



## ***Argyreia gyrobracteata* Traiperm & Chitchak (Convolvulaceae): A new record to the flora of Vietnam**

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**ABSTRACT:** *Argyreia gyrobracteata* Traiperm & Chitchak (Convolvulaceae) is newly recorded in Vietnam. It is similar to *A. mekongensis* Gagnep & Curch in having a white campanulate corolla but differs from that species by having whitish surface of the abaxial leaf, narrowly lanceolate or linear-oblong, curly, rolled up the bract with a longer length of the petiole and a shorter pedicel. It was previously known only in Thailand, but was recently found in Lam Dong Province, Vietnam, for the first time. The present study provides a detailed description, colorful photos and the distribution of the species. Furthermore, a comparison of the diagnostic characters between this species and a related species in Vietnam, *A. mekongensis* Gagnep & Curch, is provided.

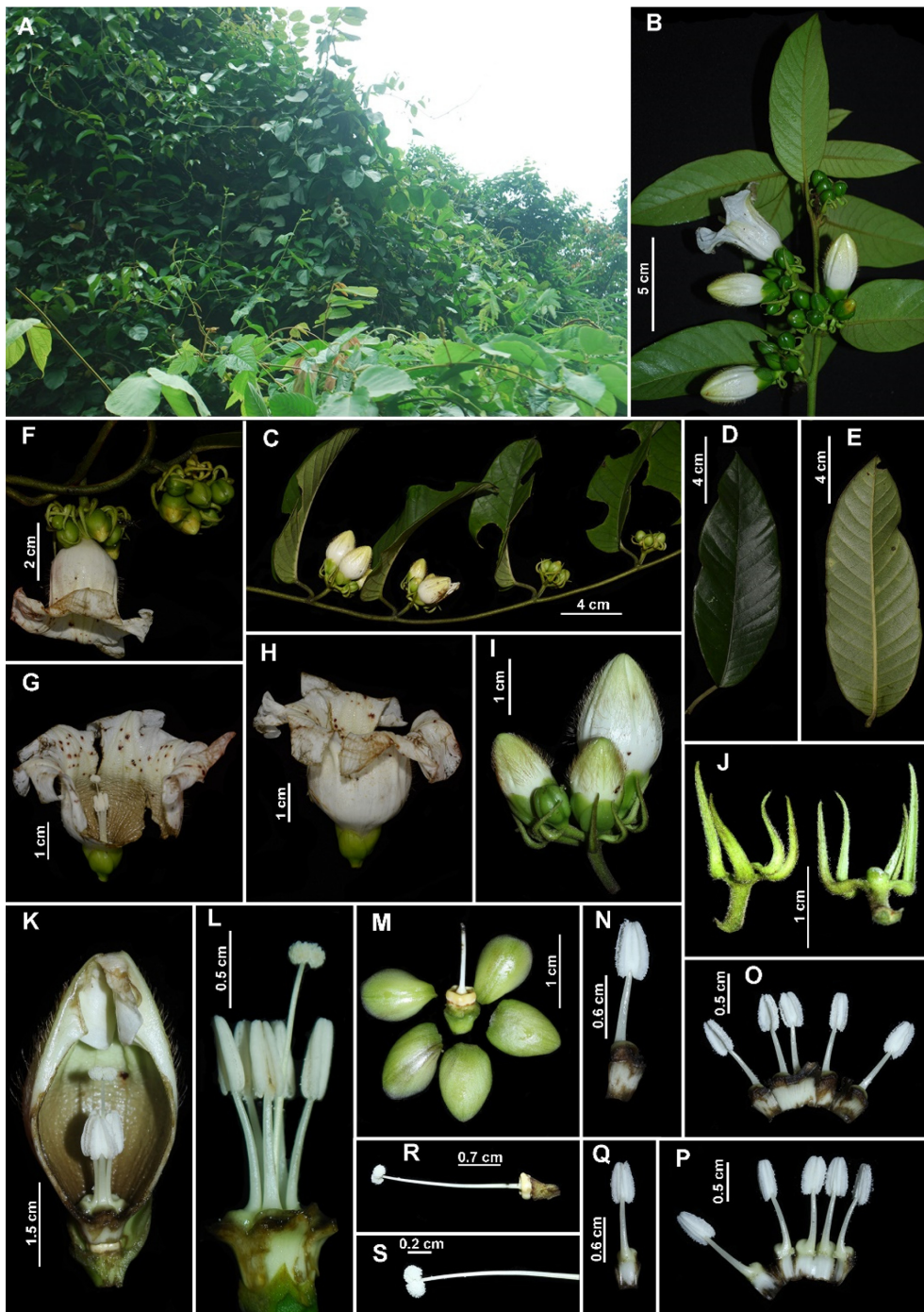
**Keywords:** *Argyreia gyrobracteata*, new record, Convolvulaceae, Vietnam

