

Apocynaceae of continental South-East Asia: new species, new records and new combinations

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ABSTRACT

This paper makes necessary taxonomic and nomenclatural adjustments prior to publication of accounts of Apocynaceae (Asclepiadoideae, Periplocoideae, Secamonoideae) for the Floras of Thailand, Peninsular Malaysia, and Cambodia, Laos and Vietnam. It includes the publication of two new species, *Gymnemopsis krabiensis* and *Gymnemopsis thailandica*; new country records of *Dolichopetalum kwangsiense*, *Dischidia antennifera*, *Gongreos curtisii* and *Vincetoxicum cissoides* for Thailand and of *Gongronema napalense* for both Thailand and Myanmar; two new combinations in *Gongreos*; 10 new combinations and four new names in *Secamone*; three new combinations in *Stephanotis*; one new combination in *Pseudosarcolobus*; and 11 typifications.

KEYWORDS: Asclepiadoideae, *Dolichopetalum*, *Dischidia*, *Gongronema*, *Gongreos*, *Gymnema*, *Gymnemopsis*, Malaysia, Myanmar, *Pseudosarcolobus*, *Secamone*, Secamonoideae, *Stephanotis*, Thailand, typification, Vietnam, *Vincetoxicum*.

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INTRODUCTION

The latest classification of the family Apocynaceae includes 378 genera and approximately 5,350 species (Endress *et al.*, 2019), arranged into two informal groups, Apocynoids and Rauvolfioids, and three subfamilies, Asclepiadoideae, Periplocoideae and Secamonoideae. The two informal groups were formerly considered subfamilies Apocynoideae and Rauvolfioideae of Apocynaceae s.s., while Asclepiadoideae, Periplocoideae and Secamonoideae were considered part of the separate family Asclepiadaceae until the classification of Apocynaceae was revised by Endress & Bruyns (2000).

Although the more inclusive family delimitation is mostly acknowledged in the recent regional floristic accounts, the Apocynaceae accounts for the Flora of Thailand (FoT), Flora of Peninsular Malaysia (FPM), Flora of Cambodia, Laos and Vietnam (FCLV) and Flora Malesiana (FM) are limited to Apocynoid and Rauvolfioid Apocynaceae (Middleton, 1999, 2007, 2011, 2014). The only

complete floristic account of Apocynaceae from Asia available is that for the Flora of Singapore (Middleton & Rodda, 2019). The remaining three subfamilies, Asclepiadoideae, Periplocoideae and Secamonoideae, are currently being revised for FoT, FPM, FCLV and FM (Rodda, in prep). In particular, the account for FoT is due in 2024, to be followed shortly after by FPM and therefore any nomenclature changes need to be effected before then. Here we describe two new species, provide new combinations in *Gongreos* Rodda, Liede & Meve, *Secamone* R.Br., *Stephanotis* Thouars and *Pseudosarcolobus* Costantin, provide new country records in several genera for Thailand and Myanmar, and typify a number of names. The new records for Thailand are based on the baseline data in Thaithong *et al.* (2018) along with a few later works (Kidyoo, 2020 for *Gymnemopsis* Costantin; Kidyoo *et al.*, 2023 for *Vincetoxicum* Wolf; Samsungnoen *et al.*, 2023 for *Dischidia* R.Br.), and for Myanmar are based on the baseline data in Kress *et al.* (2003). Descriptions are provided only for the new taxa pending the account of all taxa in the Flora of Thailand. As the identification of specimens for

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these accounts, and fieldwork in the case of FPM, are still ongoing, it is possible that additional new record and new species will be found before finalising the accounts.

TWO NEW *GYMNEMOPSIS* FROM THAILAND

Gymnemopsis currently includes three species, one endemic to Vietnam, *G. pierrei* Costantin, and two endemic to Thailand, *G. calcicola* Kerr, the type of the genus, and the recently published *G. phuwuaensis* A.Kidyoo (Kidyoo, 2020). A third taxon was mentioned in Kidyoo (2020) and a photo was published in Thaithong *et al.* (2018: 161), erroneously identified as *Gymnemopsis calcicola*. Examination of specimens at **BKF** led to finding a specimen of that species (*Phonsena* 6293) as well as another unidentified *Gymnemopsis* species. They have been compared to the three known species and clear differences have been noticed. They are therefore described here as two new species. *Gymnemopsis*

was not included in the phylogeny of Marsdenieae published by Liede-Schumann *et al.* (2022) but based on new molecular data (Rodda, unpublished) the genus is closely related to *Lygisma* Hook.f.

Gymnemopsis thailandica Rodda, sp. nov.

Similar to *Gymnemopsis krabiensis* Rodda in lamina indumentum (pubescent throughout), inflorescences pedunculate, and corolline corona inconspicuous. Distinguished in lamina base (rounded in *G. thailandica* vs cordate in *G. krabiensis*); gynostegium shape (cylindrical, 1.2–1.4 mm long, 1.1–1.3 mm in diam., with inconspicuous corona lobes in *G. thailandica*, vs conical, with truncate apex, 0.7–0.9 mm long, 0.9–1.1 mm in diam., with conspicuous corona lobes in *G. krabiensis*). Type: Thailand, Ubon Ratchathani, Samliam Morakot, Phu Chong Na Yoi National Park, 320–330 m, 21 Mar. 2007, K. Wangwasit, M. Norsaengsri & C. Lakoet 070322-13 (holotype **BKF** [SN178393]; isotype **QBG**, sheet no. 29935). Fig. 1.

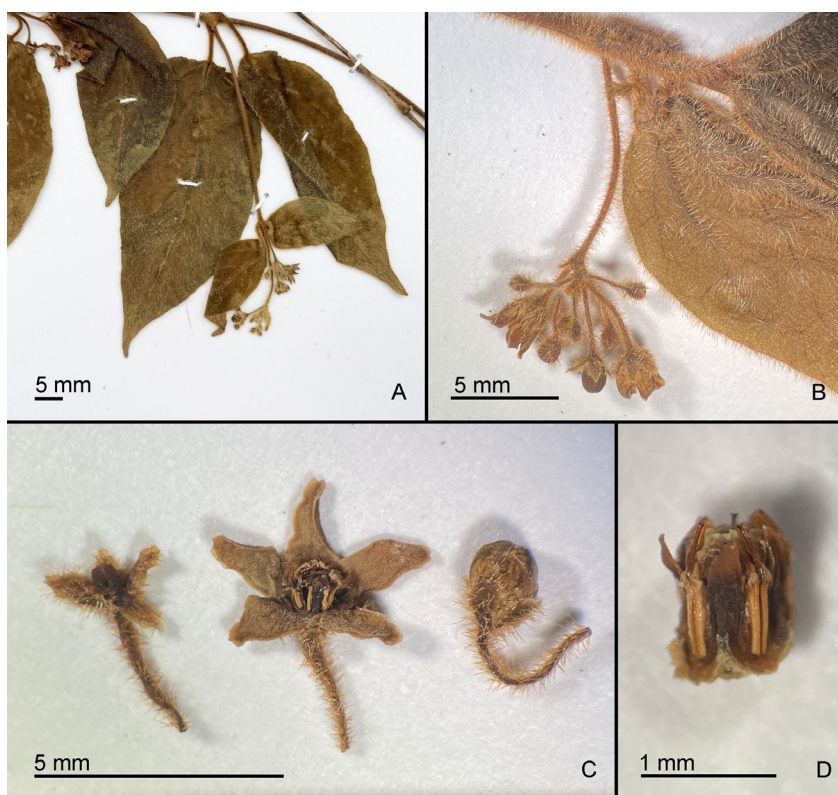


Figure 1. *Gymnemopsis thailandica* Rodda: A. pubescent leaves and pedunculate inflorescences; B. magnified inflorescence; C. left to right: calyx with ovary; open flower; bud just before anthesis; D. staminal corona. Photographs by Michele Rodda based on Wangwasit *et al.* 070322-13 (**BKF** [SN178393]).

