



Mycetia assamica (Rubiaceae), a new species from Assam, Northeast India

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ABSTRACT: *Mycetia assamica* D.Borah, N.Das & Dixit is described as a new species from Assam, India. It closely resembles *M. malayana* (G.Don) Craib in its lanceolate pubescent stipules, slightly anisophyllous oblanceolate to elliptic-lanceolate leaves, and urceolate corolla, but differs in its deciduous larger stipules, terminal to axillary and longer cymes, larger bracts, entire calyx lobes lacking colleters, longer urceolate corolla tube, finely pubescent externally and pilose in the throat, longer style and a pubescent hypanthium. The species description is accompanied by illustrations and photographs, and information is provided on aspects of its distribution, phenology, ecology, and similarity to other species.

KEY WORDS: Assam, *Mycetia javanica*, *Mycetia longifolia*, *Mycetia malayana*, *Mycetia sinensis*, new species, Northeast India.

INTRODUCTION

The genus *Mycetia* Reinw. (Rubiaceae) comprises about 54 species distributed from southern China through tropical Asia to the northwestern Pacific (Chen and Taylor, 2011; Dela Bajan *et al.*, 2017; POWO, 2025). Diagnostic characters of the genus include bisexual flowers (yellow to white), two-locular ovaries with numerous ovules, berry-like fruits that turn white upon maturity, and persistent calyx lobes (Tandang *et al.*, 2019; Bora *et al.*, 2025). Although several regional studies on *Mycetia* have been conducted, a comprehensive global revision of the genus remains lacking.

For more than a century, its phylogenetic placement within Rubiaceae has been debated. Earlier authors such as Hooker (1872–1897), Schumann (1891), Robbrecht (1988), and Lo (1999) placed it within the tribe Isertieae (subfamily Cinchonoideae), whereas Verdcourt (1958) and Bremekamp (1966) assigned it to the tribe Hedyotideae (subfamily Rubioideae). Molecular evidence has since clarified its position within the tribe Argostemmatae of Rubioideae (Ginter *et al.*, 2015; Xu *et al.*, 2025). Recent phylogenetic studies (Ginter *et al.*, 2015; Razafimandimbison and Rydin, 2024) support *Mycetia* sensu lato as a monophyletic genus, following the inclusion of *Myrioneuron*, and recover it as a well-supported lineage within Argostemmatae, clearly distinct from other genera of the Spermaceae alliance.

In India, the genus is represented by 12 taxa, viz. *M. acuminata* (Wight) Kuntze, *M. arunachalensis* M. Khanal, D.Borah & D. Kumar, *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. radicliflora* (C.B.Clarke) Airy Shaw, *M. listeri* 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; Deb, 1986; Bora *et al.*, 2025; Khanal *et al.*, 2026). In Assam, five species of *Mycetia* have been recorded to date (Kanjilal *et al.*, 1939; Deb and Dutta, 1965).

During a floristic exploration in the moist semi-evergreen forest patches of Garbhanga Reserve Forest, Kamrup district, Assam, near the Assam–Meghalaya boundary, the authors collected an unidentified species of *Mycetia* in flowering condition. Examination of relevant literature (e.g., Deb and Dutta, 1965; Deb, 1986; Lo, 1999; Chen and Taylor, 2011; Hooker, 1872–1897; Puff, 2010; Xu *et al.*, 2016; Villanueva *et al.*, 2016; Yan *et al.*, 2016; Dela Bajan *et al.*, 2017; Chinh *et al.*, 2020; Bora *et al.*, 2025), GBIF records/images and specimens from other herbaria at CAL, ASSAM, ARUN, K, E, P, and other herbaria revealed that the specimen did not correspond to any previously described species of *Mycetia*. Hence, it is recognized as a species new to science and is described here for the first time. A detailed morphological comparison with allied species and a description are provided. The type specimens were prepared following standard herbarium techniques (Jain and Rao, 1977) and deposited at CAL and ASSAM.



