

RESEARCH ARTICLE

New distributional record of *Senegalia ajaya* (Fabaceae) from Purba Bardhaman district, West Bengal, India

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Abstract

Senegalia ajaya (Family: Fabaceae) is reported as a new distributional record for Purba Bardhaman district of West Bengal, India and the second report from the world. This species was first discovered from the Birbhum district of West Bengal, India. Taxonomic description from the live materials, relevant notes, and colour photographs are provided for easy identification and reference.

Keywords: *Senegalia ajaya*; New record; Climber; Fabaceae; Purba Bardhaman; West Bengal

1. Introduction

The Fabaceae Lindl. (nom. alt. for Leguminosae Juss.) is the third-largest family of angiosperms, comprising approximately 770 genera and over 19,500 species worldwide (Lewis et al., 2005; LPWG, 2013). The genus *Senegalia* Raf., with around 219 species, is distributed throughout the tropical regions of the world (Terra et al., 2017). In India, the genus is represented by 11 indigenous species (Chakrabarty and Gangopadhyay, 2024). During a botanical survey in Guskara, Purba Bardhaman, few plant specimens of *Senegalia ajaya* Alam & Lokho were collected from the wastelands along a railway track. This is the second report from the state of West Bengal and from the world and the first from Purba Bardhaman district after its discovery and reported by Alam and Lokho (2024). The species was identified with the help of relevant literatures (Maslin et al., 2019; Chakrabarty and Gangopadhyay, 2024; Alam and Lokho, 2024) and herbarium consultations (CAL).

2. Methodology

The plant materials were collected from the field and processed following the standard procedures (Fosberg and Sacht, 1965; Jain and Rao, 1977; Bridson and Forman, 1998), and herbarium specimens were prepared. The voucher specimens were deposited in the CAL herbarium and Botany Department, Siksha Bhavana, Visva-Bharati, Santiniketan respectively.

3. Result

3.1. Taxonomic Treatment

Senegalia ajaya Alam & Lokho, Phytotaxa 668 (2): 186. 2024 (Figure 1, 2 and 3).

Perennial climbing shrub; stems angulate, glabrous. Internodal prickles in 6 or 5 rows. Prickles also present on the lower side of petiole, rachis and rachilla. Leaves bipinnately compound, pinnae 4–7 pairs, opposite; petiole 30–40 mm long, rachis 60–100 mm long, furrow in the middle, appressed hairy, rachis tip extended by a soft and pointed spine-like structure (2–8 mm long); leaflets 7–13 pairs, subsessile, linear-oblong, unequal-sided, 0.7–1.4 × 0.3–0.5 cm, not touching the adjoining leaflets, upper surface dark green, glabrous and lower surface light green, puberulous; apex

mucronate, straight; mid vein central at base and running close to upper margin, extended straight to the apex; a second prominent vein diverging from the base and extending to 2/3 length of each leaflet. Paraphyllidia two types at pinnae bases: normal one with two-minute appendages (1–2 mm long), subtending from each pinna pulvinus of lowermost few pairs of pinnae and special paraphyllidia with one-minute appendage and one diminutive leaflet (4–6 × 2–3 mm), subtending from each pinna pulvinus of uppermost few pairs. Petiole gland one, situated near the base, 0–1 mm above the pulvinus, oblong, asymmetric, 2–4 × 1.5–3 mm, prominently raised at distal end; rachis glands situated at or near the bases of the uppermost 1–3 pairs of pinnae, small, circular, 1.5–2 × 1.5–2 mm, sessile. Inflorescence 3–6 pedunculate heads arranged in terminal panicles; peduncles 16–22 mm long, puberulous. Flowers, sessile, ebracteate, creamy white, 28–42 flowers per head; calyx 1–1.5 mm long, gamosepalous, lobed, reddish or brown; petals 5, gamopetalous, 1.5–2.5 mm long, creamy-white, stamens 2–4 mm long, numerous. Ovary stipitate, style 2–5 mm long. Pods linear-oblong, 7.5–13.5 × 1.5–3.5 cm flat, glabrous, dark brown when fresh, light brown when dry, dehiscent, splitting into two valves at maturity.

Flowering and Fruiting: Flowering September–November; fruiting December–February.

Habitat: A good number of 17 mature individuals of *Senegalia ajaya* was observed growing along a stretch of 150-meter between a pond and a railway track at Guskara, Purba Bardhaman district, West Bengal. The species is typically found climbing on surrounding trees. Here, the common associates are *Borassus flabellifer* L., *Phoenix dactylifera* L., *Pithecellobium dulce* (Roxb.) Benth., *Vachellia nilotica* (L.) P.J.H. Hurter & Mabb. and *Ziziphus mauritiana* Lam.

Distribution: *Senegalia ajaya* was previously known only from Birbhum district of West Bengal, India. The present report forms its extended distribution to Purba Bardhaman district (Guskara, bordering to Birbhum district) of West Bengal, India (Figure 3).

Specimens examined: INDIA, West Bengal, Purba Bardhaman, Guskara, 37 m a.s.l., 23° 29' 101" N, 87° 44' 093" E, 14th October 2024; S. Alam 1128 (CAL).

