



Aeschynanthus luteoflorus (Gesneriaceae), a new species from Kalimantan, Indonesia

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ABSTRACT: *Aeschynanthus luteoflorus* (Gesneriaceae) is here described as a new species from Kalimantan, Indonesia, adding to the diversity of *Aeschynanthus* in Borneo. The species is morphologically similar in its inflorescence to *A. dasycalyx* Hallier f. but distinguished by elliptic, sometimes oblong leaves, ovate-elliptic bracteoles, and a tubular-cupuliform calyx that is brown to bright greenish-yellow. It further differs in having a bright greenish-yellow and longer corolla. The new species is also distinct from *A. flavidus* Mendum & P. Woods by its elliptic, sometimes oblong leaves, tubular-cupuliform calyx, and markedly shorter corolla, which is approximately 1.5 times the calyx length. Notes on distribution, ecology, conservation status, and comparative illustrations are provided.

KEY WORDS: *Aeschynanthus dasycalyx*, *Aeschynanthus flavidus*, Borneo, Gesneriaceae, Lipstick flower, *Xanthanthos*.

INTRODUCTION

Aeschynanthus Jack (1823), commonly known as lipstick flowers, is a widely popular ornamental plant. This genus, part of the Gesneriaceae family, comprises 182 species distributed from Sri Lanka and India, across southern China and Southeast Asia, to New Guinea and the Solomon Islands (Mendum *et al.*, 2001; Middleton, 2007, 2016; GRC, 2026) reported that this genus is widely distributed, yet exhibits high endemism at the species level. This genus is easily recognized by the combination of four stamens; Plants usually epiphytic, infrequently lithophytic, rooting at nodes only; leaves leathery-fleshy, with a several-layered hypodermis on lower leaf side, lateral veins invisible (Weber *et al.*, 2020). Accounting for 55 species, Indonesia possesses 30% of the global lipstick plant diversity (Mustaqim *et al.*, 2021).

Borneo alone contains 25 species, 14 of which are present in Kalimantan, Indonesian Borneo (Merrill, 1921; Mustaqim *et al.*, 2021; Wong, 2023; POWO, 2025; GRC, 2026). Mendum (1999) estimates Borneo hosts at least 30 *Aeschynanthus* species, noting that over half of them belong to the section *Aeschynanthus*. The classification of species at the sectional level is currently based on seed and seed appendage characteristics, which are further divided into seven sections (Mendum *et al.*, 2001). Despite its high potential for diversity, research in Indonesian Borneo remains significantly less extensive than in China, Mainland Southeast Asia, or neighboring Sundaic islands like Sumatra and Sulawesi (Turner, 1995; Kress *et al.*, 2003; Mendum and Atkins, 2004; Middleton, 2007, 2009; Tjitrosoedirdjo *et al.*, 2009; Bhattacharyya and Goel, 2014; Middleton, 2016).

From 2022 to 2024, our floristic exploration in

Kalimantan led to the discovery of a species with strikingly yellow flowers. This coloration is notably uncommon within the genus, as Denduangboripant *et al.* (2001) stated that Southeast Asian species generally exhibit red or orange hues. *Aeschynanthus flavidus* is the only species in Borneo known to possess an entirely yellow inflorescence (Mendum and Woods, 1997). Other Malesian species, such as *A. angustifolius*, *A. dischidioides*, *A. longicaulis*, and *A. speciosus*, typically exhibit corollas with a combination of yellow, lime green, and red (Middleton, 2016). Beyond Borneo, similar yellow-colored inflorescences occur in *A. batesii* from Sulawesi and *A. chrysanthus* from Sumatra (Woods, 1991; Mendum, 2004). Recognizing the scarcity of research on this taxon in Kalimantan, we undertook a comprehensive assessment of existing species throughout Borneo. Our findings confirmed that the specimens collected from various Kalimantan locations possess characteristics distinct from any previously recorded species.

