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Taxonomy and Distributional Notes on the Striking, Flat Fruited Mango (*Mangifera camptosperma*) in India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Mangifera camptosperma Pierre is one of the important wild relatives of Mango and distributed in Andaman and Nicobar Islands (India), Cambodia, Laos, Thailand and Vietnam. In the present communication, the first floral description from India, variations in flowers and its distribution have been discussed.

Keywords: Anacardiaceae; Indian Botanic Garden; Mangifera; wild relative.

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1. INTRODUCTION

The genus *Mangifera* L. is distributed in tropical and subtropical regions of Asia and represented by 64 species in the world [1]. *Mangifera* presumed to be originated during the Eocene or an earlier period in the cretaceous in Myanmar, Thailand, Indo-China, and Malaya and later it was spread to India, to Sri Lanka in the west, to Eastern Malaysia and to the Philippines in the East. Presently, maximum number of *Mangifera* species is found in Borneo, Sumatra, Java and Malay Peninsula [2]. The king of fruit (*Mangifera indica* L.) a cultivated mango was believed to be originated in Eastern India, Assam to Burma or the Malayan region. The historical records, related species and genus distribution, fossil remains and the presence of innumerable varieties and many indigenous wild species show enormous evidence for India to be the geographical origin for mango [2]. However, Vavilov [3] reported that Indo-Burma was the centre of origin of mango.

In India, the genus represented by 7 species namely, *M. andamanica* King, *M. camptosperma* Pierre, *M. griffithi* Hook.f., *M. indica* L., *M. khasiana* Pierre, *M. nicobarica* Kosterm. and *M. sylvatica* Roxb. [2], of these, *M. andamanica, M. khasiana* and *M. nicobarica* are endemic to India [4]. While enumerating the plant diversity in AJC Bose Indian Botanic Garden, Howrah, the authors have observed a flat fruited mango species in 2022 at Division number 1 and collected flowering branches in 2023, which was later identified with the help of literature [5,6] as *M. camptosperma* Pierre. Scrutiny of literature [5,7,6] revealed that this species reported from Andaman and Nicobar Islands in India and distributed in Cambodia, Laos, Thailand and Vietnam [1].

2. ENUMERATION

Mangifera camptosperma Pierre, Fl. Forest. Cochinch. t. 363A.1897; Chandra and Mukherjee, N.P. Singh *et al.* (eds.), Fl. India 5: 466. 2000 and in A.A. Mao and S.S. Dash, Fl. Pl. India Annot. Checkl. Dicot. 1: 293. 2020. Fig. 1.

Tree about 7 m tall; bark brownish-grey to dark greyish-brown; crown spherical to somewhat oval shaped; branches angular when young, greyish-brown. Leaves alternate, leathery, petiolate; petiole up to 3.5 cm long, thickened at the base; blade 10-23 × 2-6 cm, linear-oblong, obovate, cuneate to acute at base, entire along margin, attenuated, acute-acuminate or at times emarginated at apex, smooth on surface, midrib prominent, raised beneath, reticulate venation prominent on both surfaces. Inflorescence a terminal panicle; panicles glomerulate, up to 22 cm long, bearing numerous branches, composed of mainly of male flowers with few hermaphrodite flowers, densely pubescent. Flowers pale green on ultimate cymules; polygamous, usually 4-merous and a few 5-merous; pedicels up to 2 mm long, sparsely hairy; bracts oblong-lanceolate, 2.5-3.0 × 1.2-1.5 mm. Sepals 4-5 in number, green, ovate, 2-3 mm long, acute-acuminate at apex, hairy. Petals 4-5, white with yellow patches at the base, 4-5 mm long, oblong-lanceolate, subacute at apex, reflexed up to ¾ part of the petal. Stamens 4-5; one fertile, remaining very much reduced, 3 mm long; anther dorsifixed, gland dotted. Disc fleshy, white, 4-5 lobed, rugose, obscurely lobed, surrounding the base of ovary. Ovary globose, glabrous with subterminal style; style slightly longer than the fertile stamen.

Fruit (drupe) ellipsoid, 6-8 × 7.5-8.5 cm, flat, compressed, with thin epicarp; epicarp glabrous, smooth; mesocarp thin and fibrous. Seed reniform, occupies the major portion of the fruit; integuments double, inner one penetrating the multilobed cotyledons in their innumerable folds. Cotyledons 4.0-4.5 × 3.2-3.5 cm, broad at base.

Flowering & fruiting: January-May.

Distribution: Andaman and Nicobar Islands (India), Cambodia, Laos, Thailand and Vietnam [5,6].

Specimens examined: West Bengal, Howrah, Shibpur, Acharya Jagadish Chandra Bose Indian Botanic Garden, 22º 33' 25.1532" N, 88º 17' 49.6212" E, 09.01.2023, Devendra Singh *et al*. 45901 (CAL).

Additional Specimens examined: Great Nicobar, East Coast Forest, Campbell Forest, 04.03.1966, *K. Thothathri* and *S. P. Banerjee* 11369 (CAL); South Andaman, Jirkatang III, 13.04.1977, *N. P. Balakrishnan* 5508, (Barcode: CAL0000210594); Great Nicobar, Pygmalion Point, Campbell Bay LowInland Forest, 19.06.1977, *N. P. Balakrishnan* 5858 (Barcode: CAL 0000210592); South Nicobars, Campbell Bay to Chengappa Bay, Great Nicobar Island, 11.06.1977, *N. P. Balakrishnan* 5705 (CAL); South Nicobar, Great Nicobar Island, Near

Koshin Don, 15.02.1980, *R. P. Dwivedi* 7891 (Barcode: CAL 0000210593); South Nicobar, Dhar Bay, Great Nicobar Island, 04.06.1981, *D. K. Hore* 8730 (Barcode: CAL 0000210591).

