

RESEARCH ARTICLE

Ficus krishnae C. DC. (Moraceae): naturalized in the Chota Nagpur plateau, West Bengal, India

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Abstract

Ficus krishnae C. DC is a widely recognized plant species, planted in many gardens in India and other countries. The species is fascinating because of its unique cup-shaped leaves. This is the first report of this species naturalized in Ajodhya Hill, a part of the Chota Nagpur plateau, located in Purulia district, West Bengal. Detailed description and photos provided for its easy recognition.

Keyword: Ajodhya Hill; Chota Nagpur plateau; cup-shaped leaves; *Ficus krishnae*; naturalized

1. Introduction

Ficus krishnae C. DC. belonging to the section Urostigma, Moraceae family, is native to India and introduced in Sri Lanka (POWO, 2024). In India, the plant is well recognized as the Krishna Fig. The species is linked with two mythical myths that explain the origin of its cup-shaped leaves. It is believed that the Hindu deity Rama created this species, and its unusual cup-shaped leaves have led to its veneration as a holy tree in India (Tiwari et al., 2015). Another popular tale is that Lord Krishna created this plant having cup-shaped leaves so that *makkhan* could be taken (De Candolle, 1902). The species is named in honour of Lord Krishna for that reason. The curious species was initially noticed by Prain (1896) in a private garden near Calcutta and introduced to the Royal Botanical Garden, Calcutta (now AJC Bose Indian Botanic Garden, Howrah, West Bengal), with the help of stem cuttings taken from the original plant (Prain, 1906). The Calcutta Garden later distributed the stem-cuttings of this species to other gardens throughout India (Vaid, 1963). Taxonomists have variously treated the Krishna Fig, some as a distinct species and others as a variety of *Ficus benghalensis* based on its morphological and floral characteristics (Chaudhary et al., 2012). The taxonomic position of *F. krishnae* remains unresolved even though it differs from *F. benghalensis* in many respects, including morphology, anatomy, chromosomes, genome size, pollination vector, ITS-2, cpDNA, and other molecular markers (De Candolle, 1906; Prain, 1906; Joshi and Raghuvanshi, 1970; Ohri and Khoshoo, 1987; Priyadarsanan, 1999; Tiwari et al., 2015; Mahima et al., 2021; Anilkumar et al., 2023). No prior documentation of the *F. krishnae* plant growing wild and naturalized on the Chota Nagpur Plateau was found. Therefore, this collection is the first report from the Ajodhya Hill and from the whole Chota Nagpur Plateau. The field photos, illustration, and detailed description are given here for easy identification.

2. Material and method

The plant specimen was collected (Figure 1) from the Ajodhya hill forest (Purulia district, West Bengal) on 18.12.2023, at a height of 553 meters, with the latitude and longitude being 23,21'32"N, 86,11'51"E. The new geographic record of the plant species was initially identified by observing the leaves. No other species in the



Figure 1. A twig of *Ficus krishnae* tree collected from Ajodhya hill forest, Purulia.

Ficus genus has cup-like leaves. The species' identity characters were verified by consulting reliable literature (Prain, 1906; Tiwari et al., 2015). The purpose of providing these field images (Figure 2) is to aid in identification and to offer evidence of the species collected.