MATERIALS AND METHODS

Specimens were collected during field observations from 2022 to 2024 in South, East and West Kalimantan provinces (Fig. S1). Morphological studies compared fresh, dried, and 70% alcohol-preserved specimens deposited at WAN, BO, and UIDEP. These specimens were compared with species known from Indonesian, Borneo, using the Gesneriaceae Resource Centre (GRC, 2026) database, Plants of the World Online (POWO, 2025) and the Digital Flora of Indonesia (Mustaqim *et al.*, 2021). Protologues of species from Indonesian Borneo, and digital herbarium records deposited at E, K, BM, and SING (following Thiers, 2021, continuously updated)

**Table 1.** Detailed morphological comparison of *Aeschynanthus luteoflorus* sp. nov. and its allies.

Characters	<i>A. luteoflorus</i>	<i>A. dasycalyx</i>	<i>A. flavidus</i>
Plant			
Stem	Scandent to Pendent	Hanging or creeping	Decumbent or hanging
Internodes Length (cm)	3.5–8	> 8	9.5
Leaves			
Petiole (cm)	0.4–1	0.5	0.5–1
Lamina Shape	Elliptic, sometimes oblong	Ovate	Narrowly-broadly elliptic
Length (cm)	2–6	>5	4.5–8.8
Width (cm)	1–3	2.5–2.7	2–4
Inflorescence	1–6 flowers per cluster	1–3 flowers per cluster	8 flowers per cluster
Bracteole			
Shape	Ovate-elliptic	Linear-lanceolate	Ovate
Length (cm)	0.2–0.3	ca. 0.4	ca. 1.1
Calyx			
Shape	Tubular-cupuliform	Ovate-subcylindrical (suburceolate)	Tubular or infundibuliform
Length (cm)	1.2–2	ca. 1.2	1.5–2.7
Width (cm)	0.7–1	ca. 0.7	ca. 3.5
Outer Surface	Translucent glandular hairs	Grayish hair	White 0.1–0.2 cm glandular hairs and scattered minute sessile glands
Lobes & Apex	5 & Acute-obtuse	5 & Acute	5 & Rounded
Colour	Somewhat brown to bright greenish yellow	Shiny blackish-blue	Greenish yellow
Corolla			
Length (cm)	2.3–2.5	1.8–2	5.5–6.3
Upper Lobes Shape	Bilobed at the apex, imbricate not spreading	Ovate	Bifid
Colorations	Bright greenish yellow	Vivid red	Bright yellow
Stamens			
Condition	Inserted	Exserted	Inserted
Length (cm)	ca. 2	-	ca. 4
Pistil			
Length (cm)	1–2	-	1.2–1.4
Ovary	Glabrous, pale yellow	-	Sparse sessile gland, pale yellowish green
Diameter of Stigma (cm)	ca. 0.1	-	ca. 0.3
Reference	-	Hallier (1897)	Mendum & Wood (1997)

were accessed via the JSTOR Global Plant (2026) and Global Biodiversity Information Facility (GBIF, 2024). Microphotography was performed using a Nikon D5600 with AF-P 18-55 mm VR and Micro AFS 60 mm f/2.8G ED Nano Lenses. Images were processed with Adobe® Photoshop CS6. Beentje (2016) served as the primary guide for morphological terminology. Regional conservation status was assessed using the IUCN Red List Categories and Criteria (IUCN, 2024).

TAXONOMIC TREATMENT

Aeschynanthus luteoflorus Zainudin, Idris & Yudistira, *sp. nov.* **Fig. 1 & 2**

Type: Indonesia, East Kalimantan, Paser, Muara Komam, Langun, Mt. Bentol, Sarempakang Complex, Northern Meratus Mountain, 1°44'29.4"S 115°42'55.7"E, 396 m, 09 July 2024, *Zainudin ZBA301090724* (Holo: WAN!; Iso: BO!).

Diagnosis: *A. luteoflorus* is similar to *A. dasycalyx* Hallier f., but differs in having elliptic, sometimes oblong

leaves (*vs.* ovate); ovate-elliptic bracteoles (*vs.* linear-lanceolate); and a tubular-cupuliform calyx (*vs.* ovate-subcylindrical to sub-urceolate) that is brown to bright greenish yellow (*vs.* shiny blackish blue). Furthermore, it possesses a longer corolla (2.3–2.5 cm *vs.* 1.8–2 cm), that is bright greenish yellow (*vs.* vivid red). *A. luteoflorus* also differs from *A. flavidus* Mendum & P.Woods, another yellow-flowered species from Borneo, by its elliptic, sometimes oblong leaves (*vs.* narrowly to broadly elliptic), tubular-cupuliform calyx (*vs.* tubular to infundibuliform), and a significantly shorter corolla (2.3–2.5 cm *vs.* 5.5–6.3 cm) that is approximately 1.5 times the calyx length (*vs.* >2 times) (Table 1).

