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Cover: Green Bee-eater with colour pencils and watercolor wash by Elakshi Mahika Molur.



Jasminum angustifolium (L.) Willd. var. *angustifolium* (Oleaceae): a new distribution record for West Bengal, India

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Jasminum L. is the largest genus of the Olive family Oleaceae, containing about 200 species and distributed from tropical to sub-tropical areas of the world (Green & Miller 2009; Jeyarani et al. 2018). In India, the genus comprises 40 taxa (35 species, two subspecies, and three varieties) (Srivastava 2020). Of these, 16 species are endemic to the Indian Himalayan region, Deccan Peninsula, and Andaman Islands (Srivastava 2002; Green 2003; Jeyarani et al. 2018). The native Indian jasmynes are distributed in the eastern (West Bengal), northeastern (Assam, Meghalaya, and Sikkim), and northwestern Himalaya (Kashmir), the western part of Deccan peninsula, and southern Andaman in the tropical forests (Kalaiyarasi et al. 2018). They are represented by 15 species in West Bengal (Chandra 2015).

While exploring the Oleaceae taxa of West Bengal, a *Jasminum* species was collected from four locations in Gorumara forest division (Jalpaiguri, West Bengal). After a thorough literature survey (Clarke 1882; Prain 1903; Kanjilal et al. 1939; Gamble 1967; Manilal & Sivaranjan 1982; Deb 1983; Green 1985, 2003; Haridasan & Rao 1987; Srivastava 1987; Nair et al. 1997; Watson 1999; Gastman & Balachandran 2006; Giri et al. 2008; Sinha et al. 2012; Chandra 2015; Balachandran & Rajendiran

2016; Mallick 2020; Gogoi et al. 2021) and consulting different herbaria (ASSAM, AURO, CAL, IVH, K, MH, NY) and digital repositories (iNaturalist, POWO), it was identified as *Jasminum angustifolium* (L.) Willd. var. *angustifolium*. The taxon was hitherto not reported from West Bengal.

Jasminum angustifolium var. *angustifolium* can be easily distinguished from *J. angustifolium* var. *hirsutum* P.S.Green by the absence of domatia on abaxial surface of leaf; indistinct leaf venation on both surface; presence of linear, puberulent (on inner side) to sparsely ciliate calyx with filiform, thin, and comparatively larger (4–10 mm) sepals; minutely puberulent (not tomentose) young branches and glabrous matured stem (Table 1).

J.a. var. *angustifolium* and *J.a.* var. *sessiliflorum* (Vahl) P.S.Green are slightly close to each other, and both are devoid of domatia on vein axils and hairs on the matured stem. *J.a.* var. *angustifolium* is distinct from *J.a.* var. *sessiliflorum* by the presence of comparatively larger leaf size; minute puberulence on adaxial midvein and petiole; calyx lobes sparsely ciliate, calyx non-ribbed, fruiting sepals shorter than fruit; flower bud with pinkish tinge at apex; pedunculate inflorescence and ellipsoidal fruit (Table 1).

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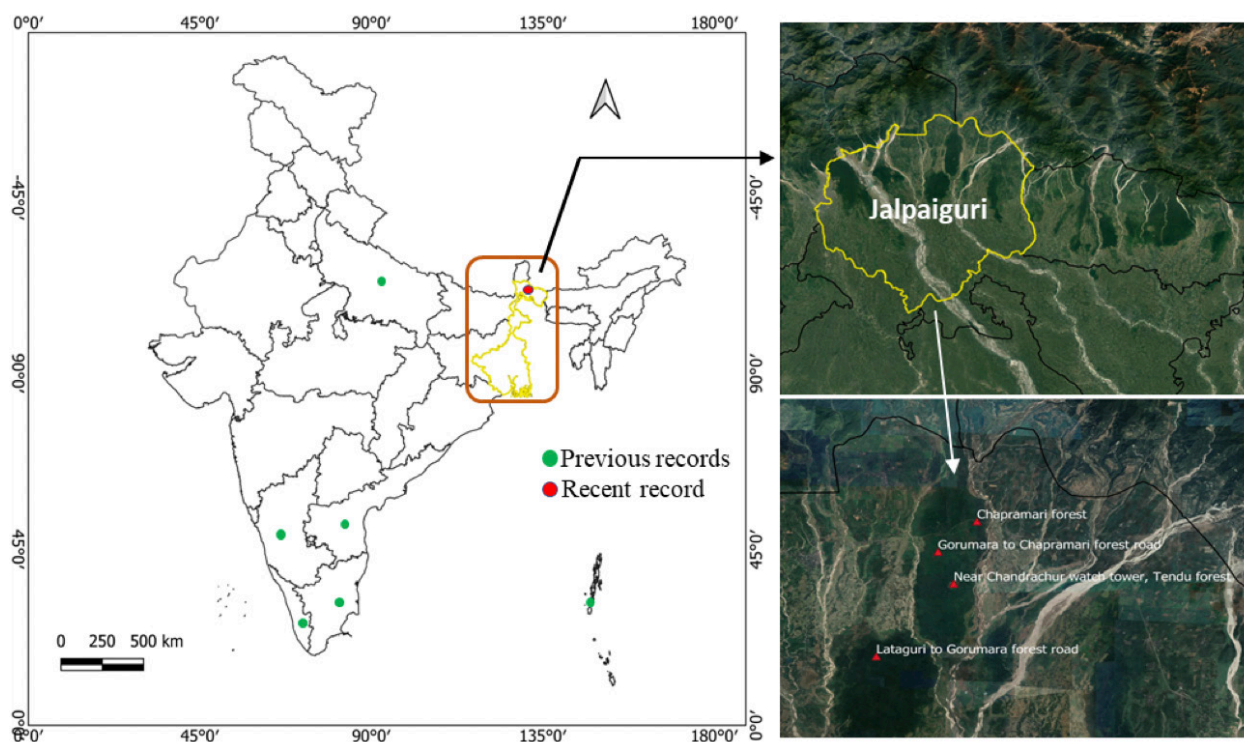


