

## *Colocasia yunnanensis* (Araceae), a new species from Yunnan, China

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*Colocasia yunnanensis* C.L. Long & X.Z. Cai *sp. nova* from China (Yunnan Province, Yingjiang County) is described and illustrated. Diagnostic morphological characters that distinguish it from the morphologically fairly similar *C. bicolor* are presented. The clearest differences are that *C. yunnanensis* permanently has leaves with 5–9 pairs of big purple spots, a sterile zone with white hairs in the inflorescence, and a spadix without appendix. Chromosome number ( $2n = 28$ ) was observed in the plants cultivated in the Kunming Botanical Garden.

Key words: Araceae, *Colocasia*, new species, taxonomy

We have been conducting a worldwide collection and taxonomic studies on *Colocasia* (Araceae, Colocasiaceae) since 1993. Six new species have been described, of which five were discovered and published by our group. So far, about twelve species have been described (Engler & Krause 1920, Li 1979, Sivadasan 1982, Plucknett 1983, Shaw 1984, Sreekumari & Mathew 1991a, 1991b, Li & Wei 1993, Hay 1996, Mayo *et al.* 1997, Li & Long 1999, Long & Li 2000, Long & Liu 2001, Cao & Long 2003, Yin *et al.* 2004).

In June 1999, in Jiema and Manyun townships, Yingjiang county, southwestern Yunnan, we collected an aroid along streams and identified it as a member of *Colocasia*. The morphological features suggested it represented an undescribed species. Living plants were collected and brought to the Kunming Botanical Garden for cultivation. After further study of the morphology, especially

of the inflorescence, and a comparison with the previously described species, this was confirmed.

***Colocasia yunnanensis* C.L. Long & X.Z. Cai, *sp. nova* (Fig. 1)**

*Colocasia bicolori similis, sed lamina 5–9-jugum maculis purpurea, parte sterili inflorescentiae albo-tomentosa, appendice absentia differt.*

TYPE: China. Yunnan Province, Kunming Botanical Garden. Introduced by Long Chun-Lin, from Yingjiang, south west Yunnan, moist shady, along stream, alt. 700–900 m above sea level, 14.VIII.2002 Long Chun-Lin 02105 (holotype KUN).

ADDITIONAL SPECIMENS EXAMINED (paratypes). China. 12.V.2004 Long Chun-lin & Cai Xiu-zhen 04001; 25.V.2004, Long Chun-lin & Cai Xiu-zhen 04002, cultivated in Kunming Botanical Garden (both KUN).



**Fig. 1.** *Colocasia yunnanensis* (from holotype). — **a:** Flowering plant. — **b:** Spadix with spathe. — **c:** Synandrium. — **d:** Sterile flower in sterile male zone. — **e:** Gynoecium. — **f:** Neutral flower in female zone. — **g:** Petiole.

Terrestrial perennial herb with stolons (stoloniferous runners) and tubercles. Tubercles ovate or oblong-ovoid, 2–3.5 cm in diam.; stolons 5.8–63 cm long, 6 mm in diam., trailing horizontally, branching, pale green or pale purple. Leaves 4–8, petiole cylindrical, light green or greenish white, and with transverse purple lines, 23–57 cm long; blade peltate ovate-cordate, membranaceous, 17–36 cm long, 13–29 cm wide, upper surface deep green or green, with 5–9 pairs of permanent big purple spots, lower surface pale green; primary lateral veins in 5–6 pairs, pinnate, marginal veins inconspicuous. Inflorescences 3–5; pedun-

cle cylindrical, pale green, 13–23 cm long, much shorter than petiole. Spathe constricted between tube and blade, spathe tube (lower convolute part) convolute, green, 2.5–4.2 cm long, 0.7–0.9 cm in diam., nearly cylindrical; spathe lamina boat-shaped to oblong-lanceolate, golden yellow, 8.8–11.2 cm long, 4–4.8 cm wide, erect or slightly reflexed after blooming. Spadix very fragrant when blooming, sessile, shorter than spathe, female zone green, separated from male zone by sterile male zone, cylindrical, 1.8–2.6 cm long, 0.5 cm in diam., with a few yellow neutral flowers; male zone golden yellow, cylindrical, 3.8–4.6 cm long,

