* and the germination is followed by a simple eophyll like in *A. consanguineum*.

The yellow colour of the spathe of *A. muratae* resembles that of *A. jingdongense*, another species from Yunnan. But the spathe-tube is cylindrical and striped in *A. muratae*, whilst it is funnel-shaped and unstriped in *A. jingdongense*. Moreover the spadix-appendices are also quite different in these two species.

The authors had the opportunity to examine specimens from different collections from neighbouring populations and noticed the morphological stability of the species. We summarize the main reliable characters that separate these above-mentioned four species of sect. *Sinarisaema* in Table 1.

Distribution and habitat. China, W Yunnan, Dehong and Baoshan Pref., near the border with Myanmar. *Arisaema muratae* grows along roadsides in secondary forest, in wet and shaded places, 1000–1900 m altitude. Today, living plants of *A. muratae* are cultivated successfully in temperate areas where they flower from May to June; berries are usually ripe in November.

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