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Aspidistra yingjiangensis (Asparagaceae: Nolinoideae), a new species record for the flora of India

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Summary. *Aspidistra yingjiangensis* L. J. Peng (Asparagaceae: Nolinoideae) earlier known from Yunnan province in China is reported here as a new record for India from the state of Nagaland. A detailed taxonomic description along with photographs of the diagnostic characters is presented. Detailed comparison of the morphological characters of *A. yingjiangensis* with *A. longifolia* Hook. f., the only known Indian *Aspidistra*, has been given.

Aspidistra yingjiangensis (Asparagaceae: Nolinoideae) – новый вид флоры Индии

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Ключевые слова: однодольные, таксономия, флора, Юго-Восточная Азия, *Aspidistra longifolia*.

Аннотация. *Aspidistra yingjiangensis* L. J. Peng (Asparagaceae: Nolinoideae), ранее известный из провинции Юньнань в Китае, найден в Индии в штате Нагаленд. Представлено подробное таксономическое описание вида с фотографиями диагностических признаков. Дано детальное сравнение морфологических признаков *A. yingjiangensis* с *A. longifolia* Hook. f. – единственным известным индийским видом *Aspidistra*.

Introduction

The genus *Aspidistra* Ker-Gawler belonging to Asparagaceae subfamily Nolinoideae (Chase et al., 2009; APG, 2016), includes over 200 species (Trinh et al., 2021). These taxa are widely distributed in tropical and subtropical forests of Asia, with the

highest concentration in China and Vietnam, and some extend to Laos, Thailand and Malay Archipelago (Liang, Tamura, 2000; Trinh et al., 2021; Wang et al., 2021). In India, *Aspidistra* is represented so far by *A. longifolia* Hook. f.

While carrying out botanical surveys in April and May 2016 in Fakim Forest Village areas under

Kiphire Wildlife Division of Kiphire District in Nagaland, India, the authors (NO & DKR) encountered an unusual Asparagaceae plant growing in moist places in evergreen forest floors. Living plants were collected along with field notes and taken for cultivation in the garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya (India). In October 2019, this accession started blooming. The flowers were dissected, and detailed morphological study of the living plant materials was carried out. Afterward, consultation of related literature (Hooker, 1892; Chun, How, 1977; Peng, 1989; Liang, Tamura, 2000; de Wilde, Vogel, 2005; Tillich, 2005, 2006, 2008; Tillich et al., 2007; Phonsena, de Wilde, 2010; Tillich, Averyanov, 2012; Averyanov et al., 2018, 2019, 2021; Cai et al., 2018, 2019, 2020; Vislobokov et al., 2019a, 2019b, 2019c; Xi et al., 2020; Deng et al., 2021; Ding et al., 2021; Trinh et al., 2021; Wang et al., 2021), revealed that the plant specimen belonged to *Aspidistra yingjiangensis* L. J. Peng, a species described from Yunnan Province of China (Peng, 1989), hitherto not recorded from India (Hooker, 1892). Thus, the present collection of this species in Nagaland forms the first report from India. A detailed taxonomic description and photographs (Figs. 1, 2) of diagnostic characters of this species is given here to facilitate its identification in the field.

Materials and Methods

Collection, pressing and preparation of herbarium voucher specimen were done in accordance with conventional herbarium techniques (Jain, Rao, 1976). Taxonomic measurements and descriptions of each plant part were based on living materials cultivated in the garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya (India). Microscopic details were observed using an Olympus SZ2-ILST stereo-zoom microscope and photographed with a Nikon Coolpix P520. Finally, the taxonomic identity of the plant was confirmed to be *A. yingjiangensis* after comparing our morphological description with the protologue (Peng, 1989), relevant literature (Liang, Tamura, 2000; Wang et al., 2021) and the detailed photographs (Fig. 4 (F1–F2) in Ding et al., 2021) of *A. yingjiangensis*. A voucher specimen of the plant N. Odyuo and D. K. Roy 128933 deposited in the Herbarium of the Botanical Survey of India, Eastern Regional Centre, Shillong (ASSAM).