Climber, latex colour unknown. *Stems* terete; internodes 3.5–10 cm long, 0.5–1.5 mm in diam., densely pubescent when young, later turning glabrescent. *Leaves*: petiole 5–12 mm long, ca 1 mm in diam., slightly channelled above, densely pubescent; lamina ovate, 2.5–6 × 1.3–3 cm, chartaceous, apex acuminate, base rounded, with minute basal collectors concealed by dense pubescence, margins ciliate; both surfaces pubescent; midrib slightly grooved on the adaxial surface, prominent on the abaxial surface; lateral veins 3–5 on each side of midrib, poorly visible on young leaves. *Inflorescences* up to 10-flowered but with fewer flowers open at a time (ca 3). *Peduncle* extra-axillary, 1 per node, (3–)5–12 mm long, ca 0.5 mm in diam., pubescent; pedicel 4–5 mm long, ca 0.3 mm in diam., pubescent; bracts lanceolate, 0.7–1 × 0.25–0.35 mm, apex acuminate, densely pubescent. *Calyx lobes* deltate to ovate, 1–1.5 × 0.7–1 mm, apex acute, with ciliate margins; outer surface pubescent; basal collectors 1 in each calyx lobe sinus, ovate, ca 0.15 mm long. *Buds* globose, apically depressed. *Corolla* rotate-campulate, 4–5 mm in diam., light green; corolla tube campanulate 0.8–1 mm long, outside glabrous, inside with patch of hairs at the throat, beneath the centre of each corolla lobe; corolline corona inconspicuous, limited to a slight thickening along the corolla tube, in between the corolla lobes, not extending beyond the sinuses; corolla lobes spreading, oblong-ovate, 1.9–2.2 × 1–1.2 mm, acute to obtuse, glabrous outside, densely papillose inside. *Gynostegium* cylindrical, 1.2–1.4 mm long, 1.1–1.3 mm in diam., sessile; staminal corona lobes inconspicuous, oblong, ca 0.7 × 0.15 mm. *Anthers* rectangular, erect; guide rails vertical and straight; anther appendages yellowish white, not covering style-head. *Pollinia* obovoid, 0.25–0.30 × 0.12–0.15 mm; caudicles ribbon shaped, ca 0.2 mm long, incurved; corpusculum reddish-brown, narrowly oblong, ca 0.5 × 0.15 mm. *Ovaries* ovoid, ca 0.7 mm long, 0.3 mm in diam., glabrous. *Style-head* pentagonal, slightly convex at apex (when dry). *Fruit and Seed* not observed.

Thailand.—EASTERN: Ubon Ratchathani [Samliam Morakot, Phu Chong Na Yoi National Park, 320–330 m, 21 Mar. 2007, Wangwasit *et al.* 070322-13 (BKF, QBG)].

Distribution.—Only known from the type locality.

Habitat and ecology.—Based on the label information, this species is found in dry evergreen forest.

Etymology.—Named after Thailand, where the species is endemic.

Provisional IUCN conservation assessment.—Data Deficient (DD). The species is only known from the type collection. The population size, Extent of Occurrence and Area of Occupancy are unknown.

Notes.—A species similar to *Gymnemopsis krabiensis* Rodda in lamina indumentum (pubescent throughout), inflorescences pedunculate, and corolline corona inconspicuous. These characters distinguish *G. thailandica* and *G. krabiensis* from all other species in the genus. As mentioned in the diagnosis, the two species can be separated on lamina base and gynostegium morphology. A detailed comparison of *Gymnemopsis* species is presented in Table 1.

Gymnemopsis krabiensis Rodda, sp. nov.

—*Gymnemopsis calcicola* auct. non Kerr: Thaithong *et al.*, Handbook of Asclepiads of Thailand: 161. 2008.

Similar to *Gymnemopsis thailandica* in lamina indumentum (pubescent throughout), inflorescences pedunculate, and corolline corona inconspicuous. Distinguished in lamina base (cordate in *G. krabiensis* vs rounded in *G. thailandica*); gynostegium shape (conical, with truncate apex, 0.7–0.9 mm long, 0.9–1.1 mm in diam., with conspicuous corona lobes in *G. krabiensis* vs cylindrical, 1.2–1.4 mm long, 1.1–1.3 mm in diam., with inconspicuous corona lobes in *G. thailandica*). Type: Thailand, Krabi, Mueang, Wat Tham Suea, 8° 08'N, 98° 55'E, 400 m, 9 Oct. 2008, P. Phonsena 6293 (holotype BKF [SN174979]). Fig. 2.

Climber, latex white. *Stems* terete, twining; internodes 4–12 cm long, 0.5–1.5 mm in diam., pubescent when young, later turning glabrescent. *Leaves*: petiole 2.5–6 mm long, ca 1 mm in diam., slightly channelled above, pubescent; lamina ovate-lanceolate, 2–9 × 1.3–3.5 cm, chartaceous, apex acuminate, base cordate, rarely rounded, with 2–5 collectors on the adaxial surface, margins ciliate; both surfaces pubescent; midrib more prominent on abaxial surface; lateral veins 2 basal on each side of midrib, the inner more prominent, additional 2–4 on each side of midrib, ascending and joining to form a pseudo-marginal vein, poorly visible on upper surface. *Inflorescences* 2–4(–10)-flowered but with fewer flowers open at a time (2–4). *Peduncle* extra-axillary, 1 per node, subsessile 2–10 mm long,

ca 0.5 mm in diam., pubescent; pedicel 4–6 mm long, ca 0.3 mm in diam., pubescent; bracts inconspicuous, lanceolate, ca 0.8×0.3 mm, apex acuminate, densely pubescent. *Calyx* lobes broadly ovate, $1.4\text{--}1.7 \times 1\text{--}1.2$ mm, apex rounded, with ciliate margins, outer surface pubescent; basal colletes 1 in each calyx lobe sinus, ovate, ca 0.2 mm long. *Buds* globose, apically concave. *Corolla* rotate-campanulate, $4.5\text{--}6.5$ mm in diam., light green; corolla tube campanulate $1.8\text{--}2$ mm long, outside glabrous, inside with patch of hairs at the throat, beneath the centre of each corolla lobe; corolline corona inconspicuous, limited to a slight thickening along the corolla tube, in between the corolla lobes, not extending beyond the sinuses; corolla lobes spreading, oblong-ovate, ca 2.5×1.5 mm, acute to obtuse or slightly emarginate at apex, glabrous outside, sparsely papillose inside. *Gynostegium* conical, with truncate apex, $0.7\text{--}0.9$ mm long, $0.9\text{--}1.1$ mm in diam., sessile, with conspicuous staminal

corona. *Staminal corona* lobes ovate, yellow, erect, ca 1×0.5 mm; guide rails leaning towards the style-head, straight; anther appendages greenish white, not covering style-head. *Pollinia* subclavate, $0.22\text{--}0.26 \times 0.08\text{--}0.13$ mm; caudicles ribbon-shaped, ca 0.1 mm long, incurved; corpusculum reddish-brown, narrowly oblong, $0.38\text{--}0.45 \times 0.06\text{--}0.07$ mm. *Ovaries* ovoid, ca 1 mm long, 0.6 mm in diam., glabrous. *Style-head* pentagonal, convex at apex. *Fruit and Seed* not observed.

