

***Jasminum binhchauense* (Oleaceae), A NEW SPECIES FROM BINH CHAU-PHUOC BUU NATURE RESERVE IN SOUTHERN VIETNAM**

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ABSTRACT

Jasminum binhchauense, a new species of the family Oleaceae, is described and illustrated. The species was collected during 2022–2023 from Binh Chau-Phuoc Buu Nature Reserve, Ba Ria-Vung Tau province, southern Vietnam. The new species differs from its congeners in its branchlets, leaf blade, petioles and calyx. A taxonomic description, a table comparing morphological characters of the allied species, and illustrations, a color photo-plate are provided.

Keywords: New species, Taxonomy, *Jasminum*, Oleaceae.

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INTRODUCTION

Jasminum L. is a genus of the family Oleaceae and contains about 200 species distributed widely in tropical and subtropical Asia and the Pacific Islands (Chang et al., 1996; Green, 1999; Newman et al., 2007; Jin et al., 2016; Cho et al., 2016; Govaerts & Green, 2021) and by 40 species, 4 subspecies, and 1 variety (6 spp. endemic) in Vietnam (Ho, 2000; Tran, 2003; Bui et al., 2013 a,b,c, 2016, 2017a,b, 2019, 2020, 2021).

During our recent field survey of Binh Chau-Phuoc Buu Nature Reserve in the Xuyen Moc district of Ba Ria-Vung Tau province in Vietnam, an interesting species of the genus *Jasminum* was encountered. After a thorough scrutiny of the available literature (Kobuski, 1939, 1959; Miao, 1984, 1992; Chang et al., 1996; Green, 2000, 2003, 2004; Gagnepain, 1933a,b) and consultation of various herbaria in Vietnam viz. HN, HNU, VNM, and virtual herbaria like K, and P, turned out to be undescribed species. This species is closely related to *Jasminum ledangense* and *Jasminum nervosum*. The paper presents a table that displays the morphological comparison of *Jasminum binhchauense* in conjunction with closely related species. Additionally, it is accompanied by illustrations, color images and distribution map of the new species. (Table 1, Figs. 1–4).

MATERIALS AND METHODS

The following herbaria were consulted either virtually or in-person examining digital herbarium images the type specimens: HN, K, P, and VNM (acronyms followed Thiers, 2020) Images available on JSTOR Global Plants (<https://plants.jstor.org/>), Tropicos, and Plants of the World Online (POWO) along with relevant monographs and Floras (Gagnepain 1933a,b; Kobuski 1939, 1959). Chang et al. 1996; Green 1993, 2000, 2003, 2004) were also scrutinized. Our collected specimens were compared with all described species from southeast Asia (Kiew 2018). Morphological characters were recorded using Nikon SMZ745/SMZ745T stereoscopic microscope and photographs of its vegetative

and floral parts were taken both in the field and from the samples preserved in 70% ethanol using Canon EOS 7D. The type specimens have been stored in the herbaria; Institute of Ecology and Biological Resources, Vietnam Academy of Sciences and Technology (HN), and Binh Chau-Phuoc Buu Nature Reserve.

RESULTS AND DISCUSSION

***Jasminum binhchauense* B.H. Quang, sp. nov. (Figs. 1, 2, 3)**

Type: VIETNAM. Ba Ria-Vung Tau province: Binh Chau-Phuoc Buu Nature Reserve, Xuyen Moc district, Binh Chau commune, 10°35'12.4"N - 107°33'25.0"E, Alt. 33 m asl, July 14, 2023; B.H. Quang, L.V. Son 100 (holotype HN!; isotypes HN!).

Diagnosis: The new species differs from the morphologically allied species *Jasminum ledangense* and *Jasminum nervosum* by the following morphological characters: Branchlets; densely rusty villous vs. glabrous or sparsely pubescent. Leaf blade ovate, or elliptic to narrowly lanceolate. Calyx. pubescent or tomentose; lobes 10-11, filiform, pubescent or tomentose.