Results

Aspidistra yingjiangensis L. J. Peng, 1989, Acta Bot. Yunnan. 11, 2: 173.

Type: Yunnan, Peng 87-3 (KUN, not seen).

Description. Lithophytic, perennial, evergreen, glabrous herb, with leaves up to 50 cm high. Rhizomatous stem creeping, subterranean, stout, 1.5–2 cm in diameter, white inside, covered by fibrous remains of cataphylls, with many grey roots. Roots cord-like, thick, fleshy, to 3 mm in diameter, velutinous. Cataphylls straight, ensiform, convolute, light green, later becoming dull light brownish, to 10 cm long, early splitting into irregular fibres, enveloping 1–3 petioles by fibrous-papyraceous remains. Foliage leaves 2–3, tufted or sometimes solitary, not easy divided into petiole and lamina, leaf gradually narrowing to base, leaf base stiffly, erect, dark to light green, adaxially sulcate, 10–15 cm long; leaf blade narrowly oblanceolate, 30–50 cm long, 1.5–5 cm wide, dark to light green, spotted with pale yellow marks on both surfaces, margin distantly serrate, midvein protruding abaxially and sunken adaxially, with 2–3 secondary veins at each sides of the midvein, apex attenuate. Peduncle decumbent, creamy white, 1.5–2 cm long, with 5–6 widely ovate bracts, bracts gradually widening from base to the top of peduncle, the 2 uppermost at base of perigone broadly ovate, creamy white without spots, ca. 0.5–1.2 × 0.5–1.3 cm, obtuse. Flower solitary at apex of peduncle. Perigone campanulate, fleshy, 18–22 mm long, 16–18 mm in diameter; perigone tube 8–11 mm long, outside creamy white and with scattered purple-pink blotches at upper half, smooth, inside dark purple-red; perigone lobes 6, equal, oblong-ovate, 10–12 mm long, 5–7 mm broad at base, apex tapering into acute and usually incurved, adaxially yellow and densely papillose or verrucose, each lobe with 2–3 conspicuous keels. Stamens 6, inserted at the bottom of perigone tube lower than stigma; filament creamy white, cylindrical, ca. 1 mm long; anthers yellow, ca. 1.2 mm long, ca. 1 mm wide, introrse. Pistil mushroom-shaped, 8–10 mm high; style creamy white, 4–5 mm long, cylindrical; stigma crown-shaped, 8–10 mm in diameter, dark purple, distinctly 6-lobed at margin, distal lobes acute-triangular, upper surface of stigma centrally elevated with some finger like protrudes projecting upwards. Ovary inconspicuous. Fruits purplish white to whitish green, globular or slightly oblate, 2.5–3.5 cm in diameter, smooth, normally 3-seeded; seeds

ellipsoidal, white, shining, 1.5–1.8 × 1.3–1.6 cm. Flowering – October to December.

Distribution. India (Nagaland, currently reported locality), China (Yunnan).

Specimens examined. India: “Nagaland, Kiphire district, Pongro Subdivision, Fakim Forest Village, 2000 m, 14 XI 2019, ex hort. in Garden of Botanical Survey of India (Eastern Regional Centre, Meghalaya, East Khasi Hills, Shillong, Woodland Campus), N. Odyuo, D. K. Roy 128933” (ASSAM!).