Thailand.—PENINSULAR: Krabi [Mueang, Wat Tham Suea, $8^{\circ}08'N$, $98^{\circ}55'E$, 400 m, 9 Oct. 2008, *Phonsena* 6293 (BKF)].

Distribution.— Only known from the type locality.

Habitat and ecology.— Based on the label information, this species is found on a limestone hill at 400 m.



Figure 2. *Gymnemopsis krabiensis* Rodda: A. pubescent leaves and long pedunculate inflorescence; B. pubescent leaves and short pedunculate inflorescence; C. leaf with prominent venation; D. open flower showing the conical staminal gynostegium. Photographs by Michele Rodda based on *Phonsena* 6293 (BKF [SN174979]).

Etymology.— Named after Krabi, where the type specimen was collected.

Provisional IUCN conservation assessment.— Vulnerable (D2). The species is only known from the type collection. The population size, Extent of Occurrence and Area of Occupancy are unknown. However, the type locality is known to have very large numbers of tourists and the population may be impacted by people and development.

Notes.— Among all *Gymnemopsis* species this is the most distinguishable as it has a conical gynostegium with distinct staminal lobes, while all other taxa have a cylindrical gynostegium with inconspicuous corona lobes. Although it is possible that sterile specimens of *Gymnemopsis krabiensis* could be confused with *Lygisma inflexum* (Costantin) Kerr, due to similarities in lamina shape, venation type and indumentum, they are easily separated when fertile. A detailed comparison of *Gymnemopsis* species is presented in Table 1.

Table 1. Morphological comparison of all *Gymnemopsis* species (expanded from Kidyoo, 2020).

Characters	<i>G. krabiensis</i>	<i>G. thailandica</i>	<i>G. phuwuaensis</i>	<i>G. calcicola</i>	<i>G. pierrei</i>
Stem	pubescent when young, later turning glabrescent	densely pubescent when young, later turning glabrescent	pubescent	pubescent	sparsely pubescent
Leaves shape and size	ovate-lanceolate, 2–9 × 1.3–3.5 cm	ovate, 2.5–6 × 1.3–3 cm,	ovate-oblong, lanceolate-oblong to lanceolate, 3.2–8.6 × 0.7–2.1 cm	ovate-oblong to lanceolate, 2.8–4.5 × 0.9–1.3 cm	elliptic to obovate, 3–3.2 × 1.5–2.4 cm
base	cordate, rarely rounded	rounded	obtuse	obtuse to rounded	acute
surfaces	both surfaces pubescent	both surfaces pubescent	adaxial surface glabrescent but pubescent on the midrib and near the margins; abaxial surface glabrous with trichomes on the midrib	glabrescent with trichomes on the midrib on both surfaces	glabrous, but with trichomes on the midrib, on both surfaces
lateral veins	ascending and joining to form a pseudo-marginal vein	not joining to form a pseudo-marginal vein	ascending and joining to form a pseudo-marginal vein	ascending and joining to form a pseudo-marginal vein	not joining to form a pseudo-marginal vein
Inflorescence	2–4(–10)-flowered, peduncle 2–10 mm long	up to 10-flowered but with fewer flowers open at a time (ca 3); peduncle (3–)5–12 mm long	1–3-flowered, peduncle sessile to subsessile	2–4-flowered, peduncle sessile to subsessile	1–3-flowered, peduncle sessile to subsessile
Bract	lanceolate, ca 0.8 × 0.3 mm	lanceolate, 0.7–1 × 0.25–0.35 mm	ovate-lanceolate, 2.0–3.5 mm long	subfoliaceous, lanceolate, 4–6 mm long	ovate-lanceolate, to 1.1.5 mm long
Pedicel	4.6–6 mm long	4–5 mm long	6–8 mm long	1.5–3 mm long	2–3 mm long
Corolla	light green, rotate-campanulate, 4.5–6.5 mm in diam.	light green rotate-campanulate, 4–5 mm in diam.	greenish white, rotate, 13–15 mm in diam.	pink, rotate-campanulate, 5–6 mm in diam.	colour unknown, 3–5 mm in diam.
Corolline corona	inconspicuous, limited to a slight thickening along the corolla tube, in between the corolla lobes, not extending beyond the sinuses	inconspicuous, limited to a slight thickening along the corolla tube, in between the corolla lobes, not extending beyond the sinuses	broadly ovate, apex rounded-truncated, protruding outside the tube, hairy	triangular-ovate, apex acute-obtuse, protruding outside the tube, hairy	ovate, not protruding, glabrous

Table 1. Continued.

Characters	<i>G. krabiensis</i>	<i>G. thailandica</i>	<i>G. phuwuaensis</i>	<i>G. calcicola</i>	<i>G. pierrei</i>
Calyx lobe	broadly ovate, 1.4–1.7 × 1–1.2 mm, apex rounded	deltate to ovate, 1–1.5 × 0.7–1 mm, apex acute	broadly ovate, 2.4–2.6 × 2.1–2.4 mm, apex obtuse	ovate-elliptic, 2.2–2.5 × 1.6–1.7 mm, apex obtuse	ovate, 1.5–2 × 1.2–1.5 mm, apex rounded to acute
Gynostegium	conical, with truncate apex, 0.7–0.9 mm long, 0.9–1.1 mm in diam., with conspicuous corona lobes	cylindrical, 1.2–1.4 mm long, 1.1–1.3 mm in diam., with inconspicuous corona lobes	cylindrical, 3.3–3.4 mm long, 2.3–2.7 mm in diam., with inconspicuous staminal corona lobes	cylindrical, with inconspicuous staminal corona lobes, size n.a.	cylindrical, ca 1.5 × 1.7 mm, with inconspicuous staminal corona lobes
Pollinarium					
pollinia	subclavate 0.22–0.26 × 0.08–0.13 mm	obovoid, 0.25–0.30 × 0.12–0.15 mm	obovoid, 0.23–0.25 × 0.09–0.10 mm	obovoid, 0.40–0.45 × 0.16–0.17 mm	obovoid, size n.a.
corpusculum	narrowly oblong, 0.38–0.45 × 0.06–0.07 mm	narrowly oblong, ca 0.5 × 0.15 mm	narrowly oblong, 0.44–0.46 × 0.05–0.06 mm	narrowly oblong, 0.65–0.70 × 0.07–0.08 mm	narrowly oblong, size n.a.
caudicles	ribbon-shaped, ca 0.10 mm long, incurved	ribbon shaped, ca 0.20 mm long, incurved	ribbon-shaped, incurved, 0.18–0.20 mm long	ribbon-shaped, 0.30–0.35 mm long, incurved	ribbon-shaped, incurved, size n.a.