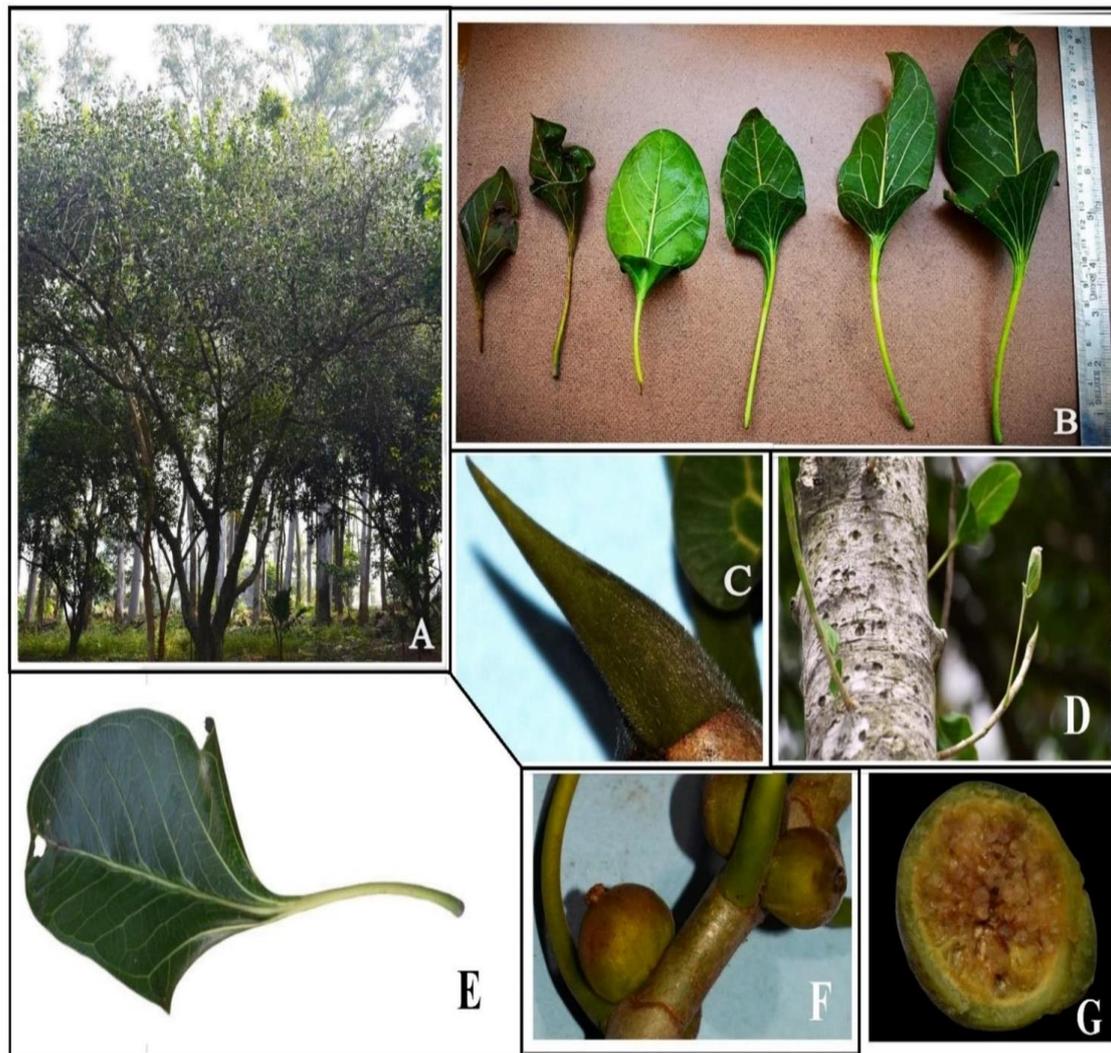


Figure 2. *Ficus krishnae* plant parts: A— Tree | B— Leaves of different ages | C— Bud scale | D— Tree bark | E— Venation on upper side of a leaf | F— Leaf base & Figs | G — vertical section of a fig.

3. Result

3.1. Taxonomic treatment

Ficus krishnae C. DC., Bull. Herb. Boiss., Ser. 2, 2: 760. 1902; Curtis's Bot. Mag. 132: t. 8092. 1906. *F. benghalensis* var. *krishnae* (C. DC.) Corner, Gard. Bull. Singapore 21 (1): 14. 1965. (Figure 3). Local names: Makkhan Katori (Hindi), Krishna Bot (Bengali).