TAXONOMIC TREATMENT

Mycetia assamica D.Borah, Niku Das & Dix.Bora, *sp. nov.* **Fig.1**

Type: INDIA. Assam, Kamrup, Garbhanga RF, 26°03'24.6" N, 91°43'30.2" E, 246 m a.s.l., 8 June 2025, Niku Das 2597 (holotype CAL!, isotype ASSAM!).

Diagnosis: *Mycetia assamica* D.Borah, N.Das & Dixit differs from *Mycetia malayana* (G.Don) Craib in having deciduous stipules, 5–14 mm long (vs. persistent, 4–6 mm long); terminal to axillary cymes (vs. terminal to sub-terminal); 5–10 mm long bracts (vs. 3–4 mm long); calyx lobes with entire margins, lacking colleters (vs. margin beset with colleters); corolla tubes that are 3–5 mm long, with fine pubescence on the collar outside (vs. 2–3 mm long, glabrous), and pilose in the throat (vs. glabrous); 0.5–1.5 mm long styles (vs. 0.3–0.4 mm); hypanthia densely covered with fine erect pubescence (vs. hypanthia glabrous).

Description: Woody subshrubs to shrubs, 50–120 cm tall, branched. Young stems green, pubescent; mature stems white, glabrous. **Stipules** ovate to oblanceolate to lanceolate, 0.5–1.4 × 0.3–0.5 cm, apex acute to attenuate, 1–4 lobed, glabrous adaxially, pubescent abaxially. **Leaves** slightly anisophyllous; petiole 1.5–3.0 × 0.1–0.3 cm, pubescent; lamina ovate to oblanceolate to slightly elliptic, 10–33 × 6–14 cm, base attenuate to slightly cuneate, gradually narrowed to the base, apex acute to attenuate, margin entire to slightly repand, finely pubescent on both surfaces, denser along veins, dark green; lateral veins 12–17 pairs. **Inflorescences** cymous, many-branched, composed of cincinnate units, terminal to axillary, 7.5–13.5 cm long, many-flowered, 9–12 lateral branches per inflorescence; peduncle 1.5–3 cm long; bracts linear-lanceolate, 5–10 × 1–2 mm, pubescent adaxially, glabrous abaxially; bracteoles 1.0–1.5 × c. 0.5 mm, pubescent adaxially, glabrous abaxially. **Flowers** 0.9–1.2 cm long; pedicel 2.0–3.0 × c. 0.5–0.8 mm, slender; calyx 5 lobed, lobes ovate to triangular, 2.0–2.5 × 1.0–1.5 mm, apex attenuate to acute, margin entire, finely pubescent adaxially, densely pubescent abaxially, colleters absent; corolla 5-lobed, lobes acute to attenuate, 1–2 × 1–2 mm, pilose abaxially, adaxially glabrous; corolla tube 3–5 × 1–2 mm, with fine pubescence in the throat, otherwise glabrous, swollen near the base. **Stamens** sessile, inserted near below the neck of the tube, anthers 5(6), linear-lanceolate in shape, 0.5–1 mm, pilose, dehiscing longitudinally. **Ovary** 2-locular; hypanthium 2–3 mm × 1–2 mm, pilose; carpel 0.2–0.3 cm long; style 0.5–1.5 mm long; stigma bifid, 0.1–0.3 cm long. **Fruits** not seen.

Distribution and habitat: Only known from Garbhanga R.F., Kamrup district, Assam, India near the Assam–Meghalaya boundary (Fig. 2). The species occurs within the moist semi-evergreen forest patches of Garbhanga Reserved Forest, near annual forest stream

with a total of 17 individuals. It was growing in association with *Mussaenda roxburghii* Hook.f., *Saurauia roxburghii* Wall., *Begonia roxburghii* (Miq.) A.DC., *Strobilanthes hamiltoniana* (Steud.) Bosser & Heine, *Rhynchotechum ellipticum* (Wall. ex D.Dietr.) A.DC., *Amischotolype hookeri* (Hassk.) H.Hara, *Floscopa scandens* Lour., *Parabaena sagittata* Miers ex Hook.f. & Thomson, *Tetracera sarmentosa* (L.) Vahl, *Boesenbergia* sp., *Dracaena* sp., *Steudnera* sp., *Elatostema* sp., *Piper* sp., and several other grass species.