Notes. *Aspidistra yingjiangensis* can be clearly differentiated from *A. longifolia* (Figs. 3, 4), the only known Indian species under this genus in comparatively shorter leaves, 50 cm high (vs. 100 cm high), narrowly oblanceolate leaf blade 30–50 cm long, 1.5–5 cm wide, spotted with pale yellow on both

surfaces (vs. narrowly linear-oblanceolate, 60–90 cm long, 2.5–5 cm wide, without any spots), peduncle embedded with 5–6 bracts (vs. 5–10 bracts), adaxially yellow perigone lobes incurved, with 2–3 keels (vs. dark purple-black, recurved, 4 keels), comparatively longer style, 4–5 mm long (vs. 2–3 mm long) and in dark purple, crown-shaped stigma centrally elevated on the surface with finger like stigmatic protrudes projecting upwards (vs. creamy white, peltate, central convex, without any stigmatic protrudes) without any straight and bifurcated radial grooves on the stigmatic surface (vs. with 3 white straight radial grooves and 3 bifurcated radial grooves from centre to margin). A detailed comparison to distinguish the two species is presented in Table.

Table

Morphological differences between *Aspidistra longifolia* and *A. yingjiangensis*

Characters	<i>A. longifolia</i>	<i>A. yingjiangensis</i>
Leaf	2–4 tufted; leaf blade narrowly linear-oblanceolate, 60–90 cm long, 2.5–5.0 cm wide, without any spots on surfaces, finely serrate towards apex	(1)2–3 tufted; leaf blade narrowly oblanceolate, 30–50 cm long, 1.5–5.5 cm wide, spotted with pale yellow on both surfaces, sparsely serrulate towards apex
Floriferous stem	Creamy white, with or without sparse purple spots, 1.5–3.0 cm long, embedded with 5–10 widely ovate bracts	Creamy white without spots, 1.5–2.0 cm long, embedded with 5–6 widely ovate bracts
Bracts	Colourless to pale green, with or without purple-red blotches	Creamy white, without purple-red blotches
Perigone	Campanulate, 20–22 mm long, 20–30 mm in diameter; tube dark purple-black on both side; lobes 6, equal, ovate-triangular, 10–12 mm long, 8–10 mm broad at base, apex usually recurved, adaxially completely dark purple-black, each lobe with 4 keels	Campanulate, 18–22 mm long, 16–18 mm in diameter; tube outside creamy white, with scattered purple-pink blotches at upper half, inside dark purple-red; lobes 6, equal, oblong-ovate, 10–12 mm long, 5–7 mm broad at base, apex incurved, each lobe with 2–3 keels
Style	2–3 mm long	4–5 mm long
Stigma	Peltate, 12–15 mm in diameter, central convex, creamy white, with purple spots or blackish purple along margin below, 3-lobed, lobes emarginated at apex, upper surface of stigma with 3 white straight radial grooves and 3 bifurcated radial grooves from centre to margin	Crown-shaped, 8–10 mm in diameter, dark purple, 6-lobed, upper surface of stigma centrally elevated with some finger like protrudes projecting upwards