KEY TO THE SPECIES OF *GYMNEMOPSIS*

1. Lamina pubescent throughout on both sides; corolline corona inconspicuous
2. Gynostegium conical, with truncate apex, 0.7–0.9 mm long, 0.9–1.1 mm in diam., with conspicuous staminal corona lobes
- G. krabiensis**
2. Gynostegium cylindrical, 1.2–1.4 mm long, 1.1–1.3 mm in diam., with inconspicuous staminal corona lobes
- G. thailandica**
1. Lamina pubescent only along midrib; corolline corona conspicuous
3. Corolla > 10 mm in diam.
- G. phuwuaensis**
3. Corolla < 6 mm in diam.
4. Lamina lateral veins ascending and joining to form a pseudo-marginal vein
- G. calcicola**
4. Lamina lateral veins not joining to form a pseudo-marginal vein
- G. pierrei**

DOLICHOPETALUM, A NEW RECORD FOR THE FLORA OF THAILAND

Dolichopetalum Tsiang is a monotypic genus hitherto considered to be endemic to China (Endress *et al.*, 2019). As *Dolichopetalum* was not included in the Marsdenieae dataset of Liede-Schumann *et al.* (2022), its relationships with other members of Marsdenieae are unclear. Omlor (1998) justified its status as a monotypic genus based on its morphological peculiarities. *Dolichopetalum*’s inflorescences are long-pedunculate raceme-like thyrses with a stout rachis. Its anthers connective appendages are extended in a long tip and are erect, making it unique among Marsdenieae. *Campestigma* Pierre ex Costantin also has thyrsoidal inflorescences and if this is an apomorphic character for the group it is possible that *Dolichopetalum* might belong to the

base of the Cosmopolitan Clade of Liede-Schumann *et al.* (2022). Based on similarities in inflorescence, corolla, corona and pollinarium morphology it might also be related to the monotypic *Pycnorhachis* Benth., another monotypic genus from Peninsular Malaysia which was also not sampled by Liede-Schumann *et al.* (2022).

Dolichopetalum Tsiang, Acta Bot. Sin. 15: 137. 1973. Type: *Dolichopetalum kwangsiense* Tsiang.

Dolichopetalum kwangsiense Tsiang, Acta Bot. Sin. 15: 137. 1973. Type: China, Guangxi Zhuang Autonomous Region, Lung-Lin, 30 Aug. 1963, Liang Naikuan 25497 (holotype **IBSC** n.v.; isotypes **GXMI** [GXMI050444, GXMI050445]). Fig. 3.

Thailand.—NORTHERN: Chiang Mai [Chiang Dao, Mae Na, trail to Doi Sam Phi Nong, Doi Chiang Dao Wildlife Sanctuary, 1,600 m, open limestone scrub, partly open on rock, climber with white sap, inflorescences pale brown to dark brown, flowers dark brownish, paler to yellowish inside, 24 June 2008, *Pooma & Tamura 7093* (BKF [SN188544])].

Notes.—In the protologue of *Dolichopetalum kwangsiense* the holotype was said to be in the herbarium of the College of Agriculture and Silviculture Kwangtung. That herbarium has since been transferred to IBSC. We are not sure of the whereabouts of this specimen, which is not found on the Chinese Virtual Herbarium (<https://www.cvh.ac.cn/>) but two isotypes are present at **GXMI**. In case the IBSC duplicate is not found, [GXMI050444] shall be considered the lectotype for *D. kwangsiense*.

***DISCHIDIA ANTENNIFERA*, A NEW RECORD FOR THE FLORA OF THAILAND**

Dischidia antennifera Becc. has hitherto been considered to be endemic to Borneo. Its distribution area is now extended to Thailand, based on a cultivated plant originally collected from Chumphon in northern Peninsular Thailand. In 2022, the species was also seen in Terengganu, Peninsular Malaysia (Dome Nikong, pers. comm., unvouchered observation) where it is also a new record. Its occurrence in southern Thailand is therefore not a unique record in continental South-East Asia which would otherwise have been surprising due to the long distance from Borneo and might have been considered erroneous or perhaps based on a naturalised cultivated specimen.



Figure 3. *Dolichopetalum kwangsiense* Tsiang: A. habit showing the pubescent stems and long-pedunculate inflorescences; B. magnified inflorescence; C. flower, with twisted corolla lobes. Photographs by Michele Rodda based on *Pooma & Tamura 7093* (BKF [SN188544]).

Dischidia antennifera Becc., *Malesia* 2: 270. 1886. Type: [Malaysia], Sarawak, Kuching, Sept. 1865, *O. Beccari Pianta Bornensi 581* (lectotype **FI** [FI008056], designated here; isoelectotypes **K** [K000911024], **P** [P00218731]). Fig. 4.

Thailand.— PENINSULAR: Chumphon [9°58'57.7"N, 98°55'30.9"E, live plant collected on 16 May 2010, donated by Surisa Riampreeda in 2013 and vouchered in cultivation at the Singapore Botanic Gardens on 11 June 2020. Live plant code MR352; SBG acc. no. 20132434 vouchered as *Rodda MR2014* (**SING**)].

Notes.— The only material indicated in the protologue of *Dischidia antennifera* is “*Pianta Bornensi 581*”. Duplicates of this specimen are found at **FI**, **K** and **P**. The **FI** specimen is the richest and is designated as the lectotype. The original notes associated with the Thai collection *Rodda MR2014* (**SING**) are: “Observed in flower and with pods, living with ants. Secondary forest. Epiphytic. 4 plants sighted. Along path in a clearing. Full to half sun. Large specimen. 175 m elevation. On trees 10–25 m tall, 0.2–0.7 m in diam. In plantation with rubber, oil palm and durian. On a lone remaining tree 25 m tall (large specimen). The three others on younger trees (Caesalpinoideae)”.

VINCETOXICUM CISSOIDES,
A NEW RECORD FOR
THE FLORA OF THAILAND

Vincetoxicum cissoides (Blume) Kuntze is a widespread species, occurring throughout Malesia

(Schneidt, 1999), including Peninsular Malaysia. Its distribution is extended to the southern provinces of Peninsular Thailand.

Vincetoxicum cissoides (Blume) Kuntze, *Revis. Gen. Pl.* 2: 424. 1891, as ‘*cissodes*’.— *Tylophora cissoides* Blume, *Bijdr. Fl. Ned. Ind.* 1061. 1826. Type: [Indonesia], Java, s.d., *C.L. Blume 2170/b* (lectotype, **L** [L0360066], designated by Liede-Schumann & Meve (2018); isoelectotypes **L** [L0360065, L0360067]). (Additional synonyms are published in Liede-Schumann & Meve, 2018).

