

# *Aspidistra lingyunensis* sp. nov. (Asparagaceae) from limestone areas in Guangxi, China

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*Aspidistra lingyunensis* C. R. Lin & L. F. Guo (Asparagaceae) is described and illustrated as a new species from limestone areas in northwestern Guangxi, China. It resembles *A. obconica* C. R. Lin & Yan Liu in leaf size and its obconical and purplish red pistil, but differs by having a yellowish white perianth, with lobes oblong, explanate, 6–7 mm long, subequal to tube and a white stigma surface, ca 3 mm in diameter. The new species is rare, currently known only from northwestern Guangxi.

During 2009 limestone plants were investigated in Lingyun County, northwestern Guangxi Zhuangzu Autonomous Region, China; a unique species of *Aspidistra* Ker Gawl. (Ruscaceae) was discovered in the Yuntaishan limestone mountains, and specimens were transplanted to the Guilin Botanical Garden for further observations. These plants were monitored and checked frequently in the following years, and flowered consistently. In October 2011, we returned to Lingyun County to collect the flowering plant. Upon careful comparison with all *Aspidistra* species heretofore known (Lang et al. 1999, Liang and Tamura 2000, Li and Tang 2002, Li 2004, Tillich 2005, 2008, Tillich et al. 2007, Hou et al. 2009, Lin et al. 2009, 2010, 2011, Xu et al. 2010, He et al. 2011), it was recognized as a new species as described and illustrated here.

***Aspidistra lingyunensis* C. R. Lin & L. F. Guo sp. nov. (Fig. 1, 2A–G)**

**Type:** China. Guangxi Zhuangzu Autonomous Region, Lingyun County, Sicheng Township, Yuntaishan limestone mountains, rare, 560 m a.s.l., 16 Oct 2011, Chun-Rui Lin and Lun-Fa Guo 1101 (holotype: IBK, isotype: IBK).

## Etymology

The specific epithet '*lingyunensis*' is derived from the county name of the type locality, Lingyun Xian, Guangxi Zhuangzu Autonomous Region, China.

## Description

Perennial, evergreen, rhizomatous herb. Rhizome creeping, subterete, 6–8 mm thick, covered with scales; nodes dense. Cataphylls 4 or 5, purplish red, 1–8 cm long, enveloping

the base of the petiole, becoming blackish brown when dry. Leaves solitary or occasionally paired, 5–10 mm apart; petiole stiffly upright, 9–17 cm long, 2–3 mm thick, adaxially sulcate; leaf blade usually elliptic to oblong-lanceolate, 15–22 cm long, 6–8 cm wide, dark green with small yellowish green spots on both surfaces, broadly cuneate to suborbicular and inequilateral at base, acuminate at apex, with entire margin. Peduncle short, 5–10 mm long; bracts 4–5, two of them adnate to flower base, broadly ovate, 5–8 mm long, 6–8 mm wide, pale green with purplish red spots, subobtusate at apex. Flower solitary; perianth obconic-campanulate, fleshy, whitish yellow, 13–15 mm long, apically 6-lobed; lobes oblong, explanate, abaxially pale yellow mottled with purplish red, distinctly 2-whorled, those of outer whorl 6–7 mm long, ca 4 mm wide, those of the inner whorl smaller, upper surface without keels, basally with 2–4 shallow longitudinal grooves; tube 7–9 mm long, distal opening 6–7 mm in diameter. Stamens 6, inserted in the middle of the perianth tube; anthers sessile, linear, pale yellow, ca 3 mm long, positioned conspicuously lower than the stigma. Pistil obconic, purplish red, 8–10 mm long; ovary inconspicuous; style distally gradually widened to stigma; stigma subrotund, ca 3 mm in diameter, surface white, flat, with 3 radial, bifurcate lines in center, shallowly 6-lobed at margin, lobes suborbicular at apex.

