



Taxonomic studies of Araceae in Myanmar III: *Typhonium aungmyintwinii*, a new species from Mogok Township, Mandalay Region

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ABSTRACT: *Typhonium aungmyintwinii* K.Z.Hein & Naive is herein described and illustrated as a species new to science discovered in Mogok Township, Mandalay, Myanmar. Detailed description, colour plate, distribution, phenology and ecology of this new endemic *Typhonium* species are provided below.

KEY WORDS: Araceae, Aroideae, Biodiversity, Burma, Southeast Asian Flora, *Typhonium inopinatum*, *T. roxburghii*, *T. varians*.

INTRODUCTION

The genus *Typhonium* Schott s.s., comprises ca. 100 species of seasonally dormant geophytes inhabiting forest floor, agricultural land, among rocks, wet sites, stream sides and grassy places of South, Southeast and East Asia, and the Malay Archipelago (Cusimano *et al.*, 2010; Boyce *et al.*, 2012; Low *et al.*, 2020). Thailand, with 33 species and 70% endemism, is the centre of speciation for the genus, followed by Vietnam with 17 species recorded (Sookchaloem and Maneenakekul, 2017; Nguyen *et al.*, 2021). In Myanmar, the genus is represented by 13 species, of which five are known to be endemic (Naive *et al.*, 2020; Naive and Hein, 2021). Based on known species diversity and distribution patterns of the genus *Typhonium*, as well as considering that most regions of Myanmar still have low collecting densities, it is likely that new fieldwork will result in the discovery of more new species or new records.

A population of *Typhonium* was discovered by Mr. Aung Myint Win, a local plant hobbyist, in Lower Pein Pyit Village, Mandalay Region in May 2021. He collected some tubers and sent them to the first author. The tubers were then cultivated to flower in Monywa, Sagaing Region and we conducted a meticulous examination of its morphology. After careful investigation of relevant literature and comparison of available digitized type specimens from Myanmar and neighboring countries, it became apparent that the collected specimen does not match any other known *Typhonium* species. Thus, we herein described it as *Typhonium aungmyintwinii*, a species new to science and the 14th representative of the genus in Myanmar. The present paper is the third in a series aimed at documenting the diversity of *Typhonium* species in Myanmar.

MATERIALS AND METHODS

The measurements and descriptions were based on fresh collected materials, unless otherwise indicated. The general plant descriptive terminology follows Beentje (2016). Relevant type specimens of *Typhonium* species from Myanmar and neighbouring countries were examined in different herbaria through high-resolution images accessed from <https://plants.jstor.org/> and Global Biodiversity Information Facility (GBIF) accessed from <https://www.gbif.org>. An assessment of conservation status was carried out following the IUCN Standards and Petitions Subcommittee (2019).

TAXONOMIC TREATMENT

Typhonium aungmyintwinii K.Z.Hein & Naive, *sp. nov.*
Figs. 1 & 2A

Type: MYANMAR. Originally collected by Aung Myint Win from Mandalay Region, Pyin Oo Lwin District, Mogok Township, Lower Pein Pyit Village, elev. ca. 1400 m. Cultivated in Monywa by K.Z. Hein, 5th June 2020, K.Z. Hein 042 (holotype, TTM, spirit collection; isotype, KKU).

Diagnosis: This new species is morphologically similar to *Typhonium roxburghii* Schott (Fig. 2C) and *T. varians* Hett. & Sookchaloem (Fig. 2D). But it differs significantly in having a lanceolate spathe limb (vs. ovate to ovate-lanceolate in *T. roxburghii* and triangular ovate in *T. varians*) and two to three whorls of laterally compressed, sickle-shaped, glabrous staminodes with half of their length curved downwards (vs. more than three whorls of filiform, weakly papillose staminodes which are spreading and slightly decurved at their tips in *T. roxburghii* and four to six whorls of subulate, glabrous

