



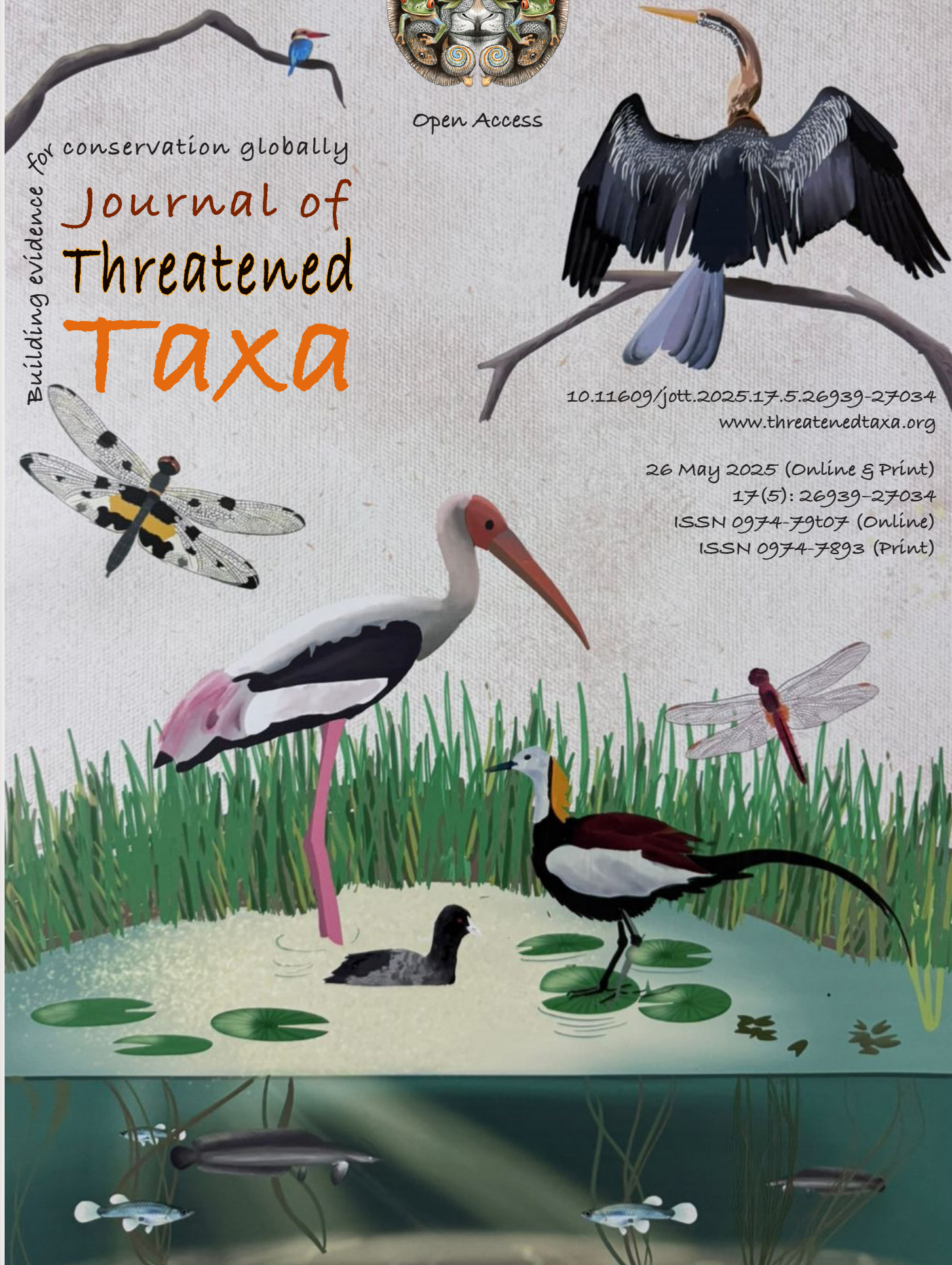
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continued on the back inside cover

Cover: A digital art of water birds of Noyyal River and its wetlands in Coimbatore District by Megha A. Kashyap.