Phenology: Flowering occurs between May to June, and fruiting not observed.

Etymology: The specific epithet *assamica* is chosen to honor the rich biogeographical and floristic heritage of Assam, the region from which this species was first discovered and where it finds its natural home.

Preliminary conservation assessment: Only preliminary observations of *Mycetia assamica* populations have been made. Until more extensive surveys are conducted to determine the full extent of its distribution and population size, the species should be classified as Data Deficient (DD) as per IUCN (2019). At present, five populations have been recorded, each comprising approximately 3–4 individuals within an area of about 500–800 meters. However, similar habitats occur throughout the reserve forest, many of which remain largely inaccessible, as well as in adjoining regions of Assam and Meghalaya, where the species may also be present.

Additional specimens examined (paratype): INDIA. Assam: Kamrup, Garbhanga RF, 25°58'24.2" N, 91°42'18.3" E, 267 m a.s.l., 20 June 2025, Niku Das 2561 (TOSEHIM).

Notes: *Mycetia assamica* is morphologically most similar to *M. malayana*, sharing lanceolate, pubescent stipules, slightly anisophyllous leaves, and an urceolate corolla, but differs in having deciduous and longer stipules, terminal to axillary cymes, larger bracts, calyx lobes with entire margins lacking colleters, a longer corolla tube with pubescence at the collar and a pilose throat (vs. entirely glabrous), longer styles, and a densely pubescent hypanthium (vs. glabrous). It is also similar to *M. javanica* and *M. sinensis*, for which a comparison table is provided below (Table 1). It resembles *M. javanica* in its leaf form and pubescence, but differs in its more branched terminal to axillary inflorescences (vs. terminal, panicle hardly longer than the petiole), and eglandular bracts (vs. glandular). From *M. sinensis*, it shares a generally similar leaf shape, but is distinguished by its larger leaves, consistently pubescent vegetative parts, branched inflorescences (vs. laxly cymose), and pubescent hypanthium (vs. glabrous). It further differs from *M. longifolia* by its shorter corolla tube, finely pubescent (not hirtellous to strigillose) stems, and distinct inflorescence architecture. With the inclusion of *M. assamica*, the genus is now represented by 13 taxa in India.