## Distribution and ecology

*Aspidistra lingyunensis* is currently only known from the type locality in Lingyun County, northwestern Guangxi, China. It grows on shaded rocky limestone slopes, together with species like *Brachystemma calycinum*, *Cheirostylis chinensis*, *Paraboea rufescens*, *Dischidia chinensis*, *Hylocereus undatus*,

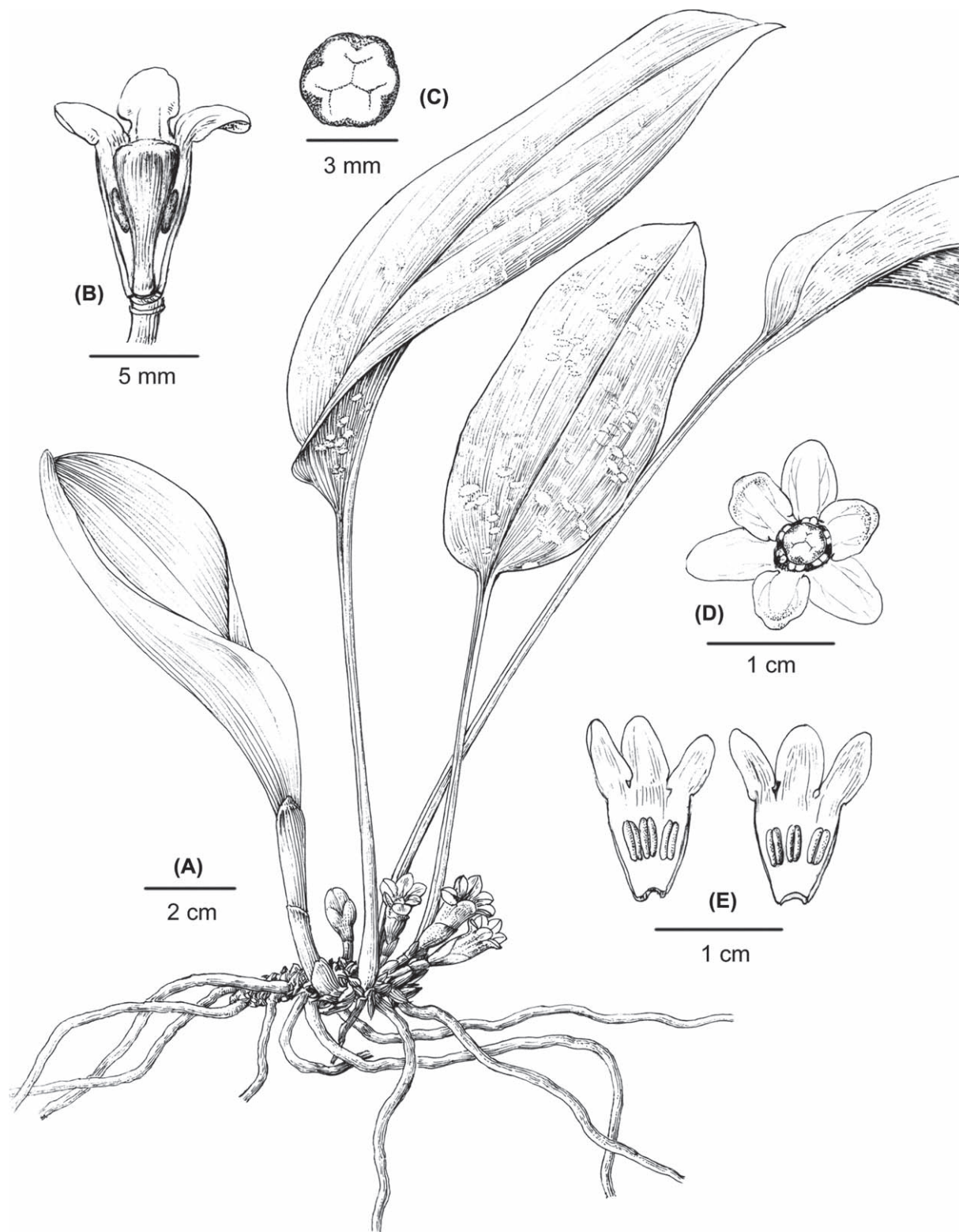


Figure 1. *Aspidistra lingyunensis* C. R. Lin & L. F. Guo sp. nov. (A) flowering plant, (B) flower with half of perianth removed showing stamens and pistil, (C) stigma apical view, (D) flower apical view, (E) perianth opened showing stamens.