Figure 1. Distribution of *Jasminum angustifolium* (L.) Willd. var. *angustifolium* in India.

There have been no reports of the natural distribution of these three varieties in West Bengal. During the literature survey and herbarium consultation, we found one herbarium specimen (CAL0000031068) of *J. sessiliflorum* (now accepted as *J.a. var. sessiliflorum*) at CAL, which was a cultivated specimen from HBC (now AJC Bose Botanical Garden, West Bengal). The species is distributed mainly in the Eastern and Western Ghats of India. The natural distribution of *J.a. var. hirsutum* is recorded in India (Tamil Nadu) and Sri Lanka. *J.a. var. sessiliflorum* is reported from India (Andhra Pradesh, Kerala, Tamil Nadu) and Sri Lanka.

***Jasminum angustifolium* (L.) Willd., Sp. Pl. 1(1): 36. 1797; C.B. Clarke in Hook.f., Fl. Brit. India 3: 598. 1882; Gamble, Fl. Pres. Madras 2: 790(555). 1967; P.S. Green, Kew Bull. 40(1): 225–227. 1985; P.S. Green, Kew Bull. 58(2): 283–293. 2003; Muthumperumal & Parthasarathy, Check List. 5(1): 92–111. 2009; Sunil & Sivadasan, Fl. Alappuzha Dist. 413. 2009; Sinha & Shukla., Fl. Uttar Pradesh 123. 2020. *Nyctanthes angustifolia* L., Sp. Pl. 1: 6. 1753. Bengali: Ban mallika**

var. *angustifolium*

Aromatic, wild, scandent, and straggling shrubs up to 2 m long. Matured stem woody and glabrous, young branchlets pubescent with whitish hairs. Leaves simple, opposite, petiolate, entire, ovate-lanceolate, shape variable in same branch, 13–51 × 9–25 mm, obtuse to

rounded base, apex sub-acute to acuminate or obtuse, glabrous (margins and mid vein regions minutely puberulent), adaxial surface glossy and smooth; 3–5 pairs of lateral veins, vein articulation indistinct (specifically at apical part); domatia absent; petiole 3–5 mm, minutely puberulent. Terminal cyme with 1–5 flowers (mostly 3 flowers in each cluster on axillary shoots), bracteate, pedicel 2–5 mm, peduncle 5–13 mm; bracts 2.5–3 mm, persistent, linear; calyx persistent, linear, filiform, calyx tube 2–3 mm, sepals 5–7, puberulent (on inner side) to sparsely ciliate, 5–9 mm long; corolla white or white with exterior pink tinge at bud apex, fragrant, petals 6–9, linear-elliptical with acute apex, 11–20 mm long, tube 14–19 mm long, glabrous. Stamens 2, anthers 3–5 mm long, apiculate apex, dorsifixed, filaments 2–4 mm. Style straight, stigma slightly bifid, 2–3 mm, ovary 1–2 mm. Green berries turn purplish-black on ripening, ellipsoidal, 7–14 × 15–30 mm, single or paired, glabrous (Image 1).

Phenology: Flowering starts in November and continues till December. Fruit development begins in January and can be found up to July.

Specimens collected: Near Chandrachur watch tower (Tendu forest) (26.8447 N, 88.8630 E), roadside of Gorumara to Chapramari forest (26.8726 N, 88.8500 E), Chapramari forest (26.8990 N, 88.8824 E), Lataguri to Gorumara (26.7815 N, 88.7987 E), Gorumara forest



Image 1. *Jasminum angustifolium* (L.) Willd. var. *angustifolium*: A—Habit | B—Plant in vegetative condition | C—A leafy twig showing variations in leaf shape | D—Terminal inflorescence containing three diagnostic calyx and pink tinge bud | E—White bud with pink tinge on young shoot | F—Open flower | G—Single and paired fruit | H—Fruit with magnified view | I—Glabrous lamina surface (except midrib) | J—hairs along the midrib | K—Young shoot hairs | L—Magnified view of a matured, glabrous branch | M—Puberulent petiole | N—Magnified view of petiole hairs | O—Persistent calyx | P—Hairy sepals | Q—Ovary | R—Bifid stigma | S—Apiculate anthers. © Keya Modak.

division, Jalpaiguri, West Bengal, K. Modak & M. Chowdhury NBU 11773, NBU 12638, NBU 12640, NBU 12641.