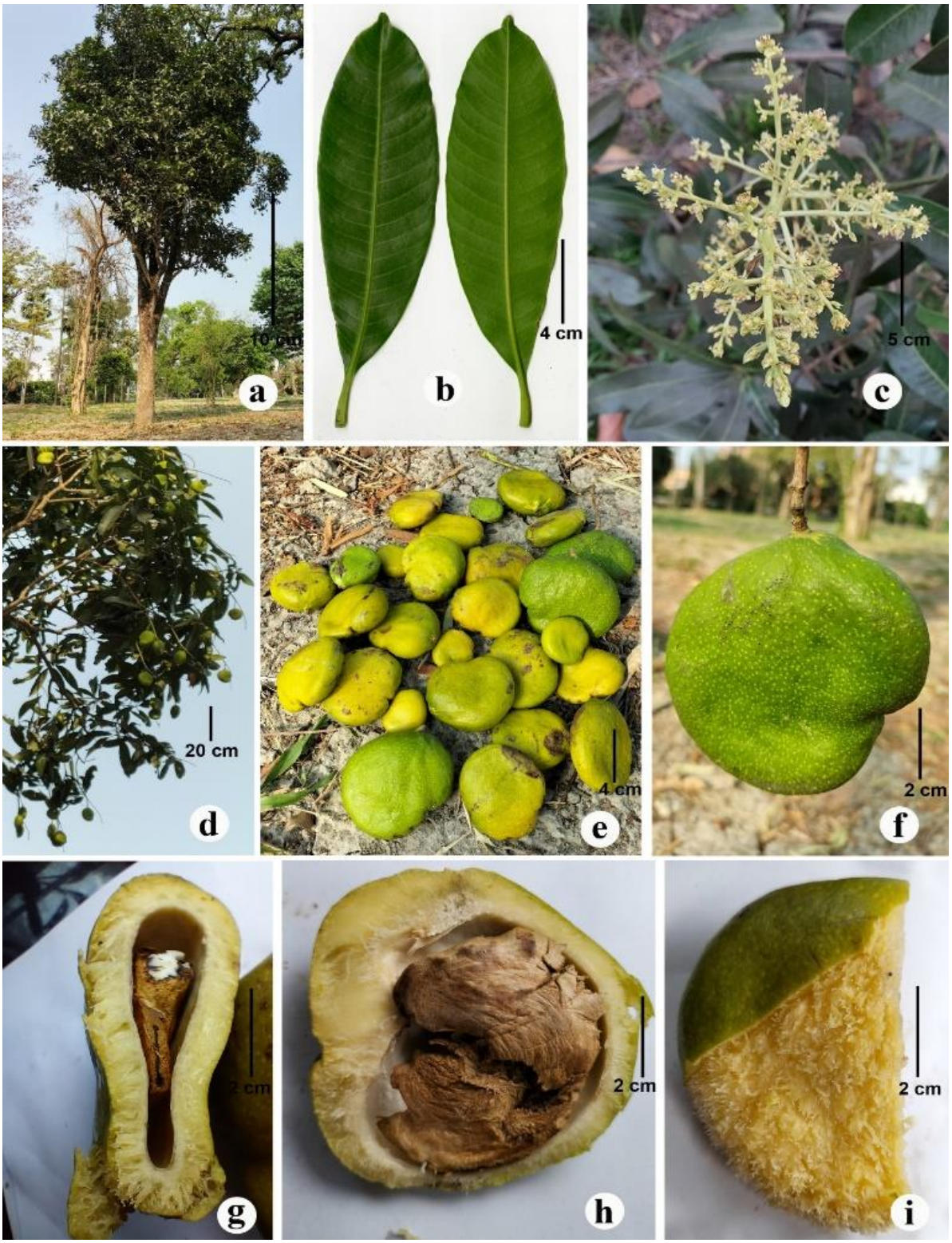

Fig. 1. *Mangifera camptosperma* Pierre: a. Habit; b. Leaves; c. Inflorescence; d. Fruiting branch; e-f. Fruits; g-i. Different views of fruits

3. RESULTS AND DISCUSSION

Notes: As per the Indian literature (Flora of India) by Chandra and Mukherjee [6], the species *Mangifera camptosperma* has five petals in flowers but it is an interesting to note that both four and five petals have been observed in the same panicle branches in present collection from the AJC Bose Indian Botanic Garden. The species was first collected by Thothathri and Banerjee from Campbell Bay, Great Nicobar Island in 1966 and 11 years later Balakrishnan (1977) collected the specimen from Campbell Bay to Chengappa bay of Great Nicobar Island and South Andaman respectively and reported as first record from India [7]. Subsequently two taxonomic workers namely R. P. Dwivedi (1980) and D.K. Hore (1981) collected the specimen from South Andamans. Though during this time, the flowering was not reported by Thothathri and Balakrishnan [7], Chandra and Mukherjee [6] and above collectors. The chronological events related to the introduction of this species and its further cultivation is not adequately known. It is assumed that the seeds were collected during the exploration to Andaman and Nicobar Islands and later the above collectors might have introduced it in the garden. It is an important wild relative of mango in tropical Asia and it can be used to improve many mango cultivars/hybrids.

4. CONCLUSION

As very few literary records are there for this wild species of Mango, an attempt has been made to illustrate the findings through the present research. Some characteristics regarding the petals have already been discussed. It is to be noted that the fruit is not popularly consumed by the common people due to its raw taste and pulp is also not juicier like common mango species. This species is hardly discussed in any mainland flora of Indian Floristic diversity. But conservation of this wild relative of Mango would definitely be beneficial for mainland diversity as well as from an agricultural perspective considering the cross-breeding, hybridisation and further research activities using this species as mother/stock plant.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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