*Sterculia euosma*, *Alchornea trewioides*, *Glycosmis cochinchinensis* and *Polygala arillata*.

#### Phenology

Flowering occurs in October and November.

#### Similar species

*Aspidistra lingyunensis* resembles *A. obconica* C. R. Lin & Yan Liu (Lin et al. 2010, Fig. 2J–L) in leaf size and the obconical and purplish red pistil, but differs by having yellowish white flowers, explanate, 6–7 mm long perianth



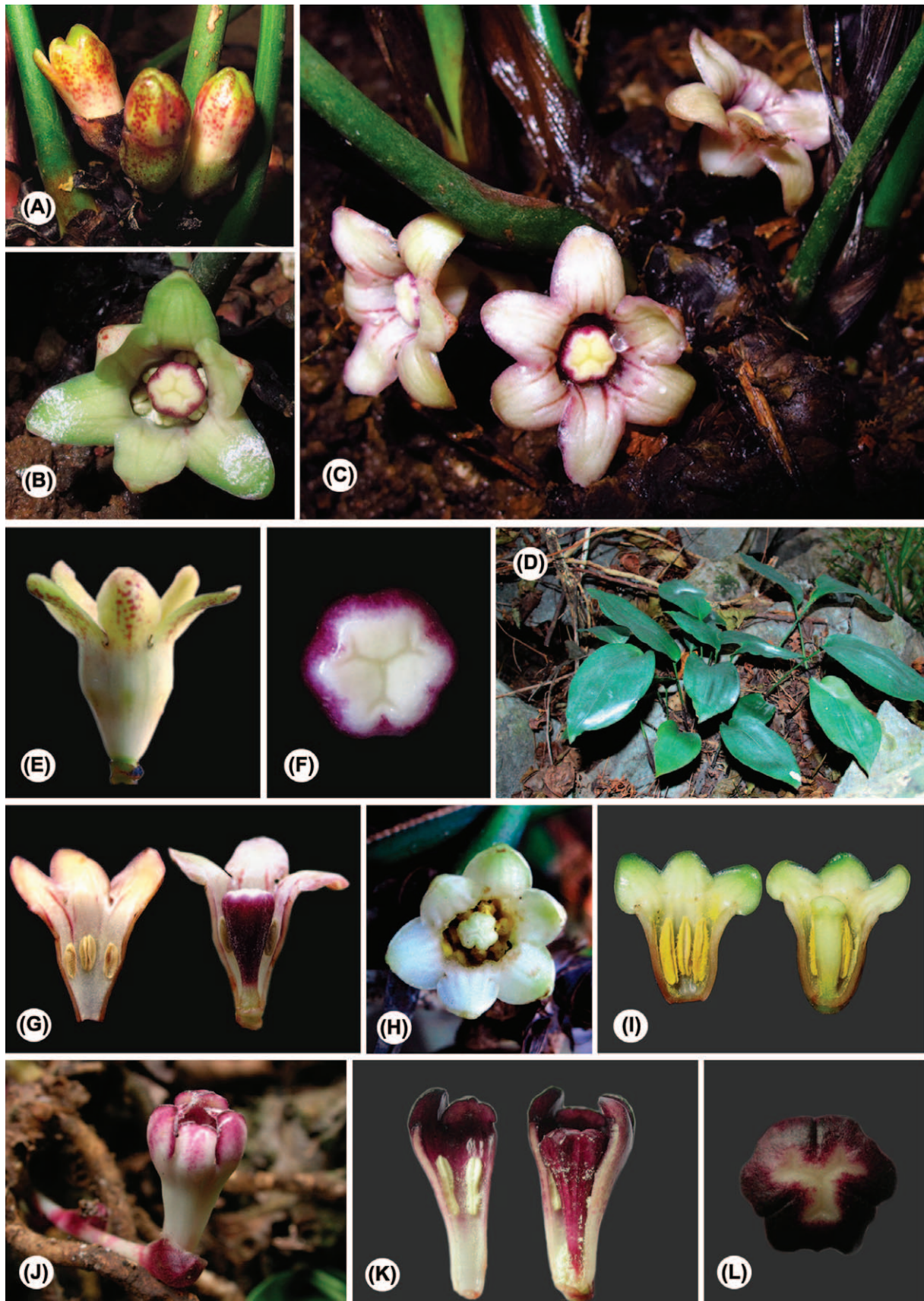


Figure 2. *Aspidistra lingyunensis* C. R. Lin & L. F. Guo sp. nov. (A) buds, (B)–(C) flowers, (D) habit, (E) flower side view, (F) stigma adaxial view, (G) perianth dissected to show stamens and pistil. *Aspidistra cerina*: (H) flower apical view, (I) perianth dissected opened to show stamens and pistil; *Aspidistra obconica*: (J) flower, (K) perianth dissected to show stamens and pistil, (L) stigma adaxial view.

Table 1. Morphological comparison between *Aspidistra lingyunensis* sp. nov., *A. obconica*, *A. cerina* and *A. lutea*.

	<i>A. lingyunensis</i>	<i>A. obconica</i>	<i>A. cerina</i>	<i>A. lutea</i>
Leaf				
Habit	solitary or occasionally paired	solitary	solitary	solitary
Size (cm)	15–22 × 6–8	15–23 × 4.5–7.5	13–20 × 6–8.5	15 × 6–7
Blade base	broadly cuneate to suborbicular	cuneate	cuneate	rounded
Peduncle				
Length (cm)	0.5–1.0	1.5–3.5	0.5–3	subsessile
Bracts	4–5	5–6	3–4	3–4
Corolla tube				
Shape	obconic-campanulate	obconic-campanulate	campanulate	campanulate
Size (mm)	7–9 × 6–7	11–13 × 8–10	12 × 9	10 × 6–7
Corolla lobes				
Shape	oblong	ovate-triangular	broadly triangular	broadly ovate
Length (mm)	6–7	3–4	3.5	5
	subequal to tube	shorter than tube	shorter than tube	shorter than tube
Form	explanate	incurved	explanate	explanate
Color	whitish yellow, abaxially mottled with purplish red	white and densely mottled purplish red	wax yellow	(greenish-)yellow
Stamens				
Length (mm)	3	4	6	5