Thailand.— PENINSULAR: Surat Thani [Koh Pangang, 100 m, 4 Dec. 1974, *Geesink et al.* 7786 (**BKF** [SN005555])]; Satun [Tarutao, 0–50 m, 8 Apr. 2008, *Phengkklai et al.* 15717 (**BCU**, sheet number 014955, **BKF** [SN165235])]; Yala [Thanto Village, in rubber plantation, 13 Oct. 2012, *Kuwing 3* (**PSU**, sheet number 00014548)]; Narathiwat [Waeng, Bala, Khao Khad, 525 m, 24 Jan. 2010, *Puudjaa et al.* 1577 (**BKF** [SN209485])].

Notes.— *Vincetoxicum cissoides* is superficially similar to and can be confused with *V. ventricosum* Kuntze (formerly *Tylophora wallichii* (Wight) Hook.f.), as both taxa have chartaceous elliptic-lanceolate lamina and loose racemose inflorescences branched 1–3 times, about as long as the leaves. *Vincetoxicum ventricosum* has acute corona lobe apices (rounded in *V. cissoides*). The specimen *Phengkklai et al.* 15717 (**BCU**, **BKF**) has stems, petioles, leaves, peduncles, pedicels and calyx pubescent throughout, while in the other specimens



Figure 4. *Dischidia antennifera* Becc. Inflorescence. Photographs by Michele Rodda, based on *Rodda MR2014* (**SING**).

examined (*Geesink et al.*, 7786 (BKF); *Puudjaa et al.*, 1577 (BKF); *Kuwing 3* (PSU)), these parts are sparsely pubescent to glabrescent.

NEW RECORDS AND NEW COMBINATIONS IN *GONGREOS* AND *GONGRONEMA*

Gongronema (Endl.) Decne. was found by Liede-Schumann *et al.* (2022) to be polyphyletic, with the type species, *G. napalense* (Wall.) Decne., retrieved in subclade BII of the Cosmopolitan Clade (their Fig. 3B), the African samples in their subclade BIII of the Cosmopolitan clade (their Fig. 3B), and the Asian species *G. wallichii* (Wight) Decne. and *G. filipes* Kerr in subclade AII of the Asia-Pacific Clade (their Fig. 3A). The genus *Gongronemopsis* S.Reuss, Liede & Meve was coined for the African taxa and *Gongreos* Rodda, Liede & Meve, for the Asian taxa.

In Thailand, one species of *Gongreos* is currently recognised, *G. filipes* (Kerr) Rodda, Liede & Meve.

Four species of *Gongronema* were recorded for Peninsular Malaysia by King & Gamble (1908). *Gongronema wallichii* is now classified as *Gongreos wallichii* and *Gongronema wrayi* King & Gamble

is a species of *Hoya*, the accepted name of which is *Hoya omlorii* (Livsh. & Meve) L.Wanntorp & Meve (Rodda & Zakaria, 2020). The two remaining taxa, *Gongronema curtisii* King & Gamble and *G. bracteolatum* King & Gamble, are transferred here to *Gongreos*. The distribution of *Gongreos curtisii* is also extended to southern Peninsular Thailand.

In addition, the type species of *Gongronema*, *G. napalense*, is newly recorded in Thailand and Myanmar here.

Gongronema napalense (Wall.) Decne. in de Candolle, Prodr. 8: 624. 1844.— *Gymnema napalense* Wall., Tent. Fl. Nepal. 2: 49. 1826. Type: [Published illustration] Wallich, Tent. Fl. Nepal. 2: Tab. 38 (lectotype, designated here) Figs. 5 & 6.

Thailand.— NORTHERN: Chiang Rai [Pha Daeng route, 19.37320N 99.69794E, 1,218 m, Climber, flowers pale yellowish-green, 28 Aug. 2015, *Norsaengsri 12535* (QBG, sheet no. 85882)].

Additional specimen studied.— Myanmar, Sagaing Region, Hkamti District, Homalin Township, Htamanthi Wildlife Sanctuary behind Nam Pa Gaon camp, 25°18'45.6"N, 95°31'16.3"E, 225 m, dense primary forest adjacent to the Nam Pa Gaon stream,



Figure 5. *Gongronema napalense* (Wall.) Decne.: A. inflorescence. B. leaf, left adaxial; right abaxial side. Photographs by Kate Armstrong, based on Armstrong *et al.* 1534 (E, NY [NY02655024], RAF, SING, TNS).