The genus *Argyreia* Lour. (Gagnepain and Courchet, 1915), consists of 135 species distributed from Madagascar, Tropical & Subtropical Asia to N. Queensland (Mabberley, 2017; Chitchak et al., 2018). Thailand and Myanmar are species-rich countries having 37 species each (Traiperm and Staples, 2016; Traiperm et al., 2019), followed by 22 species in China (Fang and Staples, 1995), 18 species in Malaysia (Kiew et al., 2015), 16 species in Laos PDR (Staples et al., 2014) and 5 species in Cambodia (Cho et al., 2016). *Argyreia* is a genus of herbaceous climbers or scandent shrubs or lianas, flowers in cymes or capitula, corolla 5-lobed and fruit indehiscent or berry (Staples and Traiperm, 2010). It is similar to *Ipomoea* morphologically but differs in its fruit. The fruit of the former is indehiscent, fleshy, or mealy berries, whereas that of the latter is a dehiscent dry capsule (Kiew et al., 2015). *Argyreia* is a problematic genus in Convolvulaceae due to morphological complexity but no precise revisions or its monograph are available up to date, especially in Southeast Asia which is species rich for the genus (Traiperm and Staples, 2013, 2016; Shalini et al., 2017; Traiperm et al., 2019).

So far, sixteen species are recognized from Vietnam but

again, comprehensive research including nomenclature review should be taken to confirm the actual number of species for the genus. An account of *Argyreia* in this paper relies on the foundation of Pham (1999) and Staples (2018) which has been accepted by taxonomists in Vietnam. During our regular survey work in Lam Dong Province, southern highland of Vietnam, we collected several specimens of Convolvulaceae. The genus is distributed throughout Vietnam and seven species have been reported from Lam Dong, *A. mollis*, *A. osyrensis*, *A. lanceolata*, *A. laotica*, *A. longipes*, *A. mekongensis*, and *A. monosperma*. Among these species, our specimen was morphologically similar to *A. mekongensis* (Table 1). On the basis of available literatures (Pham, 1999; Chitchak et al., 2018; Staples, 2018) and carefully checking herbarium specimens of *Argyreia* in Herbarium of the Institute of Ecology and Biological Resource (HN) Hanoi, finally it was identified as *A. gyrobracteata* Traiperm & Chitchak, a first record from Vietnam (Fig. 1). *A. gyrobracteata* differs from *A. mekongensis* by the whitish surface of its abaxial leaf, narrowly lanceolate or linear-oblong, curly, rolled up bract, longer length of the petiole and shorter pedicel. Previously *A. gyrobracteata* had been reported only