Notes on *Garcinia kydia* Roxburghii (Clusiaceae): a lesser known medicinal plant species along the foothills of Arunachal Pradesh, India

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Abstract: *Garcinia kydia* Roxb., a lesser-known medicinal tree species has been documented from the foothills of Arunachal Pradesh, India. Fruit of the species is used against dysentery and diarrhea by the Adi and Mishing tribes of East Siang District. The species has close similarity with *G. cowa* however, can be distinguished from its female inflorescence, and shape of the fruit. In several taxonomic literatures and herbarium collections, the species has been wrongly described. The present study focused on the detailed morphological, taxonomic description, and other relevant information to help apt identification of the species.

Keywords: Distribution, documentation, East Siang, identification, inflorescence, medicine, morphology, northeastern India, taxonomic description.

Garcinia L. is the largest genus of the family Clusiaceae (Guttiferae) (Cox 1976), distributed in the tropical regions of Asia, Africa, and Polynesia (Ridley 1922; Whitmore 1973). A total of 450 species have been reported which are distributed in tropical and southern Africa, Madagascar, tropical Asia, northeastern Australia, western Polynesia, and tropical America (Xiwen et al. 2007). Occurrence of 20 species of the genus has been reported from China having 13 endemic and one introduced species (Xiwen et al. 2007). The distribution of 35 species of the genus has been reported from India, among which 15 species are distributed in northeastern

India (Maheshwari 1964).

During field investigations in May 2016 of Pasighat area, East Siang District, Arunachal Pradesh, India, the authors collected specimens of plant with light yellow flowers which differ morphologically from any described *Garcinia* species. The species is distributed along the foothills of the district. After a detailed examination of taxonomic literature and protologue description, the collected specimen was identified as *Garcinia kydia* Roxb. The species was discovered by Colonel Alexander Kyd and had been reported to be native of the Andaman Islands. In 1794, the species was introduced in the Botanic Garden in Calcutta by Colonel Alexander Kyd. The species *Garcinia kydia* has close affinity with *G. cowa* but can be distinguished from its female inflorescence and shape of the fruit (Roxburgh 1824). The species had also been described in the Flora of Assam, however, considered inferior in quality to that of *Garcinia cowa* Roxb. ex Choisy (Kanjilal et al. 1934). The species is fairly distributed in upper Assam up to an altitude of 600 m and often cultivated in homesteads for its acid fruit. The fruit is used to cure dysentery and also applied externally in persistent cases of headache (Kanjilal et al. 1934). The new distribution of the species has been documented

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from the foothills of Arunachal Pradesh, eastern Himalaya. Maheshwari (1964) studied the taxonomy of the genus *Garcinia* and described the distinguished character of both the *G. kydia* and *G. cowa*. In the present study, an attempt has been made to describe the species with its detailed taxonomic characterization and compare its distinguishing characters with *G. kydia* reported by Parthasarathy & Nandakishore (2014) (Table 1). The detailed morphological and taxonomic characters with other relevant information have been provided for apt identification of the species. The voucher specimen of the species was deposited in the herbarium of the Botany Department of Rajiv Gandhi University, Arunachal Pradesh, India.

Garcinia kydia Roxb., Fl. Ind. 2: 623. 1832; Parkinson, For. Fl. Andamans 90. 1923. *G. cowa* T. Anderson, in Fl. Brit. India 1: 262. 1874, p.p. non Roxb. ex DC. 1824. Kanjilal et al. in Fl. of Assam 1(1) 105-106. 1934. Maheshwari in Bull. Bot. Surv. India 6 (2-4). 1964.