Scandent shrub, 1–2 m long. Young twigs terete, densely rusty villous or pubescent. Leaves unifoliolate opposite, simple, glabrous; petiole 2–5 mm long, densely rusty villous or pubescent; blade ovate, or elliptic to narrowly lanceolate, papery, rusty pubescent, dark green above, pale green below, 2–4 (–6) cm long × 1.5–2 cm wide, chartaceous, base-cuneate, apex obtuse, acute, to acuminate; primary veins 4–5, without domatia. Inflorescence compound cyme with 1–3 flowers, terminal or axillary, rusty pubescent, pubescence more on the branches of the inflorescence than on the main axis of the inflorescence, peduncle densely rusty villous or pubescent, 0.5–1 cm long; bracts narrowly lanceolate or-elliptic 0.5–1 cm long, pubescent or tomentose. Pedicel 0.3–0.5 cm long, pubescent. Calyx campanulate, whitish green, pubescent or tomentose; tube 0.3–0.4 mm long, 0.2–0.3 mm wide, lobes 10–11, filiform, 0.5–1 (–1.5) cm long, pubescent or

tomentose. Corolla salver-form, white, glabrous; tube slender, 1–1.5 cm long, ca. 1.5 mm wide, lobes 11, narrow to lanceolate, 6–10 mm long × 3–4 mm wide, apex acute to shortly acuminate. Stamens 2; filaments 0.5–1 mm long, glabrous. Anthers 3–4 mm long,

with acute connective appendage very short ca. 0.1 mm. Ovary barrel-shaped, 1–2 mm long, glabrous; style 1–1.5 cm long, glabrous; stigma narrowly oblong, ca. 5 mm long, glabrous; ovules 2. Fruits bilobed, lobes ellipsoid, 5–6 mm long, 4 mm in diam.

