



Tupistra leonidii (Asparagaceae, subfamily Nolinoideae), a new species from north-eastern India

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ABSTRACT: *Tupistra leonidii* D.K. Roy & A.A. Mao (Asparagaceae), a new species from north-eastern India, is described and illustrated. The plant is distinguished from its closely allied congener, *T. nutans* in habit with obliquely oblong-elliptic leaf blade, comparatively shorter peduncle (to 10 cm long) and spike (to 3 cm long) with 10–12-flowers, shorter perianth tube, 1.5–2 mm long and in hemispheric to hemioblate white stigma speckled with purple.

KEY WORDS: Asparagaceae, North-eastern India, New species, Plant diversity, *Tupistra leonidii*.

INTRODUCTION

The genus *Tupistra* Ker Gawl. belonging to Asparagaceae subfamily Nolinoideae (Chase *et al.* 2009) comprises 28 known species (Govaerts 2016, Roy *et al.* 2017a, b) and is distributed in south and south-east of continental Asia, including Nepal, Bhutan, India, Myanmar, China, Laos, Vietnam, Thailand and Malaysia (Tanaka 2003a,b, 2010a,b, Averyanov *et al.* 2016). In India, *Tupistra* includes 6 species (Roy *et al.* 2017a, b). They are *Tupistra ashioi* D.K. Roy, N.Odyuo & Aver., *T. clarkei* Hook. f., *T. khasiana* D.K. Roy, A.A. Mao & Aver., *T. nutans* Wall. in Lindl., *T. stoliczana* Kurz and *T. tupistroides* (Kunth) Dandy, of which *T. ashioi* (Assam, Meghalaya), *T. khasiana* (Meghalaya) and *T. tupistroides* (Meghalaya, Sikkim) are Indian endemics (Tanaka 2010a, Roy *et al.* 2017a,b).

In course of the study of the genus *Tupistra* in India, the authors encountered a very distinctive species growing in the Garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya. It was overlooked for many decades and its origin could not be ascertained as different species of plants growing in the garden are introduced from diverse areas of north-eastern India. Critical observations of available specimens and consultation with literature (Lindley 1829, Hooker 1831, Hooker 1894, Liang & Tamura 2000, Bhaumik & Gogoi 2008, Tanaka 2003a, 2010a, b, Averyanov & Tanaka 2012, Hu *et al.* 2013, Vislobokov *et al.* 2014, Averyanov *et al.* 2015, 2016, Roy *et al.* 2017a, b) revealed it as a new species distinct morphologically from all its known congeners. Therefore, it is described and illustrated here as a new species.

TAXONOMIC TREATMENT

Tupistra leonidii D.K. Roy & A.A. Mao, *sp. nov.*

Figs. 1 & 2

Type: INDIA. 11 October 2017, D.K. Roy 128911 (holotype, ASSAM!) prepared from a plant cultivated in Garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya.

The new species differs from its closely allied congener, *T. nutans* in habit with obliquely oblong-elliptic leaf blade, comparatively shorter peduncle (to 10 cm long) and spike (to 3 cm long) with 10–12-flowers, shorter perianth tube, 1.5–2 mm long and in hemispheric to hemioblate white stigma speckled with purple.

