



## *Mycetia arunachalensis* (Rubiaceae), a new species from the Eastern Himalaya, India

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**ABSTRACT:** A new species of *Mycetia* from the dense tropical forests of Siang Valley of Arunachal Pradesh is described and illustrated. It is allied to *Mycetia longifolia* (Wall.) Kuntze, in its shrubby habit, small elliptic to oblong stipules, and a tubular corolla of nearly the same length that is villous within, but differs in its caducous stipules, large bracts, congested thyrses, deeply lobed, puberulous and lanceolate calyx lobes and glabrous corolla. The species description is accompanied by photographs, and information is provided on aspects of its distribution, phenology, ecology, and similarity to other species.

**KEY WORDS:** Endemic, *Mycetia listerii*, *Mycetia longifolia*, *Mycetia nepalensis*, *Mycetia rodgeri*, *Mycetia stipulata* Taxonomy.

### INTRODUCTION

The genus *Mycetia* Reinw. (Rubiaceae) was first described by Blume with *Mycetia cauliflora* Reinw. as the type species (Blume, 1826). It comprises small, unarmed, often rather succulent shrubs to scandent or scrambling woody plants, primarily distributed across tropical and subtropical Asia from the Himalayan foothills and southern China to Southeast Asia and the Malesian region (Hooker, 1880; Puff *et al.*, 2005). Phylogenetically, *Mycetia* belongs to the subfamily Rubioideae, however, its precise tribal placement has been debated due to morphological distinctiveness (Razafimandimbison *et al.*, 2014). Recent molecular phylogenetic studies place *Mycetia* within a clade closely allied to *Psychotria* L., and include taxa formerly treated as *Myrioneuron* R.Br. ex Benth. & Hook.f. within *Mycetia*, supporting the recent taxonomic merger of the two genera (Ginter *et al.*, 2015; Wikström *et al.*, 2020).

Since then, regional treatments across Southeast Asia and China have added numerous species, with a total of 54 species (Puff *et al.*, 2005). In India, the genus is represented by eleven taxa viz. *Mycetia acuminata* (Wight) Kuntze, *M. stipulata* (Hook.f.) Kuntze subsp. *stipulata*, *M. stipulata* subsp. *macrostachya* (Hook.f.) Deb, *M. malayana* (G.Don) Craib, *M. mukerjiana* Deb & Ratna Dutta, *M. radicyflora* (C.B.Clarke) Airy Shaw, *M. listerii* Deb, *M. nepalensis* H.Hara, *M. javanica* (Blume) Reinw. ex Korth., *M. longifolia* (Wall.) Kuntze and *M. nutans* (R.Br. ex Kurz) Razafim. & B.Bremer, most of which are confined to the Eastern Himalayas and the Northeast states, with a few species extending into the

Western Ghats (Deb and Dutta, 1965; Karthikeyan *et al.*, 2009; Bora *et al.*, 2025). Herein, we provide a detailed taxonomic description of the new species, along with its present conservation status, supplemented by a photo-plate and location map for easy identification.

### MATERIALS AND METHODS

During a recent botanical exploration in the Shi Yomi district of Arunachal Pradesh, two of the authors (MK & AS) encountered two populations of *Mycetia* in late March–April 2025 that did not match any of the previously described Indian species. Fresh specimens were collected and processed following standard botanical procedures as outlined by Jain and Rao (1977). Morphological examinations and measurements were carried out on both freshly collected and herbarium-dried specimens. High-resolution photographs were taken in the field using a Nikon D5300 camera and Tamron 90 mm macro to document floral and vegetative characteristics. Detailed morphological analyses, supplemented by comparisons with digital type specimens housed at K, BM, E, CAL, KUN and literature (Deb and Dutta, 1965; Shaw, 1965; Deb, 1986; Karthikeyan *et al.*, 2009; Puff, 2010; Chen and Taylor, 2011; Das *et al.*, 2012; Uddin and Rahman, 2015; Villanueva *et al.*, 2016; Xu *et al.*, 2016; Yan *et al.*, 2016; Dela Bajan *et al.*, 2017; Kang *et al.*, 2017; Tandang *et al.*, 2019; Wong *et al.*, 2019; Chinh *et al.*, 2020; Bora *et al.*, 2025) confirmed that it represents an undescribed species. Herbarium acronyms follow Thiers (continuously updated). The distribution map was generated using QGIS version 3.28 (Open Source Geospatial