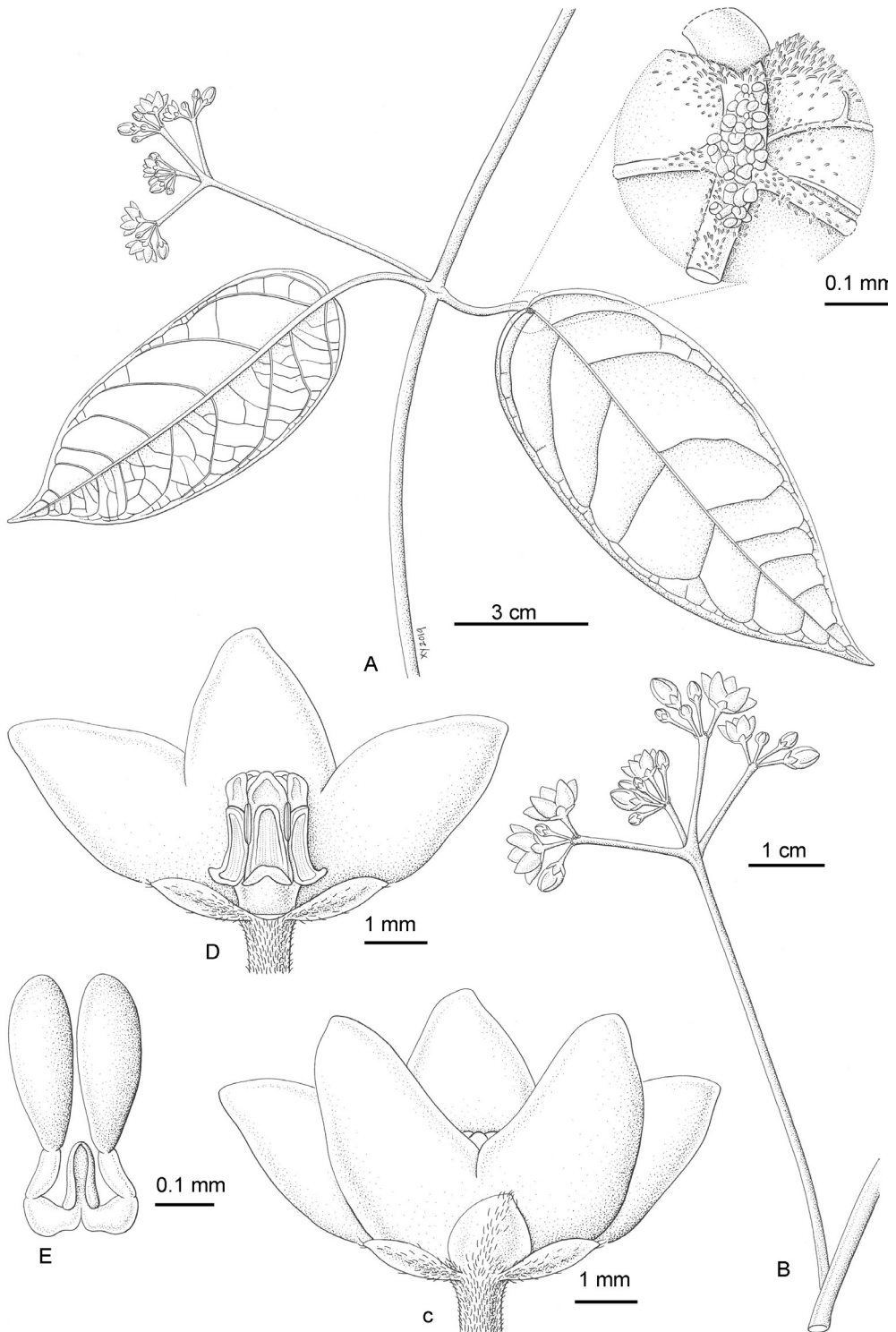


Figure 6. *Gongronema napalense* (Wall.) Decne.: A. habit, with magnified lamina colleters; B. magnified inflorescence; C. flower, side view; D. flowers, side view, with two corolla lobes removed showing gynostegium; E. pollinarium. Drawn by Loh Xiang Yun, based on *Norsaengsri 12535* (QBG).

20 Sept. 2016, *Armstrong et al. 1534* (E, NY [NY02655024], **RAF**, **SING**, **TNS**).

Notes.— *Gongronema napalense* is a species known to occur in Nepal, China and India. Its type was indicated as “Nepal, *Wallich Cat. No. 8192* (**K-W**, Lectotype)” by Jagtap & Singh (1999). *Wallich Cat. No. 8192* cannot be considered original material for this taxon as it was collected in 1836, ten years after the taxon description. In the protologue of *Gymnema napalense*, no specimen is mentioned. The illustration published with the protologue (Tab. 38) is therefore here designated as the lectotype.

The genus *Gongronema* was recorded for Thailand due to the presence of *G. filipes* (Thaithong *et al.*, 2018) but this species was later transferred to the new genus *Gongreos* as *G. filipes*, thereby removing *Gongronema s.s.* from the Thai flora. With the discovery of *Gongronema napalense* in Thailand, the genus *Gongronema* is once again found in Thailand. The collection *Armstrong et al. 1534* also extends the distribution area of *Gongronema napalense* to Myanmar.

Gongreos curtisii (King & Gamble) Rodda, **comb. nov.**— *Gongronema curtisii* King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74(2): 542. 1908. Type: [Peninsular Malaysia], Penang, West Hill, 2,000 ft [609 m], late Apr. 1888, scrambler over dead tree. Corolla green, slightly tinged red in thin lines, *Curtis 1545* (lectotype **K** [K000872887], designated here).

Thailand.—PENINSULAR: Yala [Betong district, Hala-Bala Wildlife Sanctuary, trail up unnamed ‘1,490’ mountain reached from the shores of Bang Lang Reservoir, 5.967N, 101.434E, 1,430 m, 23 May 2005, *Middleton et al. 3626* (**BKF** [SN156998])].

Notes.— Two specimens were mentioned in the protologue of *Gongronema curtisii*, *Curtis 1545* and *Wray 1011*. *Curtis 1545* (**K**) is the richer specimen and is designated as the lectotype. Two duplicates of *Wray 1011* have been traced, at **K** [K000872888] and **CAL** [CAL0000017892].

Gongreos curtisii has hitherto been considered to be endemic to Peninsular Malaysia and only known from the original material. Based on *Middleton et al. 3626* from Peninsular Thailand its distribution area is extended.

Gongreos bracteolatum (King & Gamble) Rodda, **comb. nov.**— *Gongronema bracteolatum* King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74(2): 543. 1908. Type: [Peninsular Malaysia], Perak, Goping, Sept. 1880, *King’s Collector 721* (lectotype **K** [K000872886], designated here; isolectotype **CAL** n.v.)

Notes.— *Gongreos bracteolatum* is so far only known from the type collection. Among the two duplicates of *King’s Collector 721*, the **K** specimen is here designated as the lectotype.

NEW COMBINATIONS IN *SECAMONE*

Secamone is now generally considered to include *Genianthus* Hook.f. and *Toxocarpus* Wight & Arn. (Rodda & Middleton, 2019). A recently generated phylogeny supports that classification (Rodda *et al.*, in prep). New combinations in *Secamone* for some species formerly classified in *Genianthus* or *Toxocarpus* that occur in Thailand and Peninsular Malaysia have been published by Klackenberg (2010). The remaining new combinations and names, including these for all *Genianthus* species accepted in the revision by Klackenberg (1995), are published here in order to make them available for use in the respective Flora accounts.

Toxocarpus pauciflorus Henderson, a name accepted by Thaithong *et al.* (2018), is considered a synonym of *Secamone curtisii* (King & Gamble) Klack. *Toxocarpus gagnepainii* Tsiang and *T. klossii* S. Moore, two species mentioned by Tran (2017) in the Flora of Vietnam as lacking information, are considered synonyms of *Secamone spirei* (Costantin) Klack. and *S. villosa* Blume, respectively.

Secamone aurantiaca (Tsiang & P.T.Li) Rodda & Klack., **comb. nov.**— *Toxocarpus aurantiacus* C.Y. Wu ex Tsiang & P.T. Li, Acta Phytotax. Sin. 12: 81. 1974.— *Genianthus aurantiacus* (Tsiang & P.T. Li) Klack., Bot. Jahrb. Syst. 117: 431. Type: China, Yunnan, His-Shuang-Pan-Na, 1,520 m alt., 1957, *Sino-Russian Exp. 5622* (holotype **KUN** n.v.).

Secamone bicoronata (Klack.) Rodda & Klack., **comb. nov.**— *Genianthus bicoronatus* Klack., Phytologia 75: 200. 1993. Type: Thailand, Chiang Mai, Hiu Hia, base of Doi Chiang Dao, ca 480 m, 21 Jan. 1941, *Garrett 1234* (holotype **L** [L0004296]; isotypes **E** [E00153936], **K**, **L** [L0004297], **P**).

Secamone hastata (Klack.) Rodda & Klack., **comb. nov.**— *Genianthus hastatus* Klack., Phytologia 75: 201. 1993. Type: Thailand, Nan, Doi Phu Kha, 1,450 m, 1990, *Banziger 668* (holotype **K** [K000910078]).

Secamone horei (Vasudeva Rao) Rodda & Klack., **comb. nov.**— *Genianthus horei* Vasudeva Rao, Journal of Economic and Taxonomic Botany, Jodpur 6: 732 (1985). Type: India, Great Nicobar Island, near Kopenheit, *Hore 7243* (holotype **CAL** [CAL0000018056 – as 7243A]; isotype **PBL** [PBL0000000120 – as 7243B]; **L** [L0004302]).

— *Genianthus nicobarensis* Klack., Bot. Jahrb. Syst. 117: 460. 1995. Type: India, Great Nicobar Island, near Kopenheat, 1979, *Hore 7243* (holotype **L** [L0004302]).