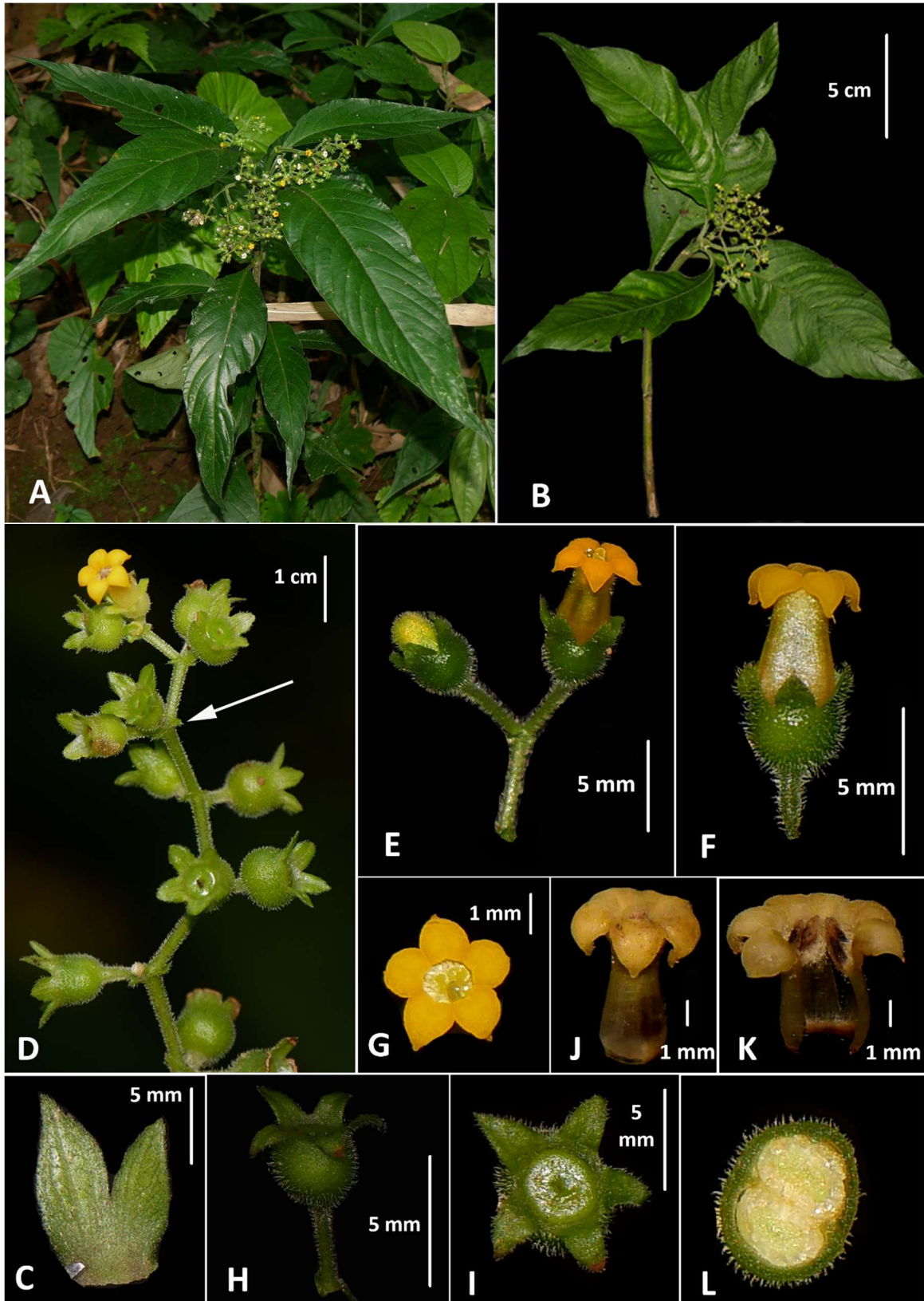


Fig. 1. *Mycetia assamica*. **A.** Habit; **B.** Flowering branch; **C.** Stipule; **D.** A cincinnus, single branch of a cyme (arrow showing the minute bracts); **E.** Paired flowers showing an unopened bud; **F.** Complete flower; **G.** Front view of a flower; **H.** Calyx and ovary; **I.** Calyx lobes; **J.** Side view of corolla; **K.** Split corolla showing stamens and pilose throat; **L.** Transverse section of ovary.

