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New Distributional Record of *Magnolia x alba* (Magnoliaceae) for the Arboreal Flora of West Bengal, India

Soumya Das¹, Biswajit Roy^{2*}

ABSTRACT

During several field trips from 2023 to 2025 across the Gangetic plain of West Bengal, a tree species was discovered; the specimen was collected and photographed. Detailed morphological study was done following relevant taxonomic literatures and examination of herbarium specimen from different world herbaria. A photographic plate and a diagnostic description were provided for proper identification. The taxon was identified as *Magnolia x alba* (DC.) Figlar which is an addition to exotic arboreal flora of West Bengal. Apparently, the species was close in appearance to *Magnolia champaca* (L.) Baill. Ex Pierre, however, distinguishable in leaf shape, stipule scar on petiole; shape and length of tepal, gynoecium.

Keywords: Exotic plant, Hybrid taxa, Ornamental tree, Lower Gangetic Plain.

1. INTRODUCTION

Magnolia is the largest genus of the family Magnoliaceae, distributed in the Tropical, Subtropical and Temperate regions in the Eastern and South-Eastern part of Asia (Shi, et al.2000; Law, 2004). Raju (1993) reported 11 species of *Magnolia* and 12 species of *Michelia* from India, whereas, 4 species under *Magnolia* and 5 species under *Michelia* were documented from West Bengal (Raju, 1997). *Michelia* was taxonomically transferred to *Magnolia* (Figlar and Nooteboom, 2004; Callaghan and Png, 2020), which was based on morphological (Li and Conran, 2003; Xu, 2003), anatomical (Xu, and Rudall, 2006), palynological (Xu and Kirchoff, 2008), and molecular (Kim, et al. 2001) analyses. 51 taxa (comprising 46 species and 5 sub-species), under 7 genera distributed throughout Indian subcontinent (Kundu and Kundu, 1998). Kumar (2012) mentioned 25 species of *Magnolia*; however, 27 species of *Magnolia* have been enumerated from India (Khuraijam and Goel, 2015; Kumar and Raju, 2020). During the collection of tree specimens from the lower Gangetic plain, a species of the genus *Magnolia* was collected from North 24 Parganas of West Bengal. The collected specimen was identified as *Magnolia x alba* (DC.) Figlar, which is considered as an introduced hybrid taxon of *M. champaca* (L.) Baill. Ex Pierre and *M. montana* (Blume) Figlar & Noot, commonly known as white champaca which considered a new distributional record for the arboreal flora of India from West Bengal as an exotic cultivated plant. The species is mostly planted for its aesthetic

value, and it provides greenery and thermal comfort during summer due to its reduced basal area with larger canopy (Zheng et al., 2024). The root system of the *Magnolia x alba* released the terpene compound Germacranolides which induced the germination of ground flora including the improvement of the soil fertility (Zorrilla et al., 2026). The major bioactive compound linalool has therapeutic applications for the treatment of cancer, microbial infections, inflammation, including antioxidant and photocatalytic properties (Cheng et al., 2022; De Mel et al., 2025). Detailed descriptions along with photographs, habitat details, phenology, and distribution of this species are provided for proper identification.

2. MATERIALS AND METHODS

The specimen was collected from different districts of West Bengal during several botanical excursions from July, 2023 to May, 2025 (Figure 1). Flowering condition of the plant was collected from Kalianibash area of Barrackpore, 24 Parganas (North) ($22^{\circ}46'42.931''$ N, $88^{\circ}22'18.047''$ E and $22^{\circ}46'42.672''$ N, $88^{\circ}22'17.716''$ E). Photographs of the habit and habitat were taken using the Canon EOS/R7 Mirrorless camera. The dissected floral parts were examined under the Olympus Stereozoom Microscope SZ2-ILST (Figure 2). Specimens were dissected, studied, and identified using pertinent literature (Nooteboom and Chalermglin, 2009; Jesia, *et. al.* 2024) and compared with herbarium specimens of different herbaria. The herbarium was prepared as per the standard method (Jain and Rao, 1977) and submitted to Ramakrishna Mission Vivekananda Centenary College Herbarium (RKMVCCH), Rahara, Kolkata. The herbaria of L, NY, K, HBG, NSW, Z, ASU, FLAS, MNHN (herbarium acronyms according to Thiers, 2025) were consulted for identification and preparing distribution data.