Terrestrial perennial herb. Rhizomatous stem lone or clustering, erect, stout, Ø 1.3–1.6 cm, nodes dense, covered with remnant bases of sheath-leaves. Roots many, cord-like, thick, fleshy, Ø 3–5 mm, light gray, velutinous. Sheath leaves straight, ensiform, 5–15 cm long, pale green, later yellowish-gay, papyraceous. Leaves 1–2, basal, semi-erect, distinctly petiolate; petioles adaxially channelled, 10–15 cm long; leaf blade obliquely oblong-elliptic, 23–28 × 7–10 cm, shortly acuminate at apex, tapering to the base, leathery, uniform glossy green, abaxially with prominent midvein, secondary lateral veins distinct, many, almost parallel. Peduncle green, erect, slightly declinate distally, terete, much longer than spike, to 10 cm long, arising from apical part of stem, axillary, with one sterile bract at the base. Spike nodding, cylindric, to 3 cm long and Ø 1.5 cm, densely 10–12-flowered, spadix-like. Bracts 2 per flower, concave, fleshy, light green to brown during anthesis; outer bract borne below and adjacent to flower, deltoid-ovate or ovate, longer than flower, 6–8 × 5–6 mm, margins membranous; inner bract (bracteole) smaller, borne lateral to flower, ovate, 3.5–3.4 × 2.5–3 mm long, apex slightly upright curved. Flowers sessile, Ø 8–9 mm. Perianth campanulate, 6-cleft, fleshy; tube very short, 1.5–2 mm long, green; lobes ovate to broadly ovate, 5–6 × 3–4 mm, straight to slightly incurved, green with dark



Fig. 1: *Tupistra leonidii* D.K. Roy & A.A. Mao: A. Plant habit. B. Inflorescence. C. Flattened plant, habit with rhizomatous stem.