**Table 1.** Comparative table between *Mycetia assamica* and its allied species.

Characters	<i>M. assamica</i>	<i>M. javanica</i>	<i>M. malayana</i>	<i>M. longifolia</i>	<i>M. sinensis</i>
Habit	Woody shrubs, 50–120 cm tall, branched	Undershrubs, about 60 cm tall	Shrubs or treelets, up to 1 m tall	Shrubs, 1–2 m tall	Shrubs or subshrubs, 0.2–0.5 (– 1) m tall
Stem	Mature stem bark white, glabrous young stems green, pubescent	Bark white	Mature stem bark white, glabrous, young stems green, pubescent	Bark yellow spongy covered with a shiny white soft epidermis, later woody part remain naked, villous	Densely hirtellous or strigillose to glabrous
Leaf	Puberulous to slightly strigose both side	Sparsely pubescent above, sparsely rather densely pubescent beneath, more or so on nerves, anisophyllous or not	Hairs on the nerves beneath, slightly anisophyllous	Adaxially sparsely strigillose, hispidulous, or glabrous, abaxially sparsely to densely puberulent or hirtellous to glabrescent	Hispid to glabrous
Lamina Shape	Ovate to oblanceolate to slightly elliptic	Elliptic-lanceolate or obovate, acute or acuminate at apex, narrowed at base, slightly decurrent along petiole	Oblanceolate to elliptic-lanceolate, gradually narrowed at base, apex acuminate	Elliptic-lanceolate or elliptic	Oblong-lanceolate to elliptic-oblong, ovate or elliptic
Lamina size	10–33 × 6–14 cm	20–30 × 5–12 cm	8–39 × 2.5–9.5 cm	5–35 × 3–10 cm	8–20 × 3–5 cm
Inflorescence	Terminal to axillary, many branched	Terminal, panicle hardly longer than the petiole	Terminal, many branched, many flowered	Terminal or sometimes pseudoaxillary	Terminal, laxly cymose, glabrous
Bracts	Linear to lanceolate, pubescent adaxially	ciliate with stalked capitate or ovoid glands	Linear, minute with colleters on the margin	Elliptic to ovate	Elliptic, obovate, reniform or stipuliform, sometimes fused in pairs, marginally entire to stipitate glands
Bracts size	5–10 × 1–2 mm	Data not available	3–4 mm long	1–3 mm	1–3 mm
Calyx	Ovate to triangular like, apex attenuate to acute, margin entire, pubescent adaxially	Triangular, short, stalked ovoid or capitate glands	Triangular, margin beset with stalked colleters	with 1 or 2 pairs of stipitate glands on margins, glabrous	Lanceolate, spatulate or triangular, with 1–3 pairs of stipitate gland, glabrous
Calyx size	2–2.5 × 1–1.5 mm	Data not available	ca. 2 mm long	1.5–4 mm	1–2 mm long
Corolla lobes	Corolla yellow to white, 5-lobed, lobes acute to attenuate, pilose abaxially	Corolla yellow, Oblong, glabrous	Corolla yellow sometimes white, lobes triangular, shortly pilose on both surfaces	Corolla yellow, lobes broadly ovate	Corolla white, Ovate
Corolla lobe size	1–2 × 1–2 mm	3–4 mm	1.0–1.2 mm long	1–1.5 mm	1.5–2 mm long
Corolla tube	Slightly swollen near the base, glabrous	Short hairs outside	Urceolate, green, glabrous on both surfaces	Tubular outside glabrous to villosulous, villous inside	Outside glabrous; inside apparently glabrous
Corolla tube length	3–5 mm	4–6 mm	2–3 mm	10–14 mm	5–7 mm
Locules	2	2	2	2 (rarely 3)	Data not available
Reference	Present study	Deb, 1986	Ridley, 1923; Wong et al., 2019; Bora et al., 2025	Deb, 1986	Uddin & Rahman, 2015; Eflora China, 2025

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LITERATURE CITED

- Bora, D., Borah, D., Datta, B.K.** 2025 *Mycetia malayana* (G. Don) Craib (Rubiaceae), a new record for the flora of India from Tripura. Feddes Repert. **136(4)**: 341–345.
- Chen, T., Taylor, C.** 2011 *Mycetia* Reinwardt. In: Wu, Z.-Y., Raven, P.H. (eds.), Flora China, **19**: 242–247. Science Press & Missouri Botanical Garden Press.
- Chinh, V.T., Binh, N.Q., Hai, V.T.** 2020 *Mycetia hirta* Hutch. (Rubiaceae), a new record for the flora of Vietnam. Vietnam J. Sci. Technol. Eng. **62(3)**: 68–69.
- Deb, D.B., Dutta, R.** 1965 A new species of *Mycetia* Reinw. from Assam. Indian For. **91**: 272–274.