Description: Scandent to pendent epiphytic shrub. **Stems** slender, woody, terete, glabrous, smooth brown bark, dark green to green yellowish, young stem purple, can grow until *ca.* ≥200 cm, 1–2 mm in diameter; prominent leaf scars, swollen at the nodes with 3.5–8 cm internodes; frequently long slender brown roots at the node of the stem. **Leaves** opposite, equal; petiole thick, terete, curved, glabrous, short purple tinge, 0.4–1 cm long, *ca.* 2

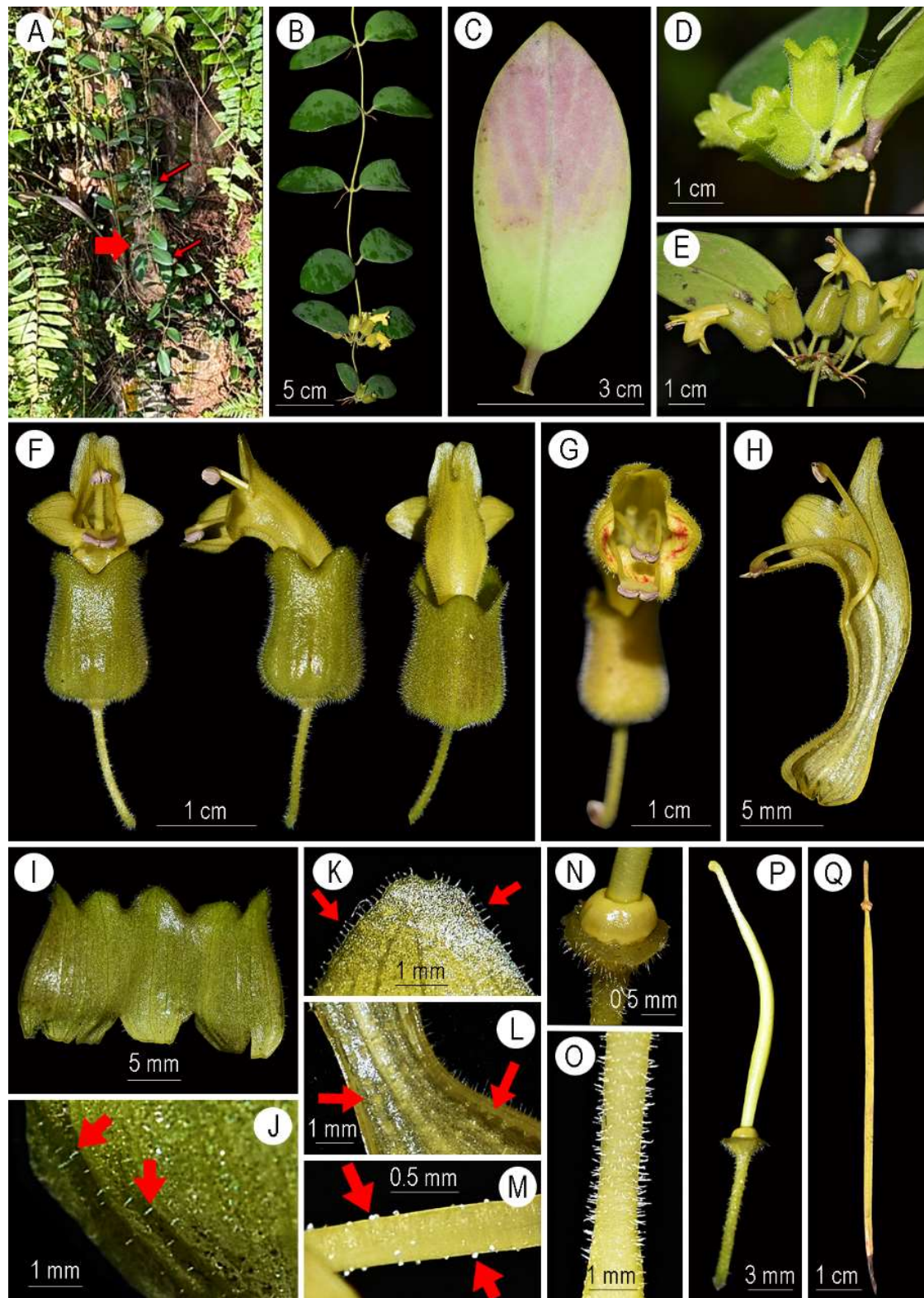


Fig. 1. *Aeschynanthus luteoflorus* Zainudin, Idris & Yudistira, sp. nov.; **A.** Plant habit; **B.** Stem with Inflorescences; **C.** Abaxial side of leaf; **D.** to **E.** Inflorescences at different stages of development; **F.** Close-up mature flower (front, lateral, and back view); **G.** Corolla with rare red coloration; **H.** Longitudinal corolla section; **I.** Dissection of calyx (inner surface); **J.** Close up inner surface of calyx; **K.** Corolla lobes margin; **L.** Close up inner surface of corolla tube; **M.** Sparsely papillose scabrid filaments; **N.** Disk; **O.** The close-up part of pistil showing glandular hairs under stigma; **P.** Pistil; **Q.** Capsule. Photos taken by Zainudin, based on Zainudin ZBA301090724 and Zainudin ZBA302250622.