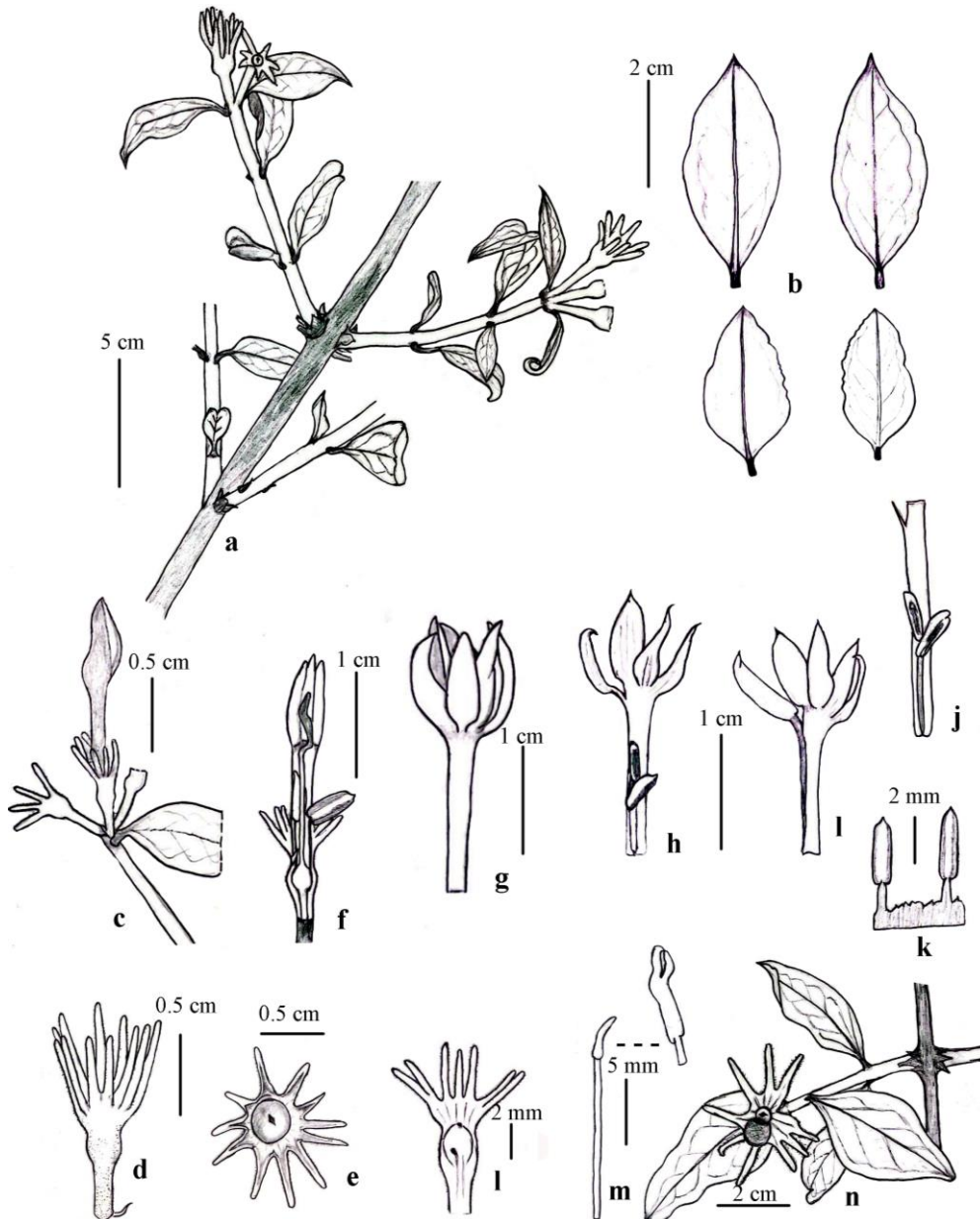


Figure 1. *Jasminum binhchauense* B. H. Quang. a) habit; b) abaxial view of leaf and adaxial view of leaf; c) Inflorescence with branchlets; d) calyx; e) calyx top view ; f) bud cut vertically; g) corolla lobes; h, i, j) corolla tube with anther; k) anther; l) ovary with calyx; m) pistil; n) branchlets with fruit [Drawn by: N.T.Thanh from the specimens B.H.Quang, L.V.Son 100]



Figure 2. *Jasminum binhchauense*. a) habit; b) Inflorescence top view; c) Flower top view. [Photos by: Le Van Son]

Phenology: Flowering in May–July; Fruiting in September–November.

Etymology: This species is named after Binh Chau-Phuoc Buu Nature Reserve of Vietnam, where it was discovered.

Vernacular name: Nhà bình châu.

Distribution and Habitat: The species *Jasminum binhchauense* is known only from its type locality, and is apparently endemic to Vietnam. It was found growing at elevations

ranging from 30 to 40 m a.s.l. The species grows well in evergreen moist forests on basalt red soil or Lowland dry forest, in association with *Dipterocarpus* sp. (Fig. 3).