- Deb, D.B.** 1986 Taxonomic revision of *Mycetia* Reinw. (Rubiaceae) in the Indian subcontinent. *Nelumbo* **28**: 114–132.
- Dela Bajan, U.P. Jr., Ordas, J.A.D., Tandang, D.N., Alejandro, G.J.D.** 2017 *Mycetia dagohoyana*, a new species of Argostemmatae (Rubiaceae) from Agusan del Norte, Philippines. *Phytotaxa* **292**: 91–96.
- Ginter, A., Razafimandimbison, S.G., Bremer, B.** 2015 Phylogenetic affinities of Myrioneuron and Cyanoneuron, generic limits of the tribe Argostemmatae and description of a new Asian tribe, *Cyanoneuroneae* (Rubiaceae). *Taxon* **64**(2): 286–298.
- Hooker, J.D.** 1872–1897 The flora of British India. Vols. 1–7. Reeve & Co., London.
- IUCN** 2019 Guidelines for Using the IUCN Red List Categories and Criteria, version 14. Standards and Petitions Committee, Gland.
- Jain, S.K., Rao, R.R.** 1977 A Handbook of Field and Herbarium Methods. Today & Tomorrow's Printers and Publishers, New Delhi.
- Kanjilal, U. N., Kanjilal, P. C., Das, A.** 1939 Flora of Assam. Vol. 3. Assam Government Press, Shillong.
- Khanal, M., Borah, D., Sharma, A., Sarkar, S., Kumar, D.** 2026 *Mycetia arunachalensis* (Rubiaceae), a new species from the eastern Himalaya, India. *Taiwania* **71**(2): 314–318.
- Lo, H.-S.** 1999 *Mycetia* Reinw. In: Lo, H.-S. (ed.), *Flora Reipubl. Popul. Sin.*, 313–326. Science Press, Beijing.
- POWO (Plants of the World Online)** 2025 Facilitated by the Royal Botanic Gardens, Kew. Available at: <https://powo.science.kew.org/> (accessed 15 October 2025).
- Puff, C.** 2010 *Mycetia* (Rubiaceae) from Khao Soi Dao, Chanthaburi Province, SE Thailand: the discovery of a remarkable new species and the true identity of a supposedly endemic species. *Thai Forest Bull., Bot.* **38**: 173–178.
- Razafimandimbison, S.G., Rydin, C.** 2024 Phylogeny and classification of the coffee family (Rubiaceae, Gentianales): overview and outlook. *Taxon* **73**(6): 673–717.
- Ridley, H.N.** 1923 The flora of the Malay Peninsula. Vol. 2. L. Reeve & Co. Ltd., London.
- Tandang, D.N., Ordas, J.A.D., Tadiosa, E.R., Banag-Moran, C.I., Alejandro, G.J.D.** 2019 *Mycetia suedixieana* (Rubiaceae), a new species of Argostemmatae endemic to the Philippines. *Syst. Bot.* **44**(2): 371–377.
- Villanueva, J.C.C., Callanta Jr., R.S., Neptuno, J.A.F., Verin, M.A., Bangcaya, P.S., Cabelin, V.L.D., Alejandro, G.J.D.** 2016 Molecular confirmation and taxonomy of the rubiaceous *Mycetia apoensis* (Elmer) Govaerts. *Acta Manilana* **64**: 17.
- Uddin, S.N., Rahman, N.** 2015 Notes on occurrence of the genus *Mycetia Reinwardt* (Rubiaceae) in Bangladesh. *Bull. Bangladesh Natl. Herb.* **4**: 103–110.
- Wong, K.M., Turner, I.M., Wang, R.J., Harwood, R., Seah, W.W., Ng, X.Y., Lim, R.C.J., Lua, H.K., Mahyuni, R.** 2019 Rubiaceae. In: Middleton, D.J., Leong-Škorničková, J., Lindsay, S. (eds.), *Flora*. Singapore, **13**: 1–358. Singapore Botanic Gardens, Singapore.
- Xu, D., Razafimandimbison, S., Song, Z.** 2016 *Mycetia griffithii*, a new name for *Mycetia angustifolia* (Hook. f.) Razafim. & B. Bremer (Rubiaceae). *Phytotaxa* **252**(3): 231–232.
- Xu, D., Zhang, L., Zhang, C., Song, L., Qian, W., Luo, H., Zhao, Q.** 2025 Comparative analysis and characterization of plastid genomes of *Mycetia* (Rubiaceae). *Genes* **16**(12): 1481.
- Yan, K., Xu, D., Song, Z.** 2016 *Mycetia fangii* (Rubiaceae), a new species from South China, with notes on *M. cauliflora*. *Syst. Bot.* **41**(1): 229–237.