Secamone incarnata (A.Kidyoo) Rodda & Klack., **comb. nov.**— *Toxocarpus incarnatus* A.Kidyoo, Phytotaxa 564: 134. 2022. Type: Thailand, Ratchaburi, Suan Phung, 600–650 m, 3 Aug. 2019, *A. Kidyoo 66* (holotype **BKF**; isotype **BCU** n.v.).

Secamone oblanceolata (Kerr) Rodda & Klack., **comb. nov.**— *Toxocarpus oblanceolatus* Kerr, Bull. Misc. Inform. Kew 1938: 450. 1938. Type: Thailand, Sukotai [Sukothai], Kao Luang, ca 500 m, 2 May 1922, *Kerr 5914* (lectotype **K** [K000881956], designated here; isoelectotype **BK** [BK257744], **BM** [BM000793234]).

Notes.— Three duplicates of the type collection *Kerr 5914* are extant. The richest, K000881956, is designated as the lectotype.

Secamone ovatifolia Rodda & Klack., **nom. nov.**— *Toxocarpus ovatus* Kerr, Bull. Misc. Inform. Kew 1938: 450 (1938). Type: Thailand, Nakorn [Nakhon Si Thammarat], Khoa Koy, 55 m, 25 Sept. 1915, *Vanpruk 707* (lectotype **K** [K000881957], designated here; isoelectotypes **E**, **L**).

Blocking name: *Secamone ovata* R.Br. (= *Secamone elliptica* R.Br. subsp. *elliptica*).

Secamone ridleyi (King & Gamble) Rodda & Klack., **comb. nov.**— *Genianthus ridleyi* King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74(2): 526. 1908. Type: [Peninsular Malaysia], Perak,

Larut, 3,000–3,500 ft, Dec. 1881, *King's Collector 2612* (lectotype **K** [K000910085], first step designated by Klackenberg (1995), second step designated here; isoelectotypes **BM** [BM001014098], **K** [K000910086, K000910087 fragments of dissected flowers and drawings], **SING** [SING0122467]).

Notes.— The protologue of *Genianthus ridleyi* listed three collections: *Ridley 2988*, *Scortechini 1172* and *King's Collector 2612*. Klackenberg (1995) designated *King's Collector 2612* (**K**) as type without selecting one single specimen in the herbarium. One of these specimens is selected as the lectotype in a second step here. Furthermore, a specimen deposited at **CAL** but labelled *Kunstler 2612, 1881* [CAL-0000018057], is most probably also an isoelectotype.

Secamone rufovelutina (King & Gamble) Rodda & Klack., **comb. nov.**— *Genianthus rufovelutinus* King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74(2): 526. 1908; Rintz, Malayan Nat. J. 30: 520. 1978; Klackenberg, Bot. Jahrb. Syst. 117: 458. 1995. Type: [Peninsular Malaysia], Perak, Larut, Feb. 1884, *King's Collector 5611* (lectotype **K** [K000910081], designated by Klackenberg (1995); isoelectotypes **K** [K000910080, K000910082], **P** [P04571070]).

— *Hoya rufolanata* Ridl., Fl. Malay Penins. 2: 402. 1923. Type: Peninsular Malaysia, Perak, Sungei Siput, 11 Sept. 1920, *I.H. Burkill SFN 6332* (lectotype **K** [K000910079], designated by Rintz (1978); isoelectotypes **BO**, **SING** [SING0059479]).

Secamone subpeltata (Klack.) Rodda & Klack., **comb. nov.**— *Genianthus subpeltatus* Klack., Bot. Jahrb. Syst. 117: 464. 1995. Type: Malaysia, Pahang, Fraser's Hill, path to Pine Tree Hill, 1967, *Ng FRI 5018* (holotype **L** [L0004303]; isotypes **L** [L0004304], **SING** [SING0122560]).

Secamone thailandica Rodda & Klack., **nom. nov.**— *Genianthus siamicus* Klack., Phytologia 75(3): 202. 1993. Type: Thailand, Kanchanaburi, Khao Yai, E Sangkhla, ca 1,150 m alt., 1968, *van Beusekom & Phengkhilai 200* (holotype **L** [L0004397]).

Blocking name: *Secamone siamica* Kerr, Bull. Misc. Inform. Kew 1938: 448. 1938. (= *Secamone elliptica* subsp. *siamica* (Kerr) Klack.).

Secamone trullata (Klack) Rodda & Klack., **comb. nov.**— *Genianthus trullatus* Klack, Bot. Jahrb. Syst. 117: 453. 1995. Type: Indonesia, Sumatra, Aceh, Ketambe, valley of Lau Alas, near tributary of Lau Ketambe, ca 35 km NW of Kutatjana, 1975, *de Wilde & de Wilde-Duyffes 16978* (holotype L [L0004305 & L0004306 – a single specimen over two sheets]).

Secamone truncatiloba Rodda & Klack., **nom. nov.**— *Genianthus valvatus* Klack., Bot. Jahrb. Syst. 117: 442. 1995. Type: Indonesia, Kalimantan, E Kutai, G. Tepian Lobang, on Menubar NE of Sangkulirang, 1951, *Kostermans 6035* (holotype L [L0004307]; isotypes L [L0004308, L0639909, L0639910]).

Blocking name: *Secamone valvata* Klack., Opera Bot. 112: 30. 1992.

Note.— The new name alludes to the truncate corona lobes.

Secamone vietnamensis Rodda & Klack., **nom. nov.**— *Toxocarpus bonii* Costantin in Lecomte (ed.), Fl. Indo-Chine 4: 53. 1912. Type: [Vietnam], Langson, 18 Mar. 1892, *Bon 5257* (lectotype P, designated here; isolectotype P).

Blocking name: *Secamone bonii* Costantin in Lecomte (ed.), Fl. Indo-Chine 4: 43. 1912. (= *Secamone elliptica* R.Br. subsp. *elliptica*).

Notes.— Two specimens are mentioned in the protologue of *Toxocarpus bonii*: “forêt du Mont Bavi (Balansa)” and “Langson (Bon)”. The Balansa specimen (*Balansa 2089*) is sterile, while the only Bon specimen pencilled likely in Costantin’s hand as *Toxocarpus bonii* is *Bon 5257*. The lectotype designated here is fertile and well preserved and has a label with locality and date, while the isolectotype only has a label with the collection number 5257. The syntype *Balansa 2089* is extant at P.

TAXON OF UNCERTAIN SYSTEMATIC POSITION

Toxocarpus pierreii Costantin in Lecomte (ed.), Fl. Indo-Chine 4: 54. 1912. Type: Cochinchine méridionale, Bao-chiang, *Pierre s.n.* (P n.v.).

Notes.— Type material not found. The protologue lacks a description of flowers and fruits, and the description of the leaves is not specific enough to point out this as a species of Secamonoideae.

The following names of taxa found in South-East Asia do not require new combinations or new names in *Secamone* as these are already available:

Genianthus crassifolius (Wight & Arn.) Hook.f. [*Secamone crassifolia* (Wight & Arn.) K.Schum.]

Genianthus maingayi Hook.f. [*Secamone maingayi* (Hook.f.) Rodda].

Genianthus micranthus (Roxb.) I.M.Turner [*Secamone laurifolia* (Hook.f.) K.Schum.].

Toxocarpus curtisii King & Gamble [*Secamone curtisii* (King & Gamble) Klack.].