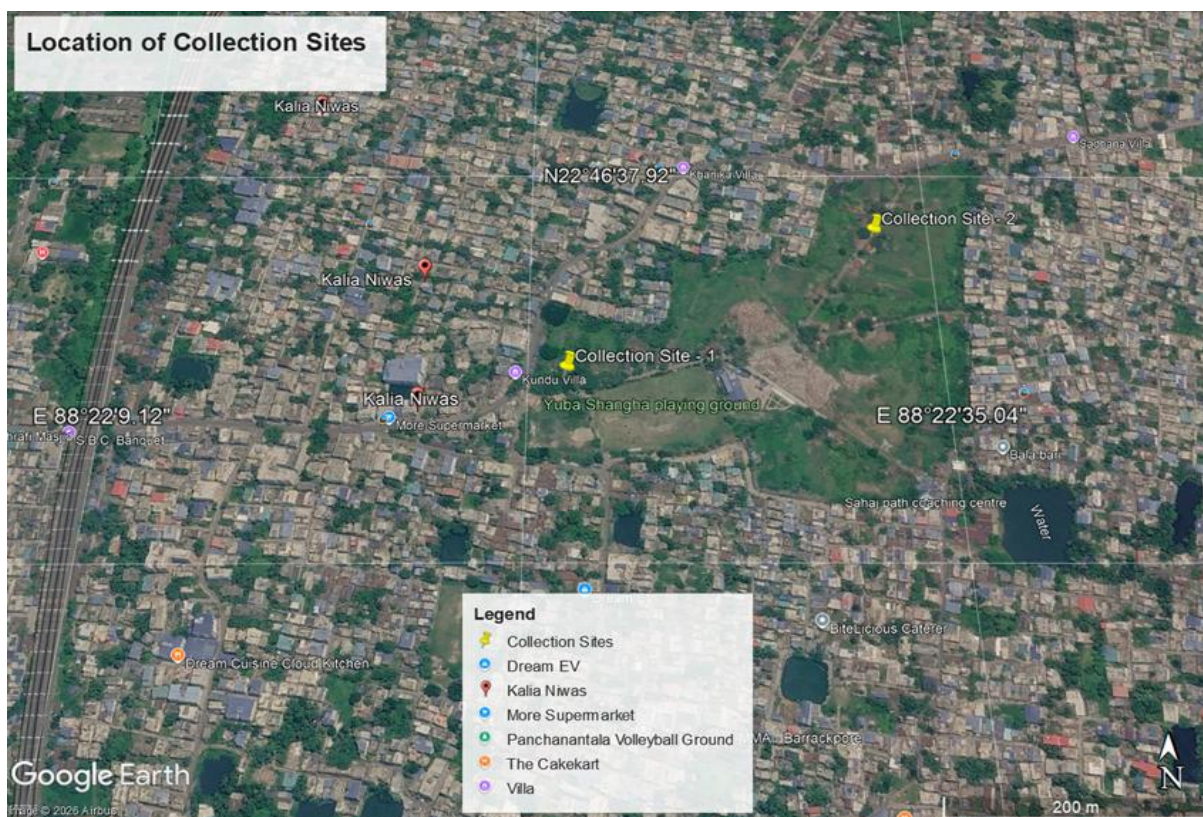


Figure 1: Google map of study area including collection sites based on coordinates.

3. RESULTS & DISCUSSION

***Magnolia x alba* (DC.) Figlar Proc. Int. Symp. Magnoliac.: 21. 2000. *Michelia x alba* DC, Syst. 1: 449. 1817.**

Type: Blume s.n. (L, sheet 908. 126-1242!).