DESCRIPTION

Tree, dioecious; 10–18 m tall, elegant with a narrow crown; wood white, bark blackish brown, rough, yellow exudates which hardens into a gum, branchlets glabrous, more or less terete, often drooping, dark coloured when dry. Leaves 8–13 x 3–5 cm, ovate, oblong to lanceolate, acute at base, acuminate at apex, thinly coriaceous, glabrous, shiny, lateral veins, thin, but distinct when dry, slender, rather irregular, ca. 12 pairs with few intermediate ones, all arched to form an intra marginal vein; petiole 1–1.5 cm long, slightly dilated at base.

Male flowers not observed. Female flowers: solitary, axillary and terminal, sessile. Sepals 4, 0.15–0.3 cm long, unequal, fleshy, greenish-yellow. Petals 4, light yellow 0.9–1.0 cm long, ovate, concave. Staminalodes 4–6, small, alternate with petals. Ovary sessile, 5–6 lobed, 5–6 locular, fleshy; stigma subsessile, style fused. Berries 3.5–4 cm in diameter, globose, apex depressed with a nipple-like protuberance crowned with the stigma, dark green, 5–6 seeded. Seeds slightly curved with protrusion, yellow; 2.4–2.7 cm long; aril soft, acidic, juicy.

Flowering: April–May; Fruiting: May–July.

Ecology: Growing in a humid, shady area within an elevation of 300–600 m.

Distribution: India (Assam, foothills of Arunachal Pradesh, Meghalaya, Andaman & Nicobar Islands), Bangladesh, Myanmar and Malaysia (Sharma & Sanjappa 1993).

Exsiccatae: India, foothills of Arunachal Pradesh between East Siang and Dhemaji District of Assam, 300–600 m, 11.vi.2016, coll. Gaottham Gogoi, #56 (RGU).

Note

Garcinia kydia is a lesser known medicinal tree species distributed in the foothills of East Siang District of Arunachal Pradesh and Dhemaji District of Assam, India. Fruit of the species is used to cure dysentery and diarrhea by the Adi and Mishing tribes residing along the foothills of the East Siang District of Arunachal Pradesh. The taxonomic characterization of the genus *Garcinia* L. was carried out by Parthasarathy & Nandakishore (2014), however, the *Garcinia kydia* was wrongly described. They described the shape of the fruit as ovoid, oblique

Table 1. Morphological comparison of *Garcinia kydia* recorded from the foothills of East Siang District of Arunachal Pradesh.

Characters	<i>Garcinia kydia</i> (as per Parthasarathy & Nandakishore 2014)	<i>Garcinia kydia</i> (present findings)
Bark	Dark-brown	Blackish-brown
Latex	No record	Yellow
Branchlets	Horizontal but usually distally pendulous, slender, striate	Branchlets glabrous, more or less terete
Leaf texture	Coriaceous glabrous	Thinly coriaceous, glabrous, shiny
Leaf shape	Lanceolate or oblong-lanceolate	Ovate, oblong to lanceolate
Leaf size	6–14 x 2–5 cm	8–13 x 3–5 cm
Leaf apex	Acuminate or long acuminate	Acuminate
Female flower	Solitary	Solitary, axillary and terminal, sessile
Ovary	Subglobose; 3–5 celled	Sessile, 5–6 lobed, 5–6 locular
Fruit	Ovoid, oblique	Globose, apex depressed with a nipple like protuberance crowned with the stigma
Fruit colour	Yellow-brown	Shiny, greenish, orange-yellow when ripe
Seeds per fruit	2–4	5–6
Seed shape	Slightly curved with protrusion	Slightly curved with protrusion