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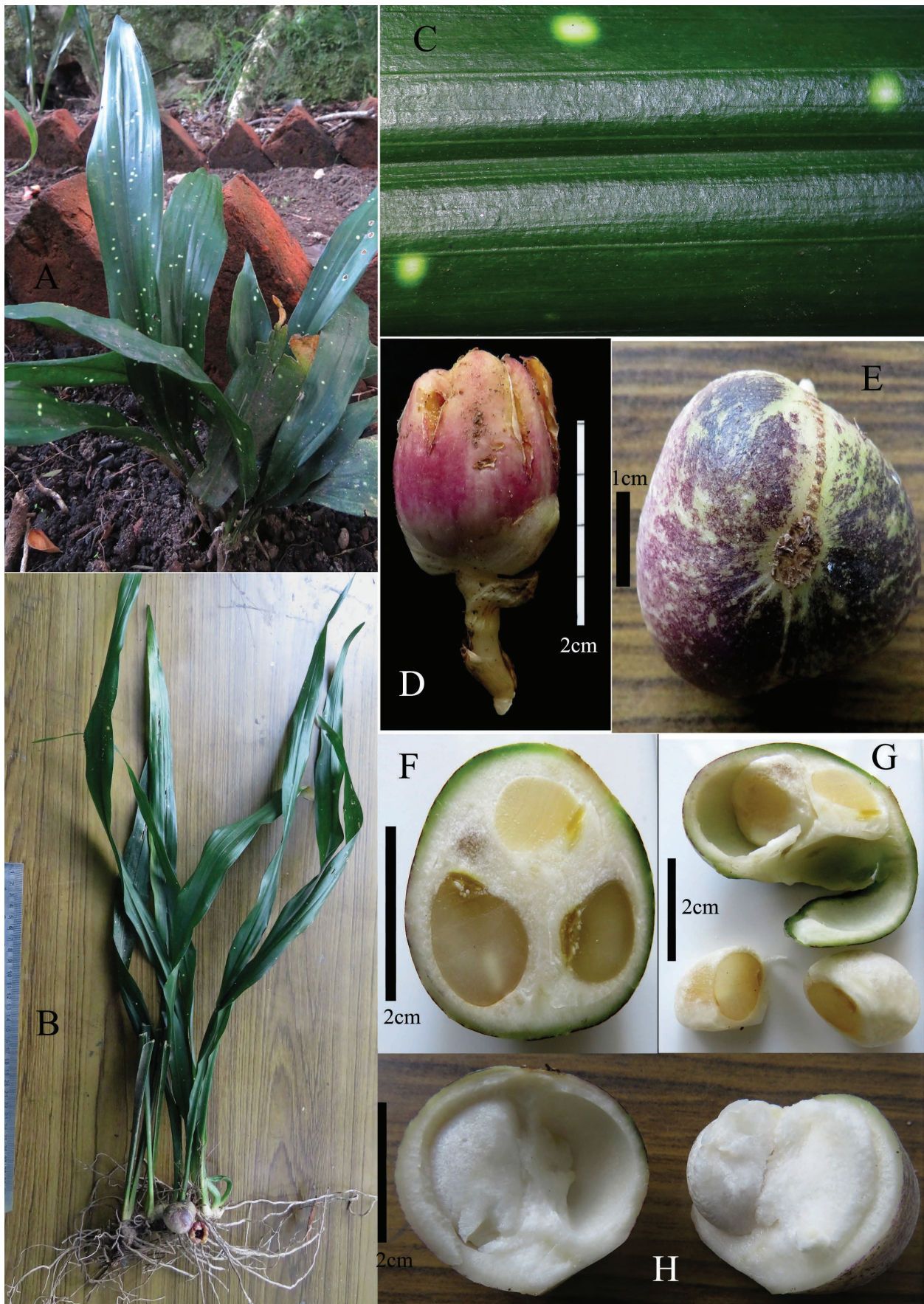


Fig. 1. *Aspidistra yingjiangensis*: A, B – Habit; C – Leaf blade, surface above; D – Inflorescence; E – A fruit; F – Transverse section of fruit; G – Seeds; H – Longitudinal section of fruit, showing the seeds. Photographed by D. K. Roy, in cultivation.