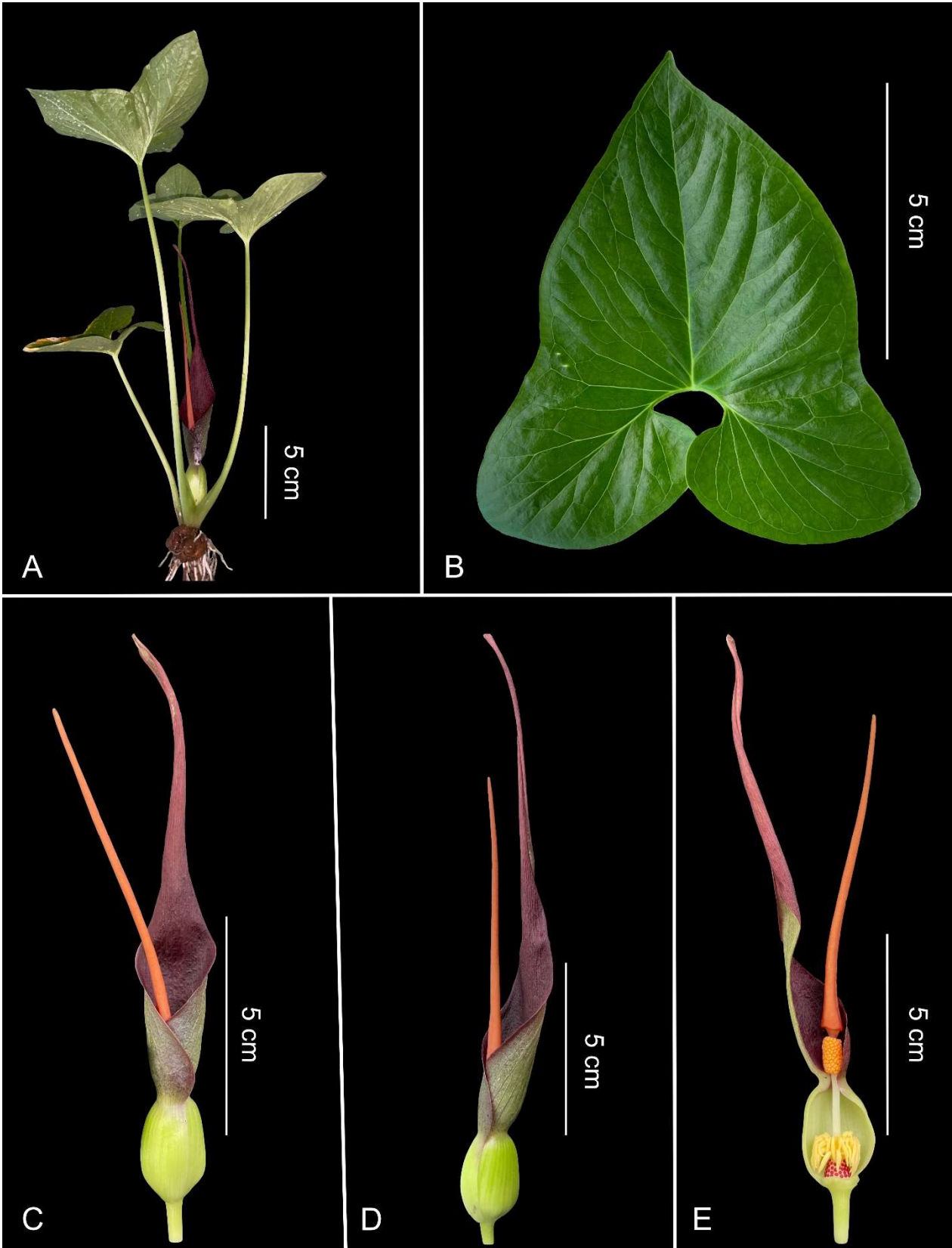


Fig. 1. *Typhonium aungmyintwinii* K.Z.Hein & Naive. A. Excavated plant B. Leaf C. Front view of inflorescence D. Side view of inflorescence E. Spathe tube longitudinally cut open spathe showing the spadix. Photos by: K.Z. Hein.