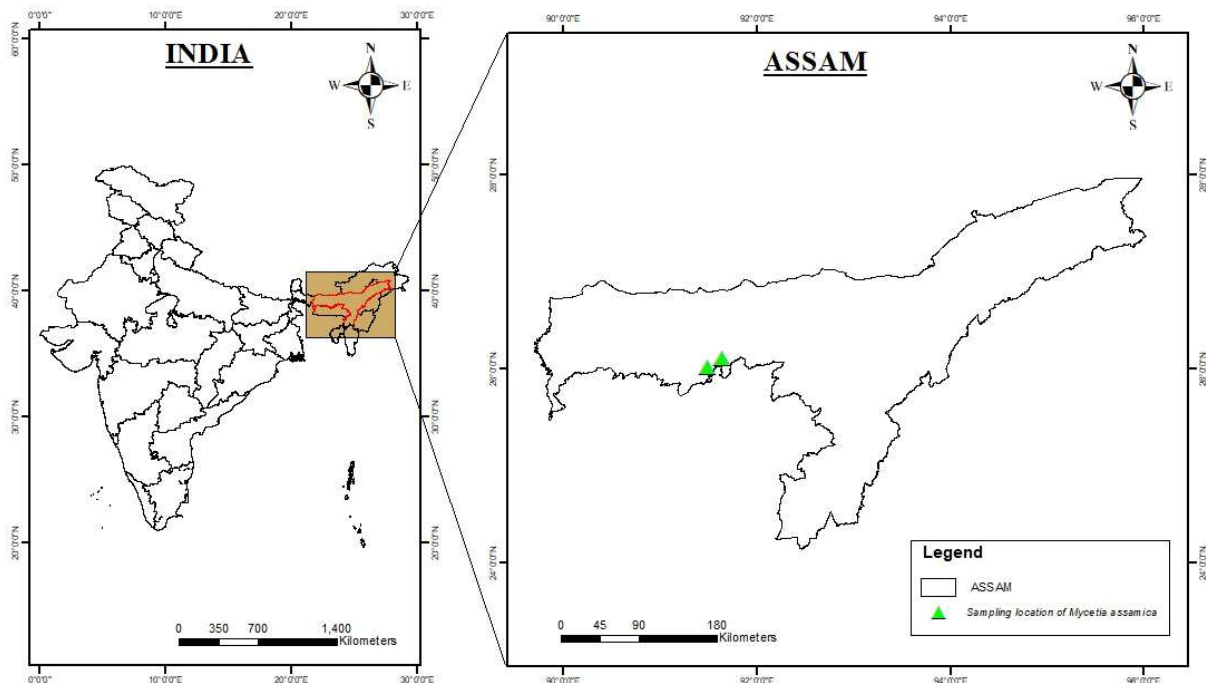


Fig. 2. Map showing the distribution of *Mycetia assamica*.