**Table 1.** Comparison between *Colocasia yunnanensis* and *C. bicolor*.

Characters	<i>Colocasia yunnanensis</i>	<i>Colocasia bicolor</i>
Tubercles	ovate or oblong-ovoid, 2–3.5 cm in diam.	triangular or ovate, 2 cm in diam.
Stolon	5.8–63 cm long, 6 mm in diam., branching	3.7–39.7 cm long, 4 mm in diam., branching
Petiole	23–57 cm long, with transverse purple lines	20–44 cm long, without transverse purple lines
Blade	ovate-cordate, 17–36 cm long, 13–29 cm wide, green with permanent big purple spots on surface	ovate-cordate, (5.1–)16–21 cm long, (4.7–)13–16 cm wide, green with big purple spots on surface but not in very shady environment
Primary lateral vein	5–6 pairs	3–4 pairs
Peduncle	3–5, 13–23 cm long	1–3, 6.4–15 cm long
Spathe tube	2.5–4.2 cm long, 0.7–0.9 cm in diam.	1.3–2.7 cm long, 0.6–1.8 cm in diam.
Spathe lamina	lanceolate, 8.8–11.2 cm long, 4–4.8 cm wide, erect or slightly reflexed after blooming	lanceolate, 4.2–7.8 cm long, 1.6–3.3 cm wide, reflexed
Female zone	1.8–2.6 cm long, 0.5 cm in diam.	0.8–1.7 cm long, 3–8 mm diam.
Male zone	3.8–4.6 cm long, 0.4–0.5 cm in diam.	1–1.7 cm long, 2.5–5 mm in diam.
Sterile zone	1.1–1.2 cm long, 0.3 cm in diam., with white hairs	0.5–0.8 cm long, 0.8–2 mm in diam.
Appendix	none	cylindric in lower part conoid in upper part, 1.7–4.4 cm long, 6 mm in diam., reddish-purple, greenish white, pale yellow
Female flower	ovary ovoid	ovary ovoid
Male flower	synandria 6–8 androus	synandria 6–8 androus
Habitat	in moist shady places along streams, alt. 700–900 m	in moist shady places in or along the edge of forests, or on the hillsides close to the roads, alt. 840–1380 m
Distribution	SW Yunnan, China: Yingjiang	S Yunnan, China: Mengla, Jinghong, Simao, Lancang

0.4–0.5 cm in diam.; sterile male zone narrower, cylindrical, cream colored, 1.1–1.2 cm long, 0.3 cm in diam., with white hairs (10–15 mm long) in blooming time and disappeared after dryness; terminal appendix absent. Flowers unisexual. Female flowers green, ovoid, carpels 3 or 4, ovary unilocular, ovules spindly, nearly erect, numerous, placenta parietal, funicle long, stigma sessile. Male flowers 6–8 androus, stamens connate into a synandrium, golden yellow, thecae lateral, linear, dehiscing by apical pole. Sterile flowers synandrodies depressed-obpyramidal, truncate, apically depressed oblong, rhombic. Young fruits green. Chromosome number:  $2n = 28$ .

**PHENOLOGY:** In the original sites flowering from May to July; fruiting from July to October. In the botanical garden flowering occurs between June and September and fruiting between August and October. Pollinators were seen both in the field and in cultivated plants. Young fruits were seen in the cultivated plants in the Kunming Botanical Garden. Plants wither in winter.

**DISTRIBUTION AND HABITAT:** *Colocasia yunnanensis* grows in clusters of 3–5 individuals in small populations in moist shady places along streams. It is endemic to SW Yunnan, SW China: Yingjiang County, Jiema and Manyun townships in Dehong Prefecture, Yunnan Province; alt. 700–900 m. Other aroids also occur in the same habitats. It is also cultivated in the Kunming Botanical Garden.

After detailed studies, we believe that *Colocasia yunnanensis* is close to *Colocasia bicolor*. However, by a detailed comparison, the former can be easily distinguished by leaves with 5–9 pairs of permanent big purple spots, a sterile zone with white hairs in the inflorescence, and a spadix without an appendix. A closer comparison of the two species is in Table 1.

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