Position	inserted at the middle of the perianth tube	inserted at the upper mid part of the perianth tube	inserted at the middle of the perianth tube	inserted at the middle of the perianth tube
Pistil				
Shape	obconical	obconical	clavate	clavate
Length (mm)	8–10	10–12	7	8
Color	purplish red	purplish red	wax yellow	purplish red
Stigma				
Size (mm)	c 3	c 5–6	c 2	c 3–4
Adaxial color	white	purple red	wax yellow	white
Marginal ribs	6	3	3	3

lobes that are subequal to the tube, and white stigma surface, ca 3 mm in diameter. In *A. obconica* the perianth lobes are purplish red, incurved, 3–4 mm, shorter than tube and the stigma surface purple red and 5–6 mm in diameter. *Aspidistra lingyunensis* is also similar to *A. cerina* G. Z. Li & S. C. Tang (Li and Tang 2002, Fig. 2H–I), but distinguishable by the obconical and purplish red pistil, and ca 3 mm long stamens. In *A. cerina* the pistil is clavate and wax yellow, and the stamens are ca 6 mm long. *Aspidistra lingyunensis* is also similar to *A. lutea* H.-J. Tillich (Tillich 2005), but distinguishable by the perianth tube being whitish yellow inside, the pistil obconical and the stigma subrotund. In *A. lutea* the perianth tube is glossy red inside, the pistil clavate and the stigma has three bifid arms. A detailed comparison between the four species is presented in Table 1.

#### Additional specimen examined (paratypes)

China. Guangxi Zhuangzu Autonomous Region, Guilin City, Yanshan Township, introduced by Chun-Rui Lin and Lun-Fa Guo from the type locality, cultivated, 10 Oct 2010, C. R. Lin 1025 (IBK).

**Acknowledgements** – The authors are grateful to Mr Wen-Hong Lin (IBK) for the handsome drawing. This study was supported by the National Natural Science Foundation of China (41161011) and the Science Research Foundation of Guangxi Institute of Botany (12008).

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