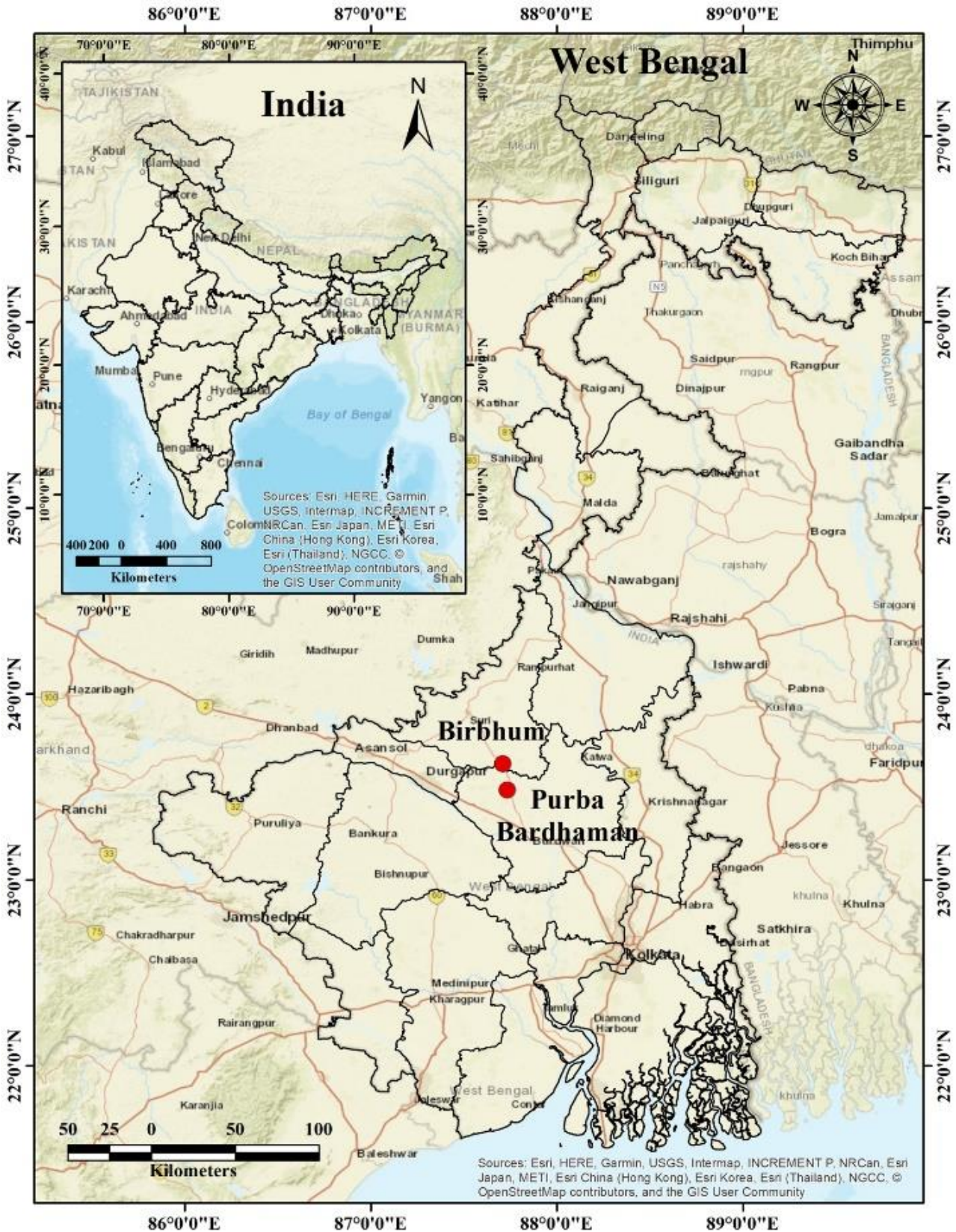


Figure 1. Distribution map of *Senegalia ajaya* Alam & Lokho (Red dots).

Notes: The collection of *Senegalia ajaya* from Guskara, Purba Bardhaman, exhibits some morphological variation, particularly in floral and vegetative characters. Among the 17 mature individuals, 9 exhibit flowers with a red calyx (similar to those found in Birbhum district), while 8 display flowers with a brown calyx. The brown-flowered form has a brown-colored calyx, larger fruits (9–13 × 2–3 cm), 4–7 pairs of pinnae, and both normal paraphyllidia located just above each pinna pulvinus of lowermost few pinnae pairs, and special paraphyllidia just above each pinna

pulvinus of uppermost few pairs. In some leaves, all pinnae pairs show normal normal paraphyllidia, while special paraphyllidia may be absent. The red-flowered form has a red calyx and smaller fruits (8.5–10 × 1.4–1.9 cm). This form has 4–6 pairs of pinnae, with special paraphyllidia just above each pinna pulvinus of uppermost few pairs, and normal paraphyllidia just above each pinna pulvinus of lowermost few pairs. In some leaves, only special paraphyllidia are present, and normal paraphyllidia may be completely absent.



Figure 2. *Senegalia ajaya* Alam & Lokho.; General features (a – f): a). Climbing on Babla tree (*Vachellia nilotica*); b). Climbing on Jilipi tree (*Pithecellobium dulce*); c). Pinnae; d). Flowers with brown calyx; e). Flowers with red calyx; f). Pods. Diagnostic features (g – j): g) Basal petiole gland; h). Normal paraphyllidia; i). Special paraphyllidia; j). Rachilla prickles. (Photographs by Shamim Alam).



Figure 3. Herbarium sheet of *Senegalia ajaya* Alam & Lokho.

4. Conclusion

The present study reveals the extended geographical distributional range of *Senegalia ajaya* recorded from Guskara, Purba Bardhaman district which is bordered to previously known habitat of the species i.e. Birbhum district, West Bengal.

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Author's contributions

Field survey, documentation and drafting of the manuscript were done by SA. Supervision of the work, preparation of the manuscript and communication by AL.

Conflict of interests

The authors have no conflict of interest.

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