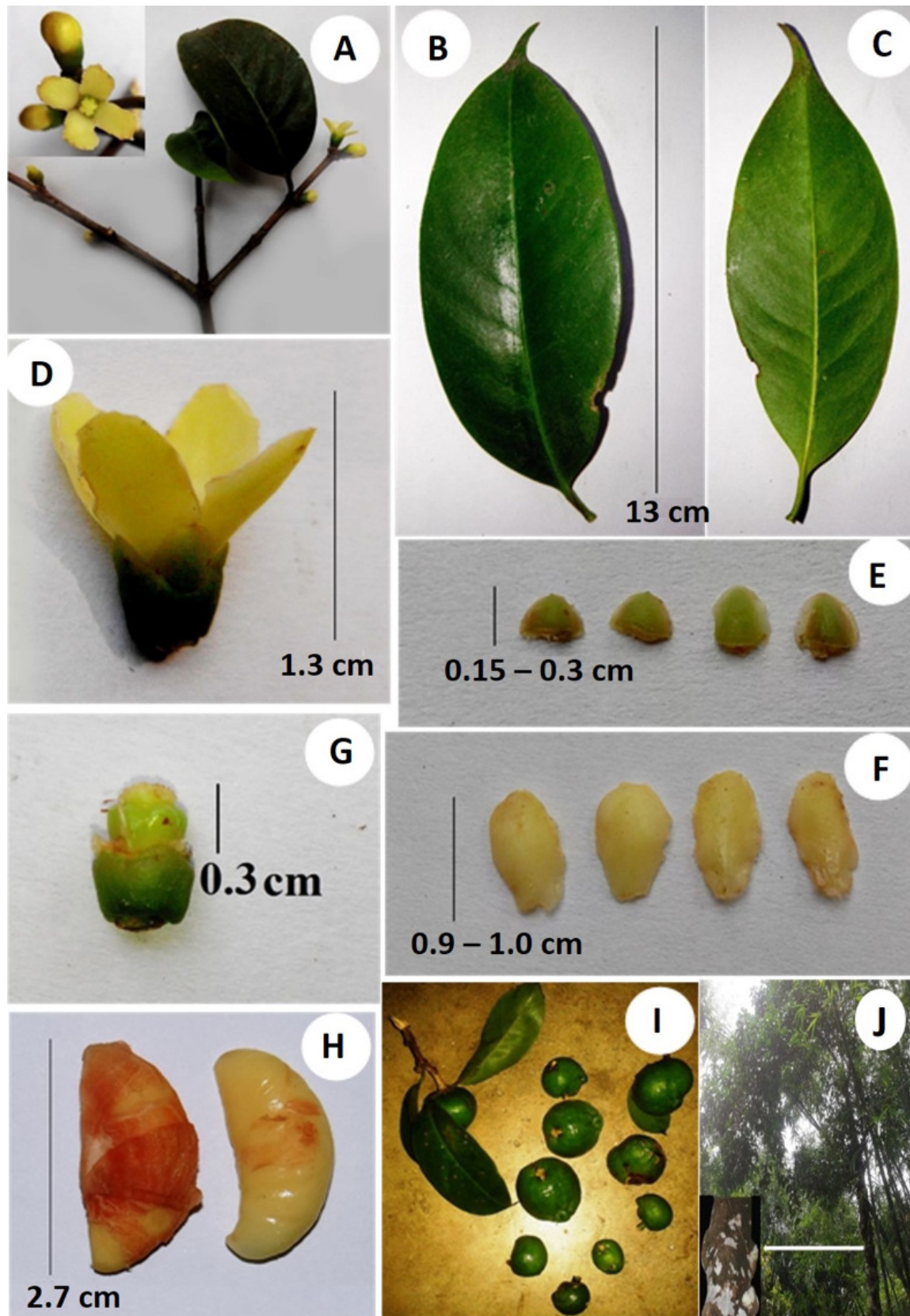


Image 1. Taxonomic characteristics of *Garcinia kydia*: A—Twig with female flower | B—Adaxial side of leaf | C—Abaxial side of leaf | D—A complete female flower | E—Sepals | F—Petals | G—Ovary | H—Seeds | I—Mature fruits | J—Mature tree (arrow showing close view of bark). © Gaottham Gogoi.

whereas in the present study, globose shaped fruit with depressed apex and a nipple like protuberance crowned with the stigma has been observed. The present description corresponds to that described by Roxburgh (1824) (Image 1). The detailed distinguishing morphological characters of *G. kydia* (Parthasarathy & Nandakishore 2014) and *G. kydia* (present findings) are presented in Table 1.

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