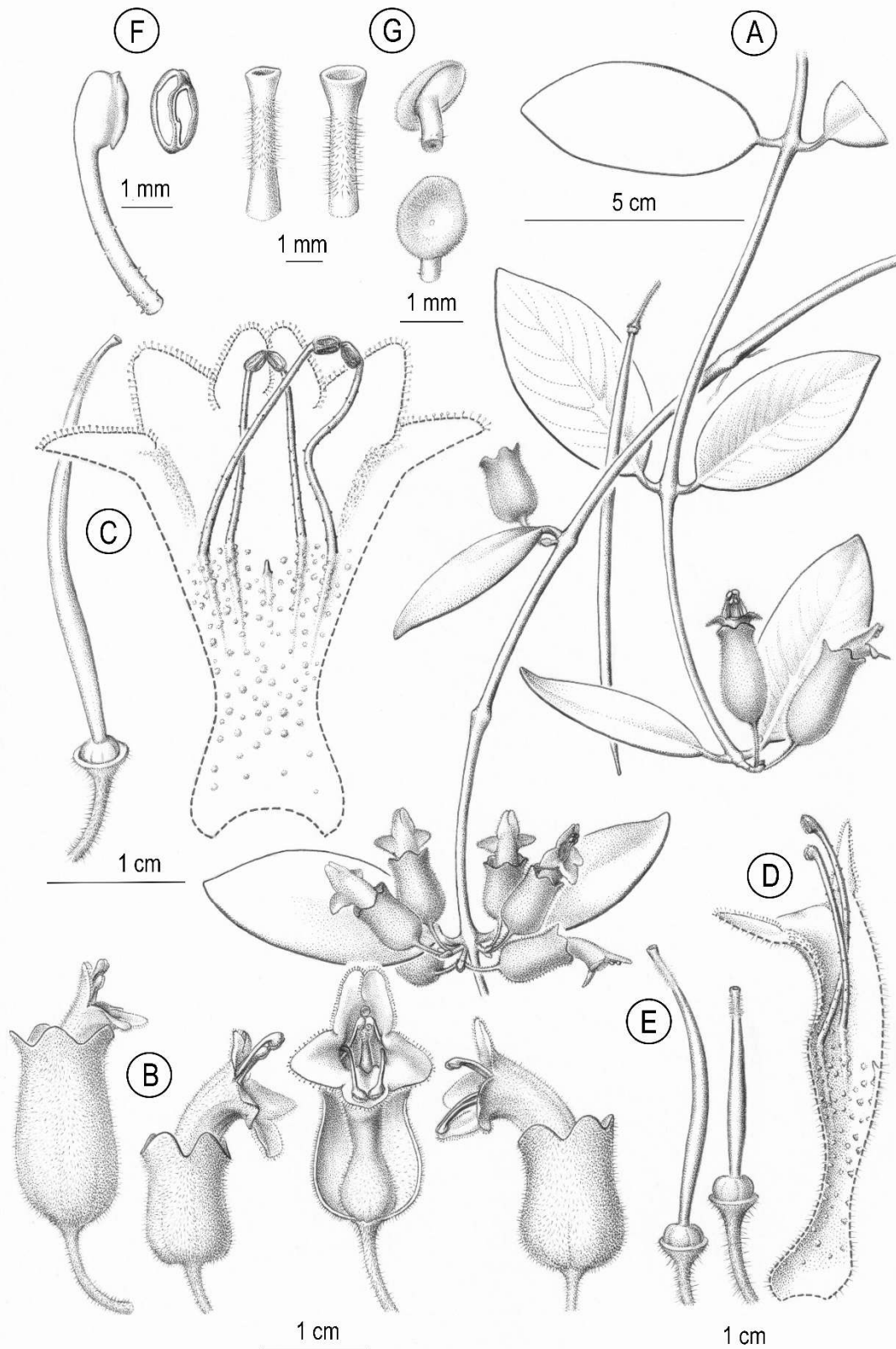


Fig. 2. *Aeschynanthus luteoflorus* Zainudin, Idris & Yudistira, sp. nov.; **A.** Stem with inflorescences and capsule; **B.** Close-up mature flowers; **C.** Corolla split open showing stamens and pistil; **D.** Longitudinal corolla section; **E.** Pistil; **F.** Anther; **G.** Style and Stigma. Illustrated by Yuanito Eliazar.



mm in diameter; leaf blade elliptic, sometimes oblong, leathery, rounded at the base, entire margin, acute at the apex, glabrous, inconsistent pubescent indumentum especially in young leaf and petiole, lime green to dark green at abaxial surface, pale green on the adaxial surface, Purplish-brown and pale yellow coloration occurs only in young leaves, 2–6 × 1–3 cm; penninerved, midrib only visible on the abaxial surface, in mature leaf lateral veins only visible on adaxial surface. **Inflorescences** clustered, simple umbels, mostly axillary, occasionally subterminal, flowered in pairs, rarely single, 1–6 flowered per inflorescence, sequential anthesis. **Peduncle** very short, glabrous 1–3 mm long, *ca.* 1 mm in diameter. **Bracteole** in pair, persistent, ovate-elliptic, obtuse-acute at the apex, glandular hairy, lime green to bright yellow, 2–3 × *ca.* 2 mm. **Pedicele** terete, densely hirsute to sessile glandular hairs, lime green to bright yellow, 0.7–1 cm long, *ca.* 1 mm diameter. **Calyx** tubular-cupuliform, densely covered with translucent glandular hairs in outer surface, inner surface sparsely covered with glandular hairs from the base to the halfway point of the tube with clear venation, somewhat brown to bright greenish yellow in coloration, 1.2–2 × 0.7–1 cm; 5 equal free lobes, 2–3 mm in long, lobes acute-obtuse at the apex. **Corolla** tubular, arcuate, outer surface covered with glandular hairs, inner surface papillose from the base to the halfway point, bright greenish yellow, 2.3–2.5 cm long, somewhat inflated at the base, 3–5 mm wide, gradually