Trees up to 25 – 30 m tall, usually with a moderate crown. Bole up to 30 – 40 cm in diameter, branched after a certain height above, having greyish–whitish, smooth bark. Leaves alternate, simple, 28 – 35 cm long, almost glabrous at dorsal surface puberulous at the ventral surface; petiole 3 – 4 cm long, terete; stipular scar at the dorsal surface, 1 cm long; lamina lanceolate, 25 – 30 x 9 – 13 cm,

adaxially green and lighter abaxially, little hairy, base acute, margins entire to quite undulate, apex acute; lateral veins 13 – 16 paired, distinct on the lower surface. Inflorescence solitary axillary. Flowers large, 5 cm long, pedicillate, regular, hexamerous, bisexual, hypogynous, white, glabrous, scented. Tepals 10 – 12, polytepalous, units 5 × 1 cm, linear. Stamens many, attached at the base of elevated thalamus in more than one row, 1 – 1.9 cm long, inserted; sessile; anthers 2-celled, linear, 0.6 – 0.7 cm long, adnate, dehisces longitudinally, brownish. Ovary many, apocarpous, elliptic, superior, 5 – 6 × 1.5–2 mm, 1-chambered, having many ovules per chamber, placentation basal, white; style 1 mm long, terminal; stigma curved at the terminal.

Flowering. – April to June.

Distribution. – Bangladesh, China, Thailand, Malaysia and India: Manipur and West Bengal (present report).

Specimens examined. – West Bengal, 24 Parganas (North), Barrackpore, Kalianibash (22°46'42.931" N, 88°22'18.047" E): 24.07.2025 Roy 8360 (RKMVCCH 000797, RKMVCCH 000798, RKMVCCH 000799); West Bengal, 24 Parganas (North), Barrackpore, Kalianibash (22°46'42.672" N, 88°22'17.716" E): 24.07.2025 Roy 8361 (RKMVCCH 000801)



Figure 2. *Magnolia x alba* (Magnoliaceae); a. Natural habitat, b. Dorsal and ventral surface of leaf, c. Dorsal (showing stipule scar), ventral surface of petiole, d. Enlarged view of ventral surface of lamina showing trichomes, e. Attachment of stipule with petiole, f. Intact flower, g. Tepals, h. Essential whorls, i. Stamen, j. Arrangement of apocarpous gynoecium over torus, k. Gynoecium, l. T.S. of ovary, m. Ovule.

4. CONCLUSION

Magnolia × *alba* is distinguishable from closely allied species *M. champaca* by the characters include scars of stipule in petiole, shape of tepals and lengths of gynoeceum. This species is documented as an addition to the arboreal flora of West Bengal, India. The species may be introduced in the country due to its ornamental importance, although the species is well documented for its ecological as well as economic impacts mostly in pharmaceutical industries.

Acronym of Herbarium:

L- Naturalis Biodiversity Center, Leiden; NY- William and Lynda Steere Herbarium, The New York Botanical Garden; K- Royal Botanic Gardens, Kew; HBG- The Herbarium Hamburgense of University of Hamburg; NSW- National Herbarium of New South Wales; Z- Zurich Herbaria - Zürich; ASU- The Arizona State University Vascular Plant Herbarium; FLAS- The University of Florida Herbarium; MNHN- Museo Nacional de Historia Natural, Havana.

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Author contributions

BR collected the plant specimen. SD and BR identified the plant species following the taxonomic literatures. SD dissected the floral parts, made the photo plate with measurement and prepared the manuscript. BR scientifically and technically reviewed the manuscript. All authors read and approved the final manuscript.

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Conflict of Interest

The authors declare that they have no conflicts of interest, competing financial interest or personal relationship that could have influenced the work reported in this paper.

Informed consent

Not applicable.

Ethical approval & declaration

In this article, as per the plant regulations followed in the Plant Systematics Laboratory, PG Department of Botany, Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata-700118, West Bengal, India; the authors observed the New Distributional Record of *Magnolia* × *Alba* (Magnoliaceae) for the Arboreal Flora of West Bengal, India. The ethical guidelines for plants & plant materials are followed in the study for species observation, identification & experimentation.

Data and materials availability

Data that support the findings of this study are embedded within the manuscript.

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