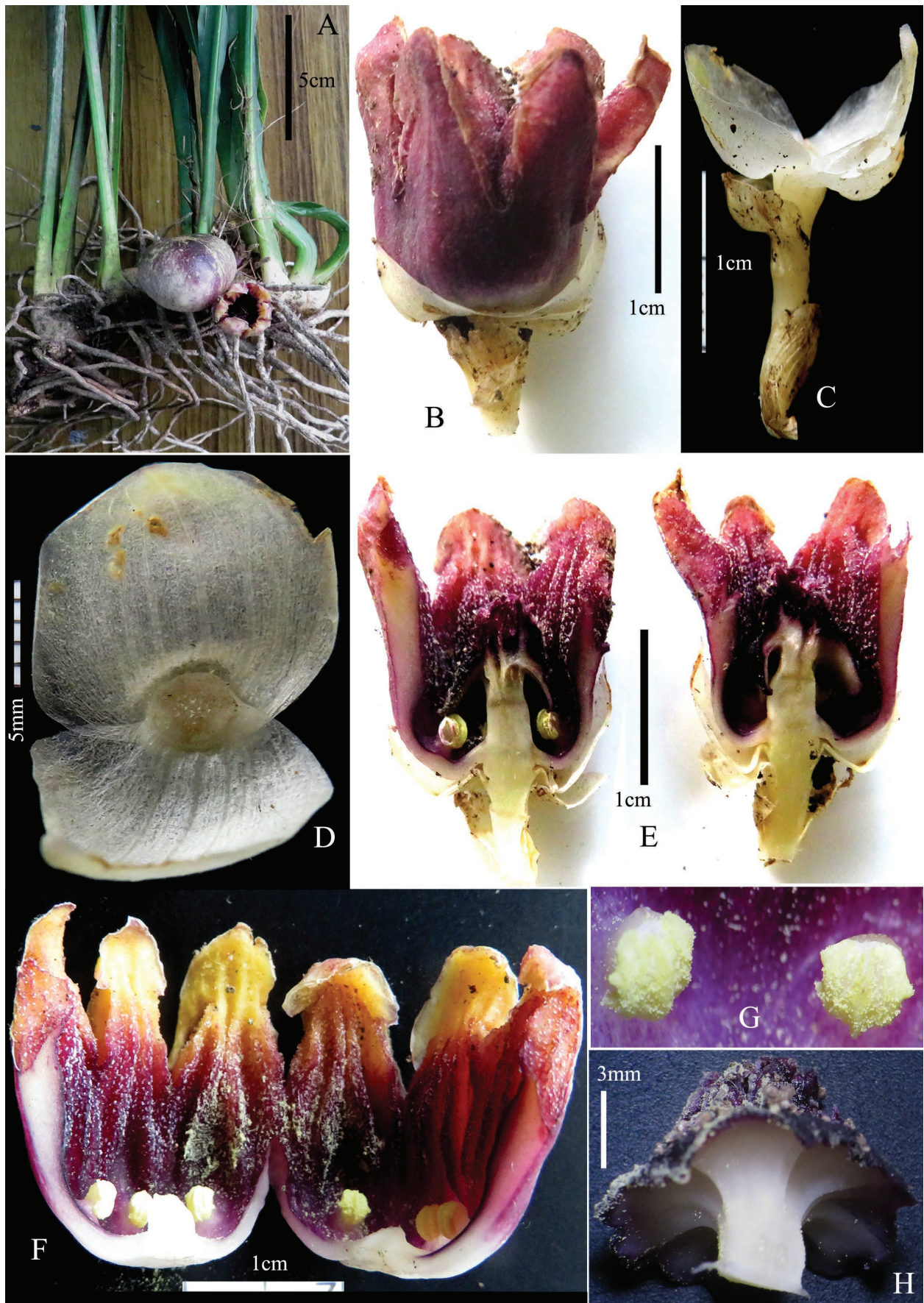


Fig. 2. *Aspidistra yingjiangensis*: A – Rhizomatous stem, with flower and fruit; B – A flower; C – Floriferous stem, with bracts; D – Bracts, two upper most; E – Longitudinal section of a flower, inside view; F – Longitudinal section of perigone, inside view showing stamens; G – Stamens; H – Pistil with stigma. Photographed by D. K. Roy, in cultivation.



Fig. 3. *Aspidistra longifolia*: A, B – Habit. Photographed by D. K. Roy, in cultivation.