widened towards the throat, 0.9–1.4 cm; 5-lobed, lobes broad to narrowly ovate, acute to obtuse at the apex, margin sparsely glandular hairy, bright yellow in coloration with clear venation, rarely with a red tinge on the lateral and lower lobes, upper lobes bilobed at the apex, imbricate not spreading, 5–7 × 2–3 mm, lateral lobes 3–8 × 3–5 mm, lower lobes reflexed downward 4–5 × 3–4 mm, sinus *ca.* 1 mm. **Stamens** 4, didynamous, basifixed, terete, epipetalous, extremely curved at the base, fused in two pairs, sparsely papillose, pale yellow, 1.2–2 cm long; anterior filament 1–1.8 cm long; posterior filament 1–1.5 cm long, extremely curved; anthers *ca.* 2 mm in length, light pink or yellow, turning gray after anthesis. **Pistil** filiform, 1–2 cm long; disk sometimes weakly crenate at the top, glabrous, margin entire, bright yellow, 1 × 2 mm; ovary curved, enlarged, glabrous, pale yellow, 1–1.8 cm; style glandular, pale yellow, 2–7 mm long; stigma capitate, peltate, pale yellow, *ca.* 1 mm in diameter. **Capsule** unripe, linear, glabrous, greenish yellow, *ca.* 9 cm. **Seed** not observed.

Distribution: Endemic to Borneo (East, South and West Kalimantan) (Fig. S1).

Habitat and ecology: In East and South Kalimantan, this species inhabits lowland hilly areas (15–396 m), including secondary forests with mixed dipterocarp vegetation, riparian forest, and oil palm plantations. Riparian forest and oil palm plantations render these habitats highly vulnerable to deforestation. It is found as an epiphyte on *Saraca* sp. (Fabaceae) and *Elaeis guineensis* Jacq. (Arecaceae). It generally prefers shady

and humid habitats. In West Kalimantan, this species has so far been recorded only from disturbed forest edges adjacent to oil palm plantations at low elevations (*ca.* 88 m). It occurs in semi-open habitats influenced by anthropogenic disturbance, indicating a degree of tolerance to habitat modification associated with oil palm cultivation.