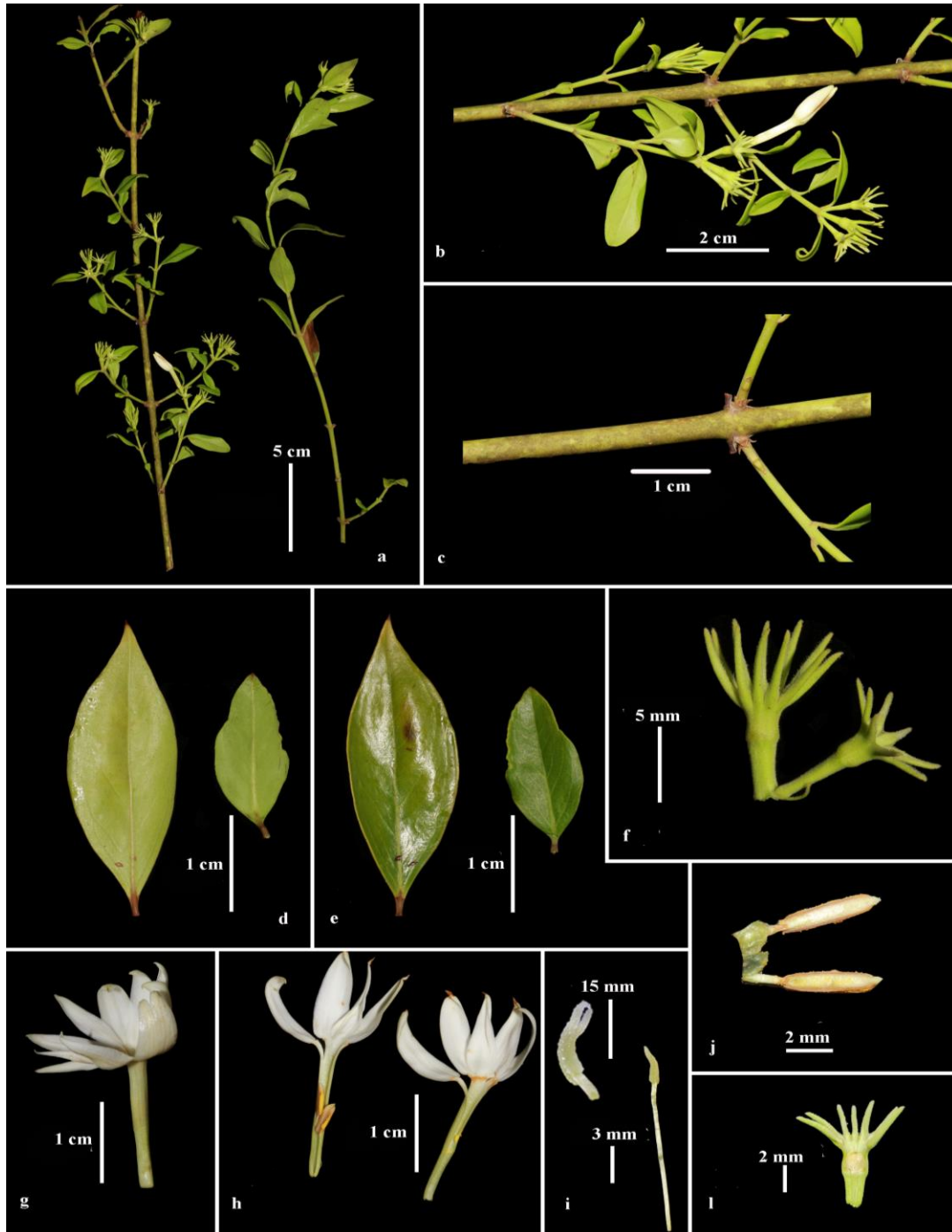


Figure 3. *Jasminum binhchauense*. a) habit; b) Inflorescence with branchlets.; c) branchlet; d) abaxial view of leaf; e) adaxial view of leaf; f) calyx; g) corolla lobes; h) corolla tube with anther; i) pistil; j) anther; l) ovary with calyx [Photos by: B. H. Quang]

Preliminary conservation status: The species *Jasminum binhchauense* is recorded growing naturally in Ba Ria-Vung Tau. According to our field observations in 2022–2023, the estimated number of mature individuals is less 150–200. The habitat is located within the protected area of Binh Chau-Phuoc Buu Nature Reserve and is well protected. in Area of Occurrence (AOO) of $10,000 \text{ km}^2 < 20,000 \text{ km}^2$, with point 1

(Figure 4) (standard (B1), the habitat area is fragmented and habitat quality is degraded due to the impact of ecotourism activities and hot and dry climate in this area (standard (B2a, b(ii, iii))). However, the impacts are not too serious, the population is located in a protected natural area with the ability to regenerate, so it is classified as vulnerable (VU) according to the criteria by IUCN (2021).