Medium-sized tree, 18–20 m height, sometimes with aerial roots; bark light-greyish, stems 1.25 m in diameter. Pubescent present over the young branches, petioles, and figs. Leaf scar present over the young branches; latex white, Bud scale 36–62 mm long, cone-shaped cap, pointed at the tip, silky pubescent outside, smooth and shining inside. Leaves simple, alternate, coriaceous, glossy, lamina 6.8–12.6 x 1.8–8.2 cm, typically cup-shaped at the base beneath, ovate to obovate, acute when young and obtuse with age, mostly twisted and turn along the leaf edges, fine hairs on upside and fluffy on the downside of leaves, 4–8 nerved from the base, and 5–8 (or perhaps 9) pairs of nerves present on either side of midrib, the size and shape of the cup vary; petioles 5.3–9.6 cm long, white downy, almost circular with petiolule base. Figs are green while younger, axial positioned, present generally in pairs, sometimes single, sessile, 3 orbicular bracts present at base, almost spherical, base-emarginated, notched apex having 3 lunar-shaped bracts around ostiolum, woolly, diameter 1.78 cm, bracts found in the ostiole's lumen. Both the male and gall flowers are transparent, linear-

stalked; many sterile bracts, colourless, measuring 1.85 - 2.2 mm in length, with an obtuse base and entire margins, attached at the base of the flower pedicel, located within figs. Male flowers are colourless, mostly present at ostia, 3 ellipsoid free tepals are seen, 1 smooth stamen present; the perianth is longer (1.75 - 4 mm) than the filaments (0.6 - 1.3 mm), which are linked to the posterior side of the egg-shaped anthers. Female flowers exist all around inside the thalamus, stalked 0.9 - 1.10 mm long, tepals are smooth, 1.3 - 1.8 mm long, butter knife shaped, pointed at tip, and 3 to 4 in numbers, ovary globular and sessile, gracilis style 1.2 - 2.0 mm long, straight plumose stigma present. Gall flowers 3.0 - 4.10 mm long, tepals 3, exist all around inside the thalamus, slightly altered from female flowers, reddish brown in colour.

Flowering & fruiting: November to March

Habitat: Found in deciduous forests as a terrestrial plant

Distribution: Planted in various gardens in the Indian states of Karnataka, Kerala, Uttar Pradesh, Uttarakhand, and West Bengal, and now naturalized in the Chota Nagpur Plateau. Also, the plant is grown as a decorative plant in Pakistan, Sri Lanka, and Malesia (Tiwari et al., 2015).

Traditional uses: Ayurvedic medicine uses the plant to treat ulcers, leprosy, dysentery, syphilis, and inflammation etc.