Fig. 2. Spathe tube longitudinally cut open spathe showing the spadix. **A.** *Typhonium aungmyintwinii* K.Z.Hein & Naive. **B.** *T. inopinatum* Prain (Sagaing Region, Myanmar). **C.** *T. roxburghii* Schott (Mon State, Myanmar). **D.** *T. varians* Hett. & Sookchaloem (Nakhon Ratchasima Province, Thailand). Photos by: K.Z. Hein (A & B), Nyi Nyi Htway (C) and Tomoki Sando (D).

staminodes, of which the upper staminodes are short, straight and pointing outwards and the lower staminodes are strongly curved downwards over their entire length in *T. varians*).

Description: Seasonally dormant herb, ca. 25 cm tall. **Tuber** irregularly cylindrical, ca. 2.8 cm long, ca. 1.6 cm in diameter, producing many filiform roots. **Leaves** 3–4 together; **petiole** 13.5–24.0 cm long, 0.4–0.6 cm in diameter, slender, smooth, light green, basal 1/6 sheathed; **lamina** triangular-hastate, 8.5–12.0 cm long by 10–13 cm wide, chartaceous, glabrous, upper surface green, lower surface pale green, margin entire, apex acute, basal lobes triangular-ovate, midrib impressed adaxially, protruding abaxially, lateral veins 6–8, collective veins at 4–5 mm from margin. **Inflorescence** solitary; **peduncle** subterranean, pale green, terete, 1.2–1.5 cm long, 0.3–0.4 cm in diameter; **spathe** 13.7–18.0 cm long; **spathe tube** oblongoid-ovoid, 2.6–3.0 cm long, ca. 1.8 cm in diameter, convolute, outside green, inside light green, separated

from the limb by a constriction; **spathe limb** lanceolate (when flattened), 11.3–15.5 cm long, 2.1–2.6 cm in diameter, lower 2.0–3.4 cm convolute, distally with the margins strongly revolute giving a filiform appearance in the apical part, erect or slightly curved, outside reddish green, inside dark red; **spadix** shorter than spathe, sessile, 11.4–13.5 cm long; **female zone** shortly conical, ca. 5 mm long, ca. 7 mm in diameter, with five rows of congested pistils; **ovary** ca. 1.5 mm high, ca. 1 mm in diameter, translucent white, 1-locular with one basal ovule; **style** absent; **stigma** sessile, disciform, ca. 1 mm in diameter, red, papillate; **sterile interstice** above female zone ca. 2.3 cm long, ca. 0.2 cm in diameter, lower 0.3–0.4 cm covered with staminodes, upper part naked, white; **staminodes** sickle-shaped, laterally compressed, curved downwards, 6–9 mm long, ca. 2 mm in diameter, yellow, glabrous, slightly fused with their bases; **male zone** cylindrical, ca. 1.0 cm long, ca. 0.5 cm in diameter; **stamens** congested, orange; **appendix** stipitate brick



orange, narrowly elongate conical, 8.3–9.8 cm long, 0.5–0.6 cm in diameter above the stipe, base obliquely truncate, top acute, inside hollow; *stipe* ca. 3 mm long, obconical, pale orange. **Fruit** not seen.

Distribution and habitat: The species is currently only known in Lower Pein Pyit Village, Mogok Township of Pyin Oo Lwin District, Mandalay Region, Myanmar and grows under the shade of evergreen forest at elevations ca. 1400 m asl.

Phenology: Observed flowering in May and June.

Eponymy: The specific epithet is named after Mr. Aung Myint Win, a plant enthusiast who discovered and first collected this species.

Provisional conservation status: Since the species is only known from a cultivated material, the distribution area, population size and possible threats to the habitat of *Typhonium aungmyintwinii* are currently not known. Thus, it is herein provisionally considered as ‘Data Deficient’ (DD), following the Red List criteria of the IUCN Standards and Petitions Subcommittee (2019).

Taxonomic notes: Among Burmese *Typhonium* species, *Typhonium aungmyintwinii* is similar to *T. inopinatum* Prain (Fig. 2B). It differs significantly from the latter in having erect or slightly curved spathe limb at anthesis (vs. horizontally flexed spathe limb at anthesis), red stigma (vs. translucent white stigma) and laterally compressed sickle-shaped congested staminodes fused at their bases (vs. horizontally spread and slightly curved distant filiform staminodes).

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