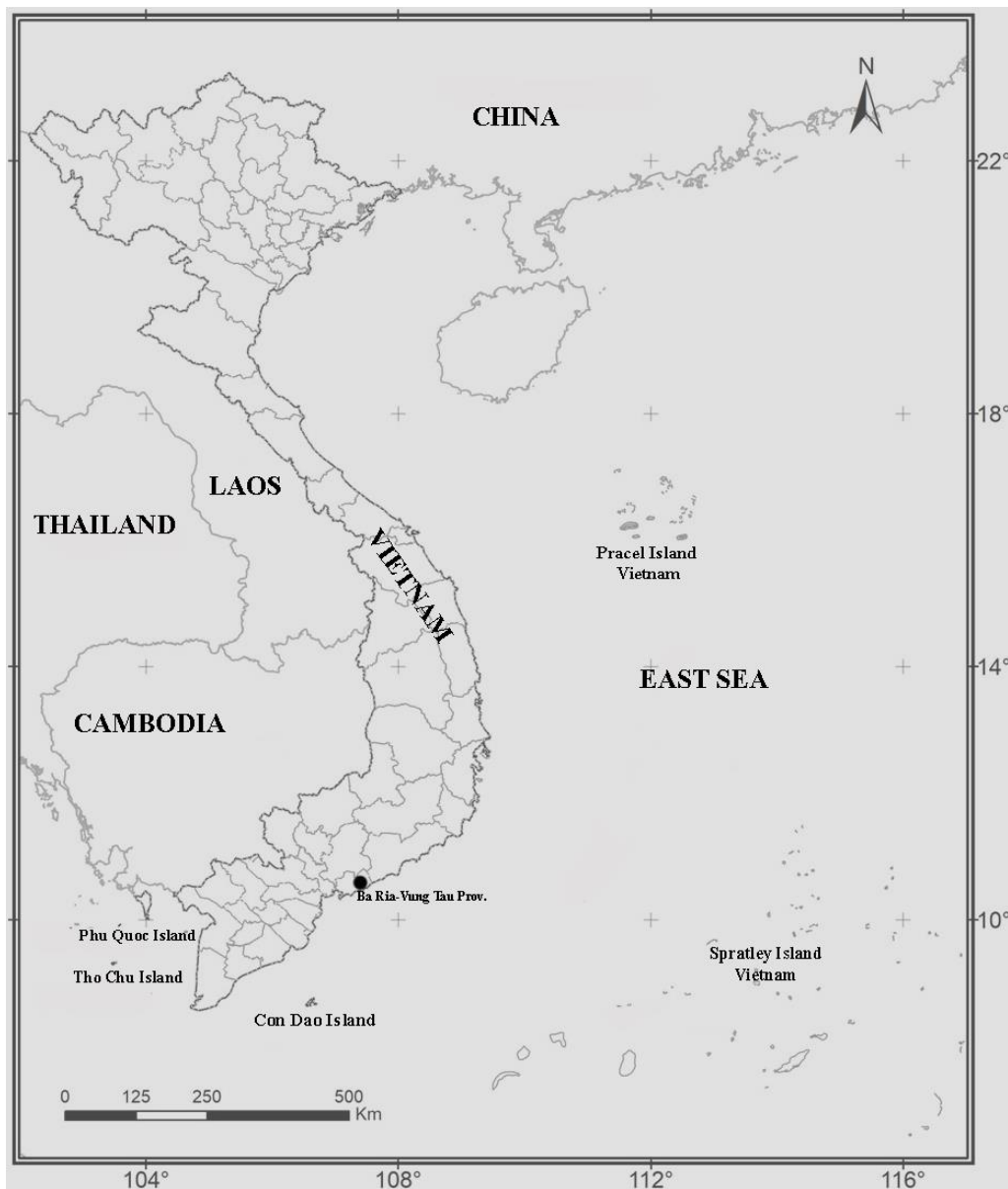


Figure 4. Distribution map of *Jasminum binhchauense*. Ba Ria-Vung Tau province in Vietnam

Table 1. Morphological comparison of *Jasminum binhchauense* with its closest allies. (Description of *Jasminum ledangense* Kiew and *Jasminum nervosum* Lour., follows Ho, 2000; Kiew, 2018 and Bui, 2020)

Morphological characters	<i>Jasminum binhchauense</i>	<i>Jasminum ledangense</i>	<i>Jasminum nervosum</i>
Branchlets	Densely rusty villous or pubescent when young	Glabrous, bark dark brown, twigs terete	Glabrous or sparsely pubescent
Leaves	Blade ovate, or elliptic to narrowly lanceolate, 2–4 (–6) cm long × 1.5–2 cm wide	Blade elliptic to narrowly lanceolate, 5–9.5 cm long × 1.7–2.5 cm wide	blade ovate to lanceolate, 2.5–13 cm long × 0.7–6 cm wide
Primary veins	4–5 on each side of the midrib, not arising from base	3–4 on either side of the midrib in the upper half of the leaf	3- or 5-veined from base, midrib arising from base
Petioles	2–5 mm long	0.5–10 mm long	2–10 mm long
Inflorescence	Terminal or axillary, 1–3 flowered, rusty pubescent	Terminal on short side branches, 3-flowered cymes, usually reduced to a single flower	Terminal or axillary, solitary or in 3–5-flowered cymes
Bracts	Narrowly lanceolate or elliptic 0.5–1 cm long	Linear, 1 mm long.	Linear, 1–13 mm.
Calyx	Pubescent or tomentose; tube 0.3–0.4 mm long; lobes 10–11, filiform, 0.5–(1.5) cm long, pubescent or tomentose	Glabrous, tube 2–3 mm long; lobes 5, stiffly filiform, 2.5–6 mm long, glabrous	Glabrous, tube 3–4 mm long; lobes 7 or 8, linear, 0.5–1 (–1.7) cm long, glabrous,
Corolla	White, glabrous; tube slender, 1–1.5 cm long, ca. 1.5 mm wide; lobes 11, narrow to lanceolate, 6–10 mm long × 3–4 mm wide, apex acute to shortly acuminate	White, lobes spreading, flushed purple-pink outside, tube 1.7–2.2 cm, 2 mm wide; lobes 8–10, narrowly oblong, 15–21 mm long × 1.5–2 mm wide, narrowed to an acute tip, spreading	White, salverform; tube 1.3–2.6 cm long, 1.5–2 mm wide; lobes 8–10, lanceolate, 1.5–2.5 cm long × 2–4 mm wide, to an acute tip
Stamens	Filaments 0.5–1 mm long, glabrous; anthers 3–4 mm long, with acute connective appendage 0.1 mm long	Filaments almost sessile (short-styled flower); anthers narrowly ellipsoid, 6 mm long, connective broad, tip mucronate	Filaments 0.5 mm long, glabrous; anthers 2–3 mm long, with acute connective appendage ca. 0.1 mm long
Ovary	barrel-shaped, 1–2 mm diam	globose, 1 mm diam	globose, 1.5–2 mm diam

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