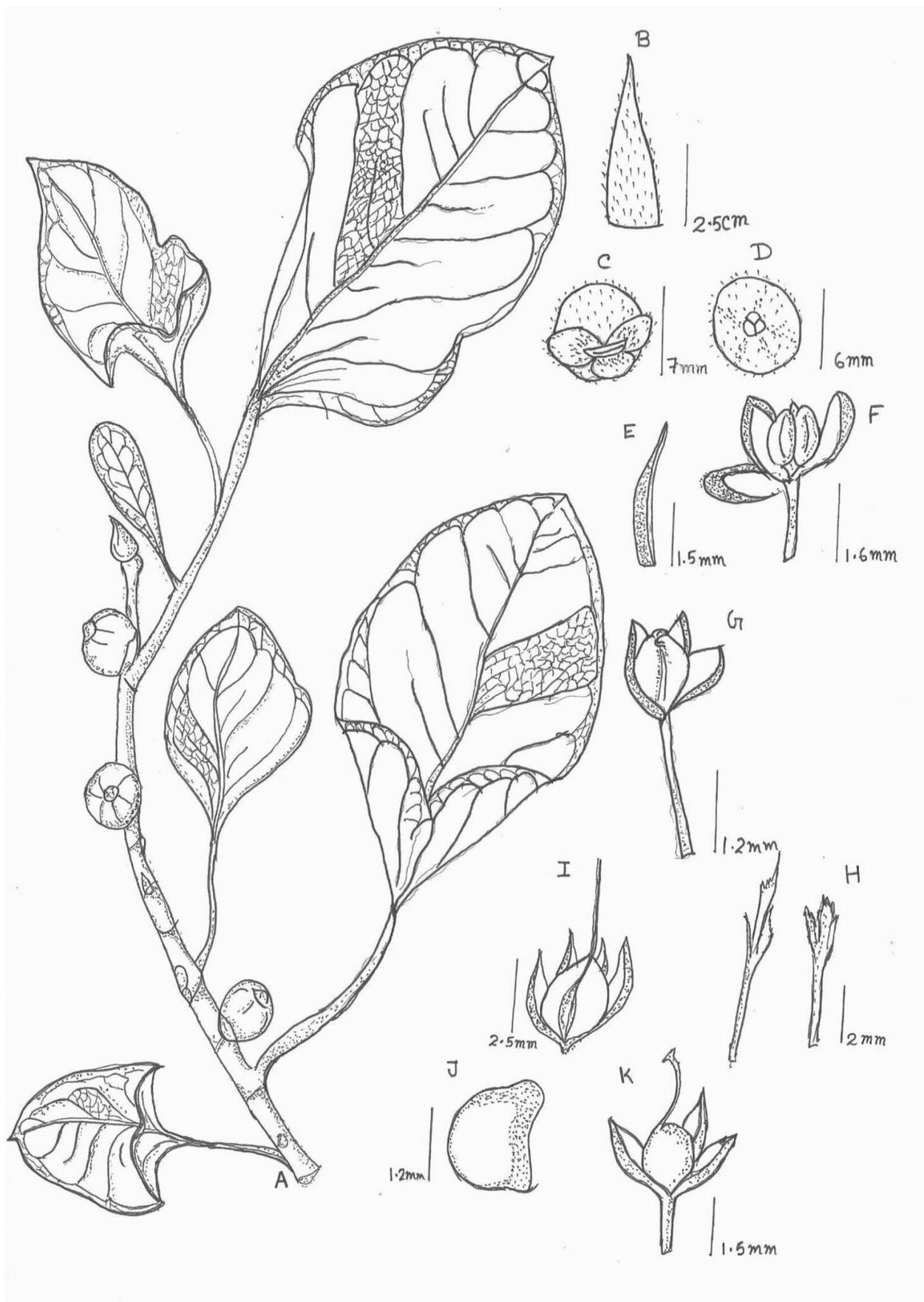


Figure 3. *Ficus krishnae* C. DC.: A. Habit, B. Stipule, C. Basal bracts on fig, D. Apical bracts on fig, E. Bract (Inter-floral), F. Male flower, G. Gall flower, H. Stigma, I. Sessile female flower; J. Achene, K. Pedicellate female flower.

Different plant parts of *F. krishnae* have been researched for antibacterial, antioxidant, anti-diabetic, anti-inflammatory, anticancer, and immunomodulatory properties (Kumar et al., 2021).

Specimen examined: INDIA. West Bengal: Howrah, AJCB Indian Botanic Garden, CNH, near Roxburgh's building, 25 May 2012, J.V. Sudhakar 126320 (MH).

4. Conclusion

The *Ficus krishnae* species is new to the flora of Purulia and to the whole Chota Nagpur plateau. Future investigation is necessary to reveal the presence of the species in Ajodhya Hill of Purulia and the entire region of the Chota Nagpur.

Acknowledgement

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Author's contribution

Both AM and SD collected samples and took the photos. AM made the necessary preparations for the species identification and draft. Before the text was finished, both writers (AM & SD) reviewed it.

Conflict of interest

The authors declare no conflict of interest exists.

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