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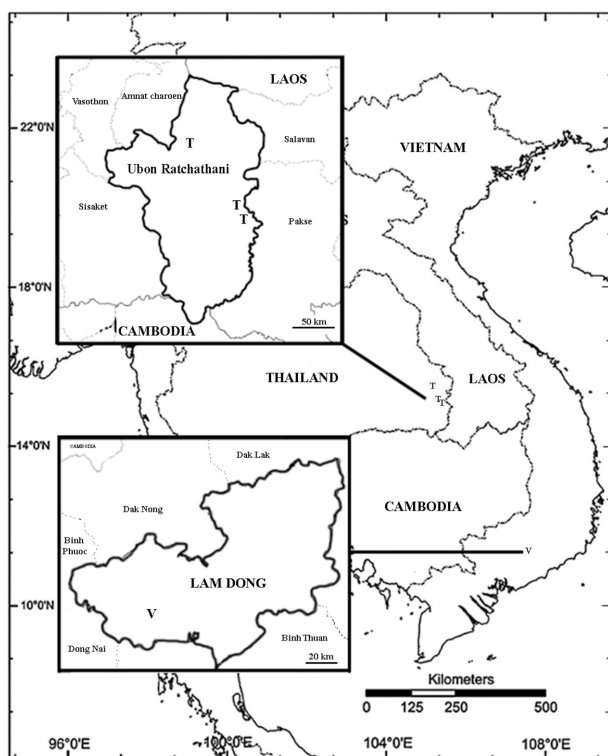
**Fig. 1.** *Argyreia gyrobracteata* Traiperm & Chitchak. **A.** Habit. **B, C, F, I.** Flower with inflorescences. **D.** Adaxial leaf. **E.** Abaxial leaf. **G, H.** Flowers. **J.** Adaxial (left) and abaxial (right) bracts. **K.** Longitudinal section of flower buds. **L.** Filaments and style. **M.** Sepals. **N–O.** Front view of stamen. **Q–P.** Side view of stamen. **R–S.** Pistil. Photos by T.T.Bach and T.D.Binh.

in two different districts, Trakan Phut Phon and Sirindhorn in Thailand, the latter being located close to the border of Lao PDR (Chitchak et al., 2018) (Fig. 2). Interestingly, up to now, no record for *A. gyrobracteata* has been reported from Lao

PDR and Cambodia, two countries located between Thailand and Vietnam (Newman et al., 2007; Cho et al., 2016). Therefore, a further study for *A. gyrobracteata* is needed to explain its discontinuous distribution in these regions. Here,

**Table 1.** Morphological comparison of *Argyreia gyrobacteata* and *A. mekongensis*.

Characters	<i>A. gyrobacteata</i>	<i>A. mekongensis</i>
Habit	Climber and prostrate	Woody twiner
Leaf blade shape	Ovate or ovate-elliptic	Elliptic to broadly oblong
Leaf blade size	10.3–14.5 × 4.6–6.5 cm	7.0–12 × 3.0–4.0 cm
Abaxial leaf surface	Whitish, sericeous	Densely greyish tawny pubescent
No. of secondary veins	9–15	6–12
Petiole length (cm)	1.3–2.1	1.0–1.2
Pedicels length (mm)	0.4–0.6	10
Bract shape	Narrowly lanceolate or linear-oblong	Lanceolate or ovate-cuspidate
Bract size (cm)	1.5–2.5 × 0.3–0.7	2.0 × 0.8
Bract orientation	Curly, rolled up	Straight
Outer sepal size (cm)	0.7–1 × 0.4–0.6	0.8–1.3 × 0.6–0.7
Inner sepal size (cm)	0.7 × 0.6	0.9–1.0 × 0.7–1.0
Corolla tube length (cm)	4.1–4.3	4.0–4.7



**Fig. 2.** Distribution map of *Argyreia gyrobacteata* Traiperm & Chitchak in Lam Dong Province, Vietnam (V) and two accessions at Trakan Phut Phon and Sirindhorn in Ubon Ratchathani province, Thailand (T).

we provide a detailed description, habitat, distribution, color photographs, and comparison table.