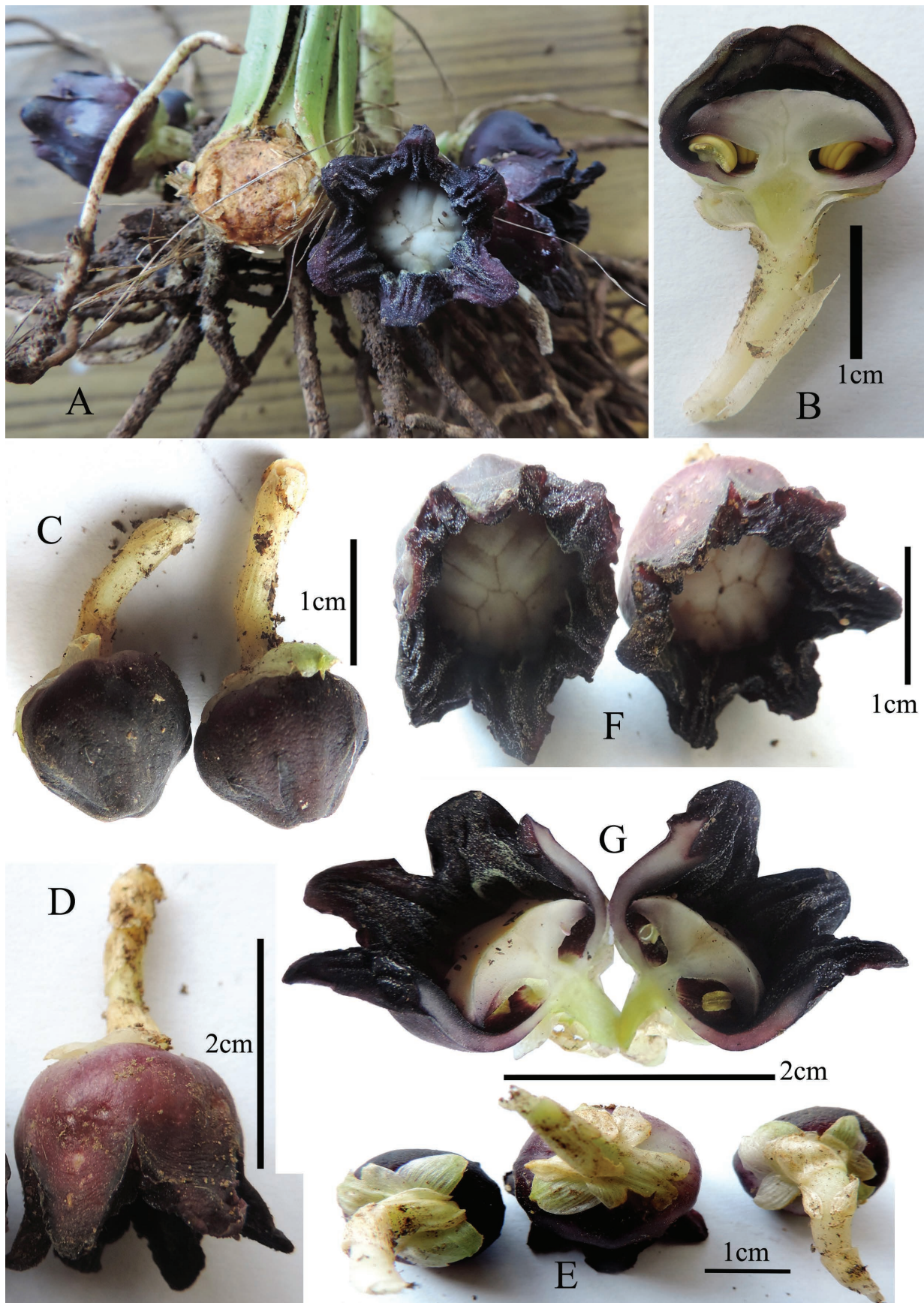


Fig. 4. *Aspidistra longifolia*: A – Rhizomatous stem, with flowers; B – Longitudinal section of a flower bud, inside view; C – Flower buds, with Floriferous stem; D – Flower, lateral view; E – Flowers, with floriferous stem embedded with bracts; F – Flowers, frontal view; G – Longitudinal section of a flower bud, inside view. Photographed by D. K. Roy, in cultivation.

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