**Table 1.** Morphological comparison of *Mycetia arunachalensis* with closely related species.

Character	<i>M. arunachalensis</i>	<i>M. longifolia</i>	<i>M. nepalensis</i>	<i>M. rodgeri</i>	<i>M. stipulata</i>	<i>M. listeri</i>
<b>Leaves</b>	Oblong-elliptic	Elliptic-Lanceolate to oblanceolate	Elliptic, obovate, or ovate-elliptic	Lanceolate	Elliptic-lanceolate	Linear lanceolate, slightly falcate
<b>Stipules</b>	Elliptic-oblong, caducous	Oblong-lanceolate to ovate, often bifid at apex, persistent	Subovate to suborbicular, often bifid at apex	Broadly ovate, often bifid at apex	Foliaceous, broadly ovate to orbicular	Foliaceous, ovate-elliptic or lanceolate, caducous
<b>Inflorescence</b>	Terminal or axillary, congested	Terminal or sometimes pseudoaxillary, lax	Terminal, lax	Terminal, lax	Terminal	Terminal or axillary
<b>Bracts</b>	Elliptic-linear to lanceolate, 10–12 mm long, pubescent to glabrescent without colleters	Elliptic to ovate, 1–3 mm long, forming a rim-like structure with colleters	Lanceolate to triangular, 3–10 mm long, scabrous	Lanceolate, 1–3 mm long, pubescent	Linear to ovate, 10–15 mm long, whorled, pubescent or glabrous	Varying in size, forming a rim-like structure with colleters
<b>Calyx lobes</b>	Lanceolate, 3–4 mm long, puberulous	Triangular, 1.5–4 mm, glabrous, with 1 or 2 pairs of colleters on margins	Linear, 8–10 mm long, puberulent to hispidulous or glabrescent	Lanceolate, 2.7–4 mm long, puberulous	Oblong, 5–5.5 mm long, glabrous or pubescent	Linear-lanceolate, 2–3 mm long, with 1 or 2 pairs of colleters on margins
<b>Corolla</b>	Whitish-yellow, tubular; tube 14–15 mm long, glabrous outside, villous inside	Yellow, tubular; tube 10–14 mm long, glabrescent to puberulent outside, villous inside	Yellow, tubular; tube 8–12 mm long, glabrescent outside, villous inside	Tubular; tube 14–16.5 mm long, pubescent on both sides	Tubular; tube 2.5–3.0 mm long, pubescent on both sides	White, tubular; tube 6 mm long, pubescent inside

Foundation), with geo-referenced locality data obtained from field GPS (Garmin eTrex 32x). During the literature survey, we came across a photograph of the same species published in Flora of Kurung Kumey District, Arunachal Pradesh (Dash and Singh, 2017) as well as specimens deposited in ARUN, that was misidentified and labelled as *Pavetta indica* L. (plate 115c, page 160), thus also confirming presence of this species from Kurung Kumey district of Arunachal Pradesh. A detailed morphological description, diagnostic features, distribution, and photographic illustrations are provided herein. A comparative chart (Table 1) also has been provided for easy identification of this species.

## TAXONOMIC TREATMENT

*Mycetia arunachalensis* M. Khanal, D.Borah & D. Kumar, *sp. nov.* **Figs. 1–2**

**Type:** INDIA. Arunachal Pradesh: Shi-Yomi, Hone, 1113 m, 07 June 2025, *M. Khanal 2107* (holotype: CAL; isotype: ASSAM).