Toxocarpus glabrescens M.R.Hend. [*Secamone glabrescens* (M.R.Hend.) Klack.].

Toxocarpus griffithii Decne. [*Secamone griffithii* (Decne.) Klack.].

Toxocarpus lagenifer Kerr [*Secamone lagenifera* (Kerr) Klack.].

Toxocarpus langkawiensis King & Gamble [*Secamone langkawiensis* (King & Gamble) Klack.].

Toxocarpus penangianus King & Gamble [*Secamone penangiana* (King & Gamble) Klack.].

Toxocarpus scortechinii King & Gamble [*Secamone scortechinii* (King & Gamble) Klack.].

Toxocarpus siamensis Schltr. [*Secamone siamensis* (Schltr.) Klack.].

Toxocarpus spirei Costantin [*Secamone spirei* (Costantin) Klack.].

Toxocarpus villosus (Blume) Decne. [*Secamone villosa* Blume].

Toxocarpus wightianus Hook. & Arn. [*Secamone wightiana* (Hook. & Arn.) K.Schum.].

NEW COMBINATIONS IN STEPHANOTIS

Based on Liede-Schumann *et al.* (2022), *Dregea* E.Mey is a synonym of *Stephanotis* Thouars. New combinations for taxa from continental South-East Asia are made here. *Dregea lanceolata* (Cooke) Santapau & Wagh, listed by Thaihong *et al.* (2018) for Thailand, is here considered to be a synonym of *Stephanotis volubilis* (L.f.) S.Reuss, Liede & Meve, and therefore a new combination in *Stephanotis* is not necessary.

Stephanotis stellaris (Ridl.) Rodda, **comb. nov.**—*Marsdenia stellaris* Ridl., J. Fed. Malay States Mus. 5: 40. 1914.—*Dregea stellaris* (Ridl.) Ridl., Fl. Malay Penins. 2: 387. 1923.—*Dittoceras stellaris* (Ridl.) Bullock, Kew Bull. 11(3): 513. 1957.—Type: [Peninsular Malaysia], Selangor, Gunong Mengkuang, 5,000 ft, 3 Feb. 1913, *N.C. Robinson s.n.* (holotype **K** [K000894719]).

Notes.— This taxon is placed in *Stephanotis* because of its similarity to another Asian taxon in *Stephanotis*, *S. volubilis* (L.f.) S.Reuss, Liede & Meve. Both taxa have long pedunculate inflorescences, long pedicellate flowers, rotate corollas with tube shorter than the lobes, shortly stipitate gynostegium and ovate, spreading staminal corona lobes.

Stephanotis cuneifolia (Y.Tsiang & P.T.Li) Rodda, **comb. nov.**—*Dregea cuneifolia* Y.Tsiang & P.T.Li, Acta Phytotax. Sin. 12: 127. 1974. Type: China, Guangxi, Ta-Miao-Shan Hsien, Chiu-Wan Chan, 720 m, 7 Sept. 1958, *S.H. Chun 15587* (holotype **IBSC** [0613574] n.v.; isotypes **NAS** [NAS00208999], **IBK** [IBK00191441], **GXMI** [GXMI050446]).

Notes.— *Dregea cuneifolia*, described from China, is also found in Vietnam (Tran, 2010).

Stephanotis taynguyenensis (T.B. Tran & Rodda) Rodda, **comb. nov.**—*Dregea taynguyenensis* T.B. Tran & Rodda, Phytotaxa 333: 267. 2018. Type: Vietnam, Tay Nguyen, Gia Lai province, Kon Ka Kinh National Park, 14°26'00.1"N, 108°21'45.7"E, 1,194 m, 9 June 2011, *T.B. Tran, V.H. Do & H.Q. Bui Bach0906201101* (holotype **HN** [HN0000070158]; isotype **HN** [HN0000070159]).

THE STATUS OF *PSEUDOSARCOLOBUS*

Pseudosarcobolus was published in Costantin (1912), with the only species *P. villosus* Costantin. The earliest name for this taxon is *Marsdenia barbata* Collett & Hemsl., a name which lacks a combination in *Pseudosarcobolus*.

Pseudosarcobolus was retained as a distinct genus in Liede-Schumann *et al.* (2022) but the new combination for *Marsdenia barbata* in *Pseudosarcobolus* was not made. Based on preliminary molecular data, *Pseudosarcobolus* is sister to *Marsdenia* R.Br. s.s. (Rodda, in prep.) and therefore it shall be retained as a monotypic genus.

Thaithong *et al.* (2018: 156) treat the taxon as *Gymnema barbatum* (Collett & Hemsl.) Kerr. They add the observation that the plants produce clear latex in contrast to the other Thai species of *Gymnema*, which exude white latex. The similarities with other *Gymnema* species extend to their fleshy corolline corona scales with trichomes, but differ in their racemiform inflorescences, the shape of the corona lobes, the indument of the corolla tube, the flat style-head, and pollinarium morphology (Liede-Schumann *et al.*, 2022).

Pseudosarcobolus barbatus (Collett & Hemsl.) Rodda, **comb. nov.**—*Marsdenia barbata* Collett & Hemsl., J. Linn. Soc., Bot. 28: 87. 1890.—*Gymnema barbatum* (Collett & Hemsl.) Kerr, Fl. Siam. 3(1): 20. 1951. Type: [Myanmar], Mandalay, Meiktila, July 1888, *Collett 852* (lectotype **K** [K000872812], designated here).

— *Pseudosarcobolus villosus* Costantin in Lecomte, Fl. Indo-Chine 4: 77. 1912. Type: Vietnam, Chao-han prov., Bien Hoa, Mar 1877, *Pierre 4381* (lectotype **P** [P00476448], designated here; isolectotypes **P** [P00476445, P03790872, P03790873, P03790874, P03790877, P03790878]).

— *Gymnema griffithii* Craib, Bull. Misc. Inform. Kew 1911: 416. 1911. Type: Thailand, Doi Sootep, 1,500 ft, 16 May 1909, *Kerr 635* (lectotype **BM** [BM001014174], designated here; isolectotypes **K** [K000894647, K000894646]. Fig. 7.

Notes.— No type specimen was indicated in the protologue of *Marsdenia barbata*, only the locality, Meiktila. The introduction to the paper (Collett & Hemsley, 1890) includes the information that the materials examined in preparation of the manuscript were collected by Collett in Myanmar in 1887–1888. The specimen K000872812 collected by Collett in 1888 at Meiktila is, therefore, to be considered original material and is designated as the lectotype of *M. barbata*. The only material indicated for *Pseudosarcobolus villosus* was “Chao-han prov. Bien Hoa, Pierre”. Among the seven duplicates found, P00476448 is the richest and is designated as the lectotype. No herbarium was indicated for *Kerr 635*, the type specimen of *Gymnema griffithii*. The **BM** duplicate BM001014174 is a rich specimen, and has manuscript notes and sketches by Kerr. It is therefore designated as the lectotype.



Figure 7. *Pseudosarcobolus barbatus* (Collett & Hemsl.) Rodda. Inflorescence. Photographs by Michele Rodda, based on Rodda *et al.* MR1869 (BKF, SING).

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