Specimens examined: *Jasminum angustifolium* var. *angustifolium*: India, Andaman Islands: AURO0212 (AURO); Peninsular India: AURO8618, AURO9351,

Table 1. Comparative characteristics of three varieties of *Jasminum angustifolium*.

Characteristics	<i>J. angustifolium</i> var. <i>angustifolium</i>	<i>J. angustifolium</i> var. <i>sessiliflorum</i>	<i>J. angustifolium</i> var. <i>hirsutum</i>
Stem	Young branches minutely puberulent, matured stem glabrous	Young branches and matured stem glabrous	Young branches and matured stem tomentose
Lamina	Ovate-lanceolate to narrowly lanceolate; 10–70 × 7–40 mm; not recurved; glabrous but midrib minutely puberulence; 3–5 pairs of lateral veins, first pair is obscure	Lanceolate; 6–30 × 4–15 mm; not recurved; glabrous; venation obscure	Broadly ovate to elliptic-lanceolate or orbicular; 10–60 × 7–40 mm; recurved; glabrous; secondary veins prominent on both surfaces
Domatia	Absent	Absent	Present
Petiole	Minutely puberulent	Glabrous	Glabrous
Flower	Petals white with pinkish streaks at least in bud condition; pedunculate, length up to 13 mm; petals number 8–9	White; sessile; petals 8–10	White; pedunculate, length up to 11 mm; petals usually 5, rarely 7
Calyx	Sparsely ciliate, not ribbed, linear and thin; sepals 4–10 mm long	Glabrous, ribbed, linear and thick; sepals 8–12 mm long	Puberulent, not ribbed, ovate-triangular, not as thin as other two; sepals 1–2 mm long
Fruit	Ellipsoidal, 7–11 mm long, purplish or purplish-black; fruiting sepals shorter than fruits (sepals 4–10 mm long)	Globose, 7–8 mm long, purplish-black; fruiting sepals longer than fruits (sepals 8–12 mm long)	Globose, black, shiny, 7–8 mm long; fruiting sepals much shorter than fruits (sepals 1–2 mm long)

AURO10513, AURO11741 (AURO); NY03146644 (NY). Sri Lanka: NY03146636, NY03146638, NY03146639 (NY); *J. angustifolium* var. *hirsutum*: India, Tamil Nadu: AURO8796, AURO9477 (AURO), K000545676 (K); Sri Lanka: K000901409 (K). *J. angustifolium* var. *sessiliflorum*: India, Tamil Nadu: AURO9912, AURO10037, AURO10567 (AURO); BSID0014566 (DRC), CAL0000031069 (CAL), MH16 (MH); West Bengal: CAL0000031068 (CAL).

Natural distribution: India (Andaman, Andhra Pradesh, Kerala, Karnataka, Tamil Nadu, Uttar Pradesh and now from West Bengal), Sri Lanka; growing on the floor of the sub-tropical and tropical forest. Figure 1 shows the distribution of the taxon in India.

Notes: At each location, two–four individuals of *J. angustifolium* (L.) Willd. var. *angustifolium* were found growing in association with *Chromolaena odorata* (L.) R.M.King & H.Rob., *Mikania micrantha* Kunth in the marginal part of partially shaded Sal and Teak forest of Lataguri, Chapramari to Gorumara, West Bengal. According to our sample characteristics, observation of different herbarium sheets and relevant literature, a taxonomic key was prepared for the three closely related varieties of *J. angustifolium*. These key characters will be helpful for the identification of the plant up to varietal rank:

1. Lamina rounded or ovate to elliptical; calyx teeth 1–2 mm, sepals always 5, ovate-triangular; stem hirsute, slender; domatia present
..... *J. angustifolium* var. *hirsutum*
1. Lamina lanceolate or ovate-lanceolate; calyx teeth 2–12 mm, sepals 5–7, linear; stem glabrous or minutely puberulent, profusely branched; domatia absent 2
2. Young branches minutely puberulent, matured

stem glabrous; inflorescence pedunculate; calyx not ribbed; fruiting sepals shorter than fruits; fruit ellipsoidal *J. angustifolium* var. *angustifolium*

2. Young branches and matured stem glabrous; inflorescence sessile; calyx ribbed; fruiting sepals longer than fruits; fruits globose
..... *J. angustifolium* var. *sessiliflorum*

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