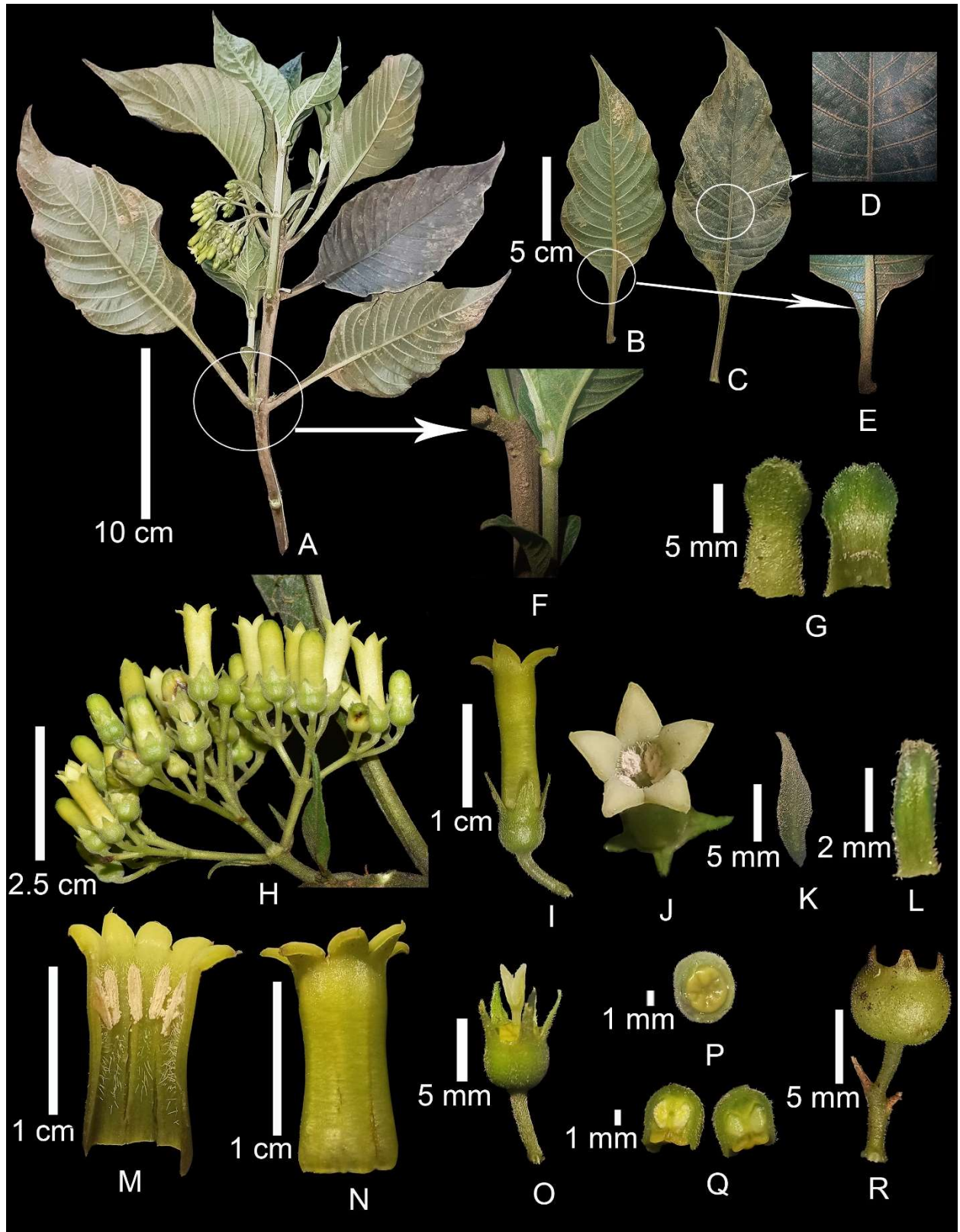
**Diagnosis:** *Mycetia arunachalensis* is similar to *M. longifolia* (Wall.) Kuntze, in its shrubby habit, small elliptic to oblong stipules, and a tubular corolla of nearly the same length that is villous within, but differs in its caducous stipules (vs persistent, often shortly 2-lobed), large bracts, 10–12 mm (vs 1–3 mm), congested thyrses (vs lax corymbose cymes), deeply lobed lanceolate calyx lobes, puberulous outside and glabrous inside, without colleters (vs shallowly lobed, triangular, glabrous, with 1–2 pairs of colleters), corolla glabrous outside (vs often villous outside).

**Description:** Perennial shrubs growing up to 2.5 m

tall. **Stems** green, densely pubescent when young; brown, sparsely to densely pubescent to glabrescent when old. **Stipules** 0.5–1.2 × 0.3–0.7 cm, caducous, green, elliptic to oblong, adaxially sparsely pubescent to glabrescent, abaxially densely pubescent, apex obtuse, margin ciliate, entire. **Leaves** opposite; lamina 10–20 × 6–9 cm, oblong-elliptic to lanceolate, base attenuate, apex acuminate, strigose on both surfaces, dense on veins, lateral nerves 16–20 pairs; petiole 4–6 cm long, densely pubescent. **Inflorescence** axillary or terminal, up to 5 cm long, congested thyrses with numerous flowers (30–60); peduncle 2.0–3.1 cm long, puberulent to villous; basal bracts 10–12 × 2–3 mm, lanceolate, pubescent on both surfaces; bracteole 4–6 × c. 1 mm, elliptic to linear, pubescent adaxially, glabrescent abaxially. **Flowers** including pedicel 2.8–3.2 cm long; pedicel 4–5 mm long, pubescent; calyx persistent, green, lobes 5, 0.3–0.4 × 0.1–0.15 cm, deeply lobed, lanceolate, puberulous outside, glabrous inside; corolla 1.4–1.5 cm long, whitish yellow, tubular; tube 1–1.2 cm long, glabrous outside, pubescent with long hairs inside; lobes 2–3 × 2–2.5 mm, ovate, glabrous inside, sparsely pubescent outside at apex; homostylous, stigma positioned c. 4 mm below the anthers. **Stamens** 5, sessile, situated 1 cm above the corolla base; anthers 0.2–0.3 × 0.05–0.1 mm, pale yellow to white, dehiscing longitudinally with a single slit. **Stigma** 3–4 mm long, white, bifid, glabrous; style short 1–1.5 mm long; hypanthium 3–4 × 3–4 mm, villous. **Fruits** 5–6 × 3–4 mm, subglobose, green, pubescent with a persistent calyx at the apex.