Phenology: This species was observed flowering from February to November. However, seeds have not yet been observed.

Vernacular name: In the Banjar language, *Aeschynanthus* is called "Kambang Gincu," which means "lipstick flower" (kambang = flower, gincu = lipstick).

Etymology: The specific epithet refers to the flower color; '*luteoflorus*' translates to yellow-flowered. This term is a combination of two Latin roots: *luteus* (yellow) and *florus* (derived from *flos*, flower).

Conservation status: Available herbarium records and recent field observations indicate that *A. luteoflorus* has a relatively broad distribution across Kalimantan, Indonesia, with an estimated extent of occurrence (EOO) of *ca.* 35,522 km² and an area of occupancy (AOO) of *ca.* 12,000 km². Despite this apparently wide geographical range, the species is predominantly recorded from highly modified landscapes, particularly oil palm plantation systems in West and South Kalimantan. Within such environments, its persistence is closely linked to the continued availability of suitable mature host trees. Plantation rejuvenation cycles, which typically involve large-scale removal of remnant canopy elements, have already resulted in the apparent local extirpation of at least one population in South Kalimantan, and similar pressures are inferred for other plantation-associated occurrences.

The most stable population currently documented is confined to lowland hill valleys within the Mount Sarempakang range in the northern Meratus Mountains, although this area also remains susceptible to ongoing land-use change, including agricultural encroachment and small-scale illegal gold mining. In view of continuing decline in habitat quality across much of its known range, and the likelihood that the species may approach the thresholds for a threatened category in the foreseeable future, *A. luteoflorus* is here provisionally assessed as Near Threatened (NT) following the criteria of the International Union for Conservation of Nature.

Notes: The absence of seed structures in *A. luteoflorus* poses a major challenge to its accurate sectional classification, making comparisons with morphologically similar taxa more difficult. Although the yellow corolla coloration of *A. luteoflorus* suggests a possible affiliation with section *Xanthanthos* (Mendum *et al.*, 2001), the absence of seed data precludes a confident sectional placement. Additional reproductive data, particularly seed characteristics, are needed to confirm its systematic placement. Such information would not only clarify its sectional identity but also contribute to broader phylogenetic research and conservation initiatives.



In South Kalimantan, this species is cultivated locally. Under direct sunlight, specimens exhibit significant color variation on the abaxial leaf surface, turning a mix of pinkish and greenish (Fig. 1C).

Additional specimens examined: *Aeschynanthus luteoflorus*: **Indonesia**, South Kalimantan, Kotabaru, Kelumpang Selatan, Sukamaju SP. 2 Blok 9, 3°06'14.6"S 116°01'24.5"E, 15 m, 25 June 2022, *Zainudin ZBA302250622* (UIDEP!); West Kalimantan, Sintang, Sekubang, Sepauk, 0°16'04.4"S 111°10'42.8"E, 88 m, 28 February 2025, *Y.R. Yudistira YRY407* (BO!); *A. dasycalyx*: **Indonesia**, West Kalimantan, Kapuas Hulu, Central Part of Liang Gagang, approx. 800–900 m, 1894 (B. 3060); *A. beccarii*: **Indonesia**, Sumatera ad ayer manciur, provincial Padang in Sumatera occid, 360 m, August 1878 (K001089565 digital image!); *A. flavidus*: **Malaysia**, Mulu National Park, Hidden Valley, June 1980 (E00062793 digital image!); *A. batesii*: **Indonesia**, Central Sulawesi, Lake Poso and Wotu, 2°18'S, 120°45' E, 750 m, 02 March 2000 (E00104004 digital image!); *A. chrysanthus*: **Indonesia**, West Sumatra, 1991 (E00062785 digital image!); *A. angustifolius*: **Malaysia**, Perak, Kinta, Gopeng, August 1883 (SING0035634 digital image!); *A. dischidioides*: **Malaysia**, Pahang, Cameron Highlands, Parit Falls Park, 4°16.97' N, 101°13.80' E, 1457 m, 26 September 2012 (E00736970 digital image!); *A. longicaulis*: **Myanmar**, Tavoi, 1838 (BM000883870 digital image!); *A. speciosus*: **Indonesia**, 25 January 1881 (K000190175 digital image!).

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Supplementary materials are available from the journal website