### Taxonomic Treatment

*Argyreia gyrobacteata* Traiperm & Chitchak. Botany. 96: 217–233, 2018 (Fig. 1)—TYPE: THAILAND. Ubon Ratchathani, Sirindhorn district, Chong Mek subdistrict, in the edge of dipterocarp forest, 15°07'20.8"N, 105°28'02.1"E, 20 Aug 2016, P. Rattanakrajang, N. Chitchak & P. Traiperm 110 (holotype BKF; isotypes K, QBG).

**Description** (based on the specimens from Vietnam cited below): Perennial creepers. Stems 5–7 m long; young branches yellowish pubescent. Leaves simple, entire; petiole 1.3–2.1 cm long, pubescent; leaf blade ovate or ovate-elliptic, 10.3–14.5 cm long, 4.6–6.5 cm wide; base obtuse, margin entire, apex acute to obtuse, adaxial surface green, glabrous, glabrescent or hairy on midrib and secondary veins; abaxial surface whitish, sericeous, secondary veins 9–15 pairs. Inflorescences axillary, pendulous, cymose, 4–6-flowered; peduncle 0.7–1.4 cm long, hairy; bracts 3 or 4, twisted, rolled up, subequal, narrowly lanceolate or linear-oblong, middle bract 1.5–2.5 cm long, 0.3–0.7 cm wide; side bracts 1.5–2.3 cm long, 0.2–0.7 cm wide, base cuneate, margin entire, apex long-attenuate, abaxial surface sericeous with whitish hairs, adaxial surface glabrescent; pedicels 0.4–0.6 mm long, hairy. Flowers pendulous; sepals unequal, 3 outer sepals ovate, 0.7–1.0 cm long 0.4–0.6 cm wide, margin entire, apex obtuse, glabrous or sericeous abaxially, 2 inner sepals broadly obovate or broadly obcordate or orbicular, 0.7 cm long, 0.6 cm wide, margin entire, apex rounded or retuse, glabrous. Corolla campanulate, 4.1–

4.3 cm long, pure white, thickly membranous, midpetaline bands yellowish or brownish hirsute outside. Stamens included, equal, whitish; filaments 0.9–1.1 cm long; anthers oblong, 0.4–0.6 cm long, parallel-sided, bases sagittate, apex sunken, deeply lobed, dehiscing lengthwise. Pistils included, longer than stamens, whitish. Ovary sunken in nectary disc, globose, apex abruptly narrowing into style base, glabrous. Styles 2.1 cm long, filamentous, glabrous. Stigma two-lobed, ca. 1.5 mm long. Fruit globose to subglobose, shiny reddish brown, 0.8–1.1 cm in diameter, glabrous. Seeds usually four, trigonous-rounded, 5–6 mm long, black, glabrous.

**Phenology:** Flowering in July to September; fruiting in September to October.

**Distribution:** Thailand (Ubon Ratchathani), Vietnam (Lam Dong Province) (Fig. 2).

**Ecology, habitat, and conservation status:** *Argyreia gyrobracteata* grows on slopes, secondary forest, roadside, and bright preferred disturbed areas at elev. of about 400 m a.s.l., in association with *Ficus* sp., *Lithocarpus* sp., *Mimosa* sp., *Musa* sp., *Dioscorea* sp., *Abrus* sp., *Bamboo* sp., and *Chromolaena* sp. We found its distribution only in Lam Dong Province to date, consisting of at least sixty to seventy mature individuals in >10 populations. Consequently, *Argyreia gyrobracteata* is assessed here as Least Concern (LC) because its probable area of occupancy and the extent of occurrence are both greater than the limits of any of the threat categories (IUCN Standards and Petitions Committee, 2019).

**Specimens examined:** VIETNAM. Lam Dong Province: Da Huoai, along in Chuoi pass, 11°26'01,2"N, 107°41'58,8"E, elev. 422 m, 17 Sep 2018, *T. D. Binh* 53; 17 Sep 2018, *T. T. Bach*, *D. V. Hai*, *B. H. Quang*, *T. D. Binh*, *D. H. Son* VK 7174 (HN!, KRIB!).

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## Conflict of Interest

The authors declare that there are no conflicts of interest.

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