**Phenology:** Flowering was observed in June. Fruiting was only seen in August.

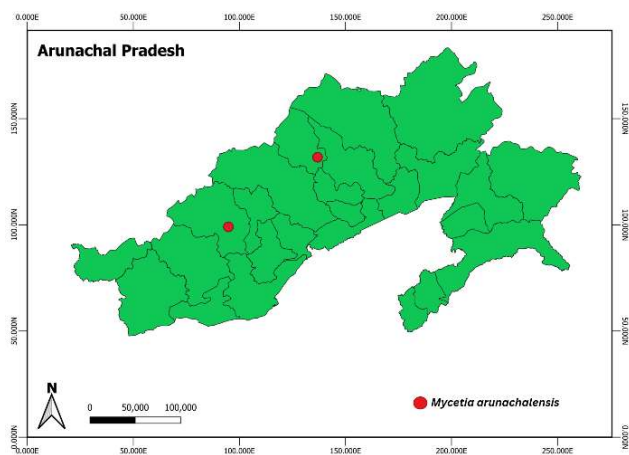
**Habitat:** The species mainly grows on forest edges.



**Fig. 1. *Mycetia arunachalensis*.** A. Flowering twig; B. Leaf-Abaxial view; C. Leaf-adaxial view; D-E. Close up of parts of leaves, showing indumentum; F. Indumentum of young and mature stem; G. Stipules; H. Inflorescence; I. Flower (side view); J. Flower (front view); K. Bract; L. Bracteole; M. Corolla (inner surface showing the anthers); N. Corolla (outer surface); O. Pistil; P. Transverse section of ovary; Q. Longitudinal sections of ovary; R. Fruit.



**Fig. 2.** *Mycetia arunachalensis*. A. Habit. B. Inflorescence. C. Infructescence.



**Fig. 3.** The distribution of *Mycetia arunachalensis* in Arunachal Pradesh, India

**Distribution and ecology:** So far known from Shi Yomi and Kurung Kumey districts of Arunachal Pradesh (likely endemic to Arunachal Pradesh, India). In Shi Yomi, the species was found growing on the edges of tropical evergreen forests near roadsides above 1000 m asl. Altogether 12 mature plants were observed. The botanically associated species were *Acmella oleracea* (L.) R.K.Jansen, *Stuednera assamica* Hook.f., *Mussaenda roxburghii* Hook.f., *Ophiorrhiza ripicola* Craib and *Impatiens arguta* Hook.f. & Thomson.

**Etymology:** The specific epithet “*arunachalensis*” is

chosen to honor the state of Arunachal Pradesh, a land of rich cultural heritage and exceptional biodiversity in northeastern India, where the species was first discovered.

**Vernacular Name:** *Arunachal Mycetia* (English); *Apum Appun Tangmge* (Tani tribes)

**Specimen examined:** INDIA. Arunachal Pradesh: Along Kurung river on way to Yangtey, *S.S. Dash 31014* (ARUN!); Palin to Amjee, *S.S. Dash 32808* (ARUN!)

**Conservation Status:** *Mycetia arunachalensis* is currently known from only two localities (type locality and an untraced locality from Kurung Kumey district) in Arunachal Pradesh, each supporting very few individuals. Given the extensive tracts of intact forest between these sites, the inaccessibility of many areas to further surveys, and our recent findings of several other plant species occurring beyond their type localities, it is plausible that additional populations may be discovered with further exploration. Accordingly, we provisionally categorize *Mycetia arunachalensis* as Data Deficient (DD) under the IUCN guidelines (IUCN, 2024).

## CONCLUSION

*Mycetia arunachalensis* is grouped in the species characterized by terminal to axillary inflorescences and a long corolla tube. The allied species sharing this character found in India include *M. longifolia*, *M. nepalensis*, *M. listeri*, *M. rodgeri*, and *M. stipulata*. A comparative table is provided below for all these allied species (Table 1). Based on the presently available material, the species appears to be homostylous; however, further sampling across additional populations may yet reveal heterostyly, and the floral biology should therefore be considered provisional pending broader field-based observations.

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