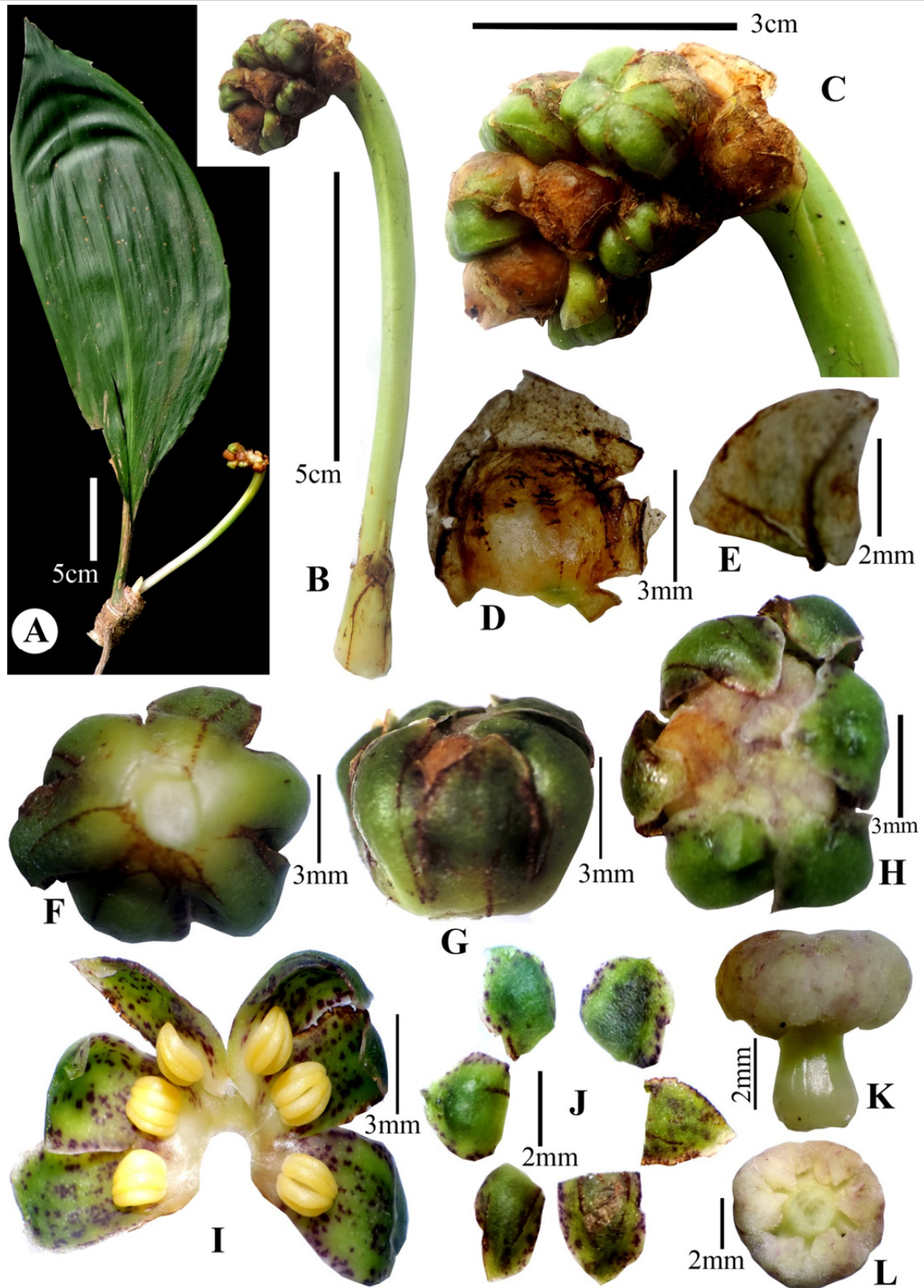


Fig. 2: *Tupistra leonidii* D.K. Roy & A.A. Mao: **A.** Flattened flowering plant. **B.** Inflorescence. **C.** Spike. **D.** Bract, adaxial surface. **E.** Bracteole, abaxial surface. **F.** Flower, dorsal view. **G.** Flower, side view. **H.** Flower, frontal view. **I.** Flattened perianth, adaxial surface with stamens. **J.** Perianth lobes, abaxial surface. **K.** Pistil, side view. **L.** Stigma, view from below.

**Table 1:** Comparison of morphological characters between *Tupistra leonidii* and *T. nutans*.

Characters	<i>T. leonidii</i>	<i>T. nutans</i> (Lindley 1829, Hooker 1831)
Lamina	Obliquely oblong-elliptic, 23–28 × 7–10 cm	Narrowly oblanceolate or narrowly oblong-oblanceolate, to 112 × 9.5–12 cm
Peduncle	To 10 cm long	17–25 cm long
Spike	To 3 cm long, 10–12-flowered	5–7 cm long, up to 23-flowered
Perianth	Tube very short, 1.5–2 mm long; lobes ovate to broadly ovate, green with dark purple blotches ventrally	Tube 5–6 mm long; lobes narrowly ovate, pale yellowish brown to greenish with purple streaks/dots ventrally
Style	2–3 mm long	4.5–6 mm long
Stigma	Hemispheric to hemioblate, white speckled with purple	Subcapitate, white without purple spots

purple blotches ventrally and slightly tinged with purple at margins dorsally, obtuse to acute at apex. Stamens 6; anthers sessile, dorsifixed, ovoid, introrse, 2–2.5 × 1.5–2 mm, dull yellowish, attached to the base of perianth lobes, concealed by stigma. Pistil 1; style white to light greenish, columnar, slightly broadening at the base and upward, 2–3 × 1.5–2 mm, shallowly ridged longitudinally, glabrous; stigma hemispheric to hemioblate, slightly depressed at centre, Ø 5–6 mm, to 2–3 mm thick, white speckled with purple, 3-lobed, with small triangular incurved lobes finely indistinctly undulate along the margin; ovary superior, situated at the base of columnar pistil, 1.5–2 mm high and wide, 3-locular. Fruit not seen.

Flowering: September–October.

Etymology: The new species is named in honour of Leonid V. Averyanov, Professor of Komarov Botanical Institute, Russian Academy of Science, Russia, for his excellent contributions to the family Asparagaceae.

Distribution: New species is known only by specimens cultivated in the Garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya, India.

Additional specimen examined: INDIA. 15 October 2017, D.K. Roy 128912 (paratype, ASSAM!) prepared from a plant cultivated in Garden of Botanical Survey of India, Eastern Regional Centre, Shillong, Meghalaya.

Notes: The comparison of morphology among all known species of *Tupistra* indicates that *T. leonidii* superficially resembles to *T. nutans* in erect to distally slightly declinate peduncle, nodding spike, which is much shorter than peduncle and in green perianth lobes with dark purple blotches ventrally, but differs in many diagnostic characters (Table 1).

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