Madhuca insignis (Radlk.) H. J. Lam. (Sapotaceae) – a new addition to the flora of Kerala

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Abstract: *Madhuca insignis* (Radlk.) H. J. Lam., a very narrow endemic and critically endangered species is described and reported as a new record for Kerala.

Madhuca Buch-Ham ex J. Gmelin is an Indo-malayan genus represented by about 100 species especially from Western Malaysia to Australia (Mabberley 2008). In India the genus is represented by 5 species (Govaerts *et al.* 2001). During floristic exploration of lateritic hillocks and plains of Kasaragod District, Kerala, the authors collected one interesting riparian Sapotaceae member. On detailed study and comparison with image of isotype (P00640379) deposited at Herbier Museum Paris, it turned out to be *Madhuca insignis* (Radlk.) H. J. Lam., a plant earlier known only from Dakshina Kannada and Udupi Districts of Karnataka (Bhat 2003; Kumar *et al.* 2004; Ravikumar *et al.* 2004; Udayan 2004). A species considered possibly extinct (Nayar & Shastry 1990; Kumari 1993; Molur & Ved 1995; Nayar 1996; Ravikumar & Ved 2000; IUCN 2002) was rediscovered from Dakshina Kannada District of Karnataka in 2004 after a long gap of 120 years (Kumar *et al.* 2004). Further floristic explorations elucidated its presence in Kaup village of Udupi District (Ravikumar *et al.* 2004) and Venur of Dakshina Kannada District (Udayan 2004). It is a very narrow endemic and Critically Endangered riparian species with a low rate of regeneration. This species is hitherto not recorded from the state of Kerala (Nayar *et al.* 2006; Sasidharan 2011). Brief description and photographs of this species are given to facilitate its easy identification.

Fig. 1 - Isotype of *Madhuca insignis*

Fig. 2 - Herbarium of *M. insignis*

Fig. 3 - Habit

Fig. 4 - Fruits

***Madhuca insignis* (Radlk.) H. J. Lam.** (Fig. 1–4) in Bull. Jard. Bot. Buitenzorg ser. 3. 7: 182. 1925; Royen in Blumea 10: 79. 1960; Sald. & Ramesh in Sald., Fl. Karnataka 1: 329. 1984; Nayar & Sastry, Red Data Book Indian Pl. 3: 247. 1990; Nayar, Hot Spots of End. Pl. India, Nepal & Bhutan 192. 1996; Govaerts *et al.,* World Checklist and Bibliography. Sapotaceae 129. 2001; Bhat, Fl. Udupi. 339. 2003; Ravikumar *et al.*, Phytotaxonomy 4: 120. 2004; Udayan Silva's Newsletter 295: 4. 2004; Kumar *et al.,* Phytomorphology 54: 210. 2004. *Bassia insignis* Radlk., Sitzungsber, Math.-Phys. Cl. Konigl. Bayer Akad. Wiss. Muchen 12: 309. 1882. *Iilipe insignis* (Radlk.) Engl., Bot. Jahrb. Syst. 12: 509. 1890. *Vidorium insigne* (Radlk.) Kuntze, Revis. Gen. Pl. 2: 407. 1891.

Medium-sized evergreen tree, up to 15 m tall; bark grey-brown; branchlets stout, glabrous, young parts rusty-sericeous; terminal cone up to 3 mm long. Leaves simple, alternate, usually clustered towards apices of branchlets, obovate to oblanceolate-oblong, 9–13 × 3–5 cm, base cuneate, subabruptly

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narrowed at petiole, slightly decurrent, apex rounded or retuse or obtuse, margin thickened, sub-coriaceous, glabrous; midrib shallowly grooved above and crested, prominent and rounded below; secondary nerves 11–13 pairs; young leaves coppery, shiny; petiole 0.8–1.1 cm long, grooved above, rounded below, glabrous; stipules *ca.* 1.5 × 0.5 mm, lanceolate-subulate, sericeous on outer side, glabrous within, early caducous. Flowers 4–15 in axillary clusters, cream-yellow, fragrant; pedicels up to 2 cm long, slightly bent at base, glabrous. Calyx-lobes 4, in two series, imbricate, subequal, boat-like, ovate; sepals up to 6–8 × 4–6 mm, outer sepals thick in the middle, with broad papery margin, ovate, apiculate, pale cinnamously-sericeous on the outside and with a band of shiny yellow hairs at the base within, inner sepals yellowish-brown, crested and with glabrous, membranous, fimbriate margins. Corolla tubular below, yellowish brown with dense golden yellow hairs outside and within the thickened tube; lobes 5–8, glabrous within, greenish, ovate-elongate, with broad papery margins. Stamens 20, *ca*. 0.5 cm long, reddish, in two series, attached to the throat of the corolla tube; filaments up to 2 mm long, buried in the thickened hairy tube; anthers ovate-sagittate, biloculed, apiculate. Ovary ovoid, glabrous, 8-locular; ovule 1 per locule; style *ca*. 1.5 cm long, slightly bent at the upper portion, reddish; stigma simple. Fruit fusiform-ovoid, 2.7–3 × 0.8–1.2 cm, sometimes slightly oblique, one-seeded, fleshy; persistent style up to 1.5 cm long; pericarp thin and glabrous. Seeds up to 2.2 × 0.9 cm, convexly flattened, fusiform with short obliquely truncate end, smooth, shiny brown.

Specimen examined: 18. ii. 2010, Puthige, Kasaragod District, Kerala, India, *K. S. Prasad*, 01342 (SSC – Sir Syed College Herbarium, Taliparamba, Kannur).

Flowering and Fruiting: December to March.

Habitat: Growing on the sides of a small stream.

Distribution: Dakshina Kannada and Udupi Districts of Karnataka. Recorded for the first time from Kerala.

Notes: Several extensive explorations in its type locality over a century were unsuccessful and this species was considered as possibly extinct for a long period. Later rediscovery and extended distribution studies were able to record only 62 mature individuals from three localities of Southern Karnataka (Kumar *et al.* 2004; Ravikumar *et al.* 2004; Udayan 2004). During present study only two mature individuals were observed in Kasaragod district. This species is known for its edible tasty fruits which are much preferred by bats, squirrels and local people. Seed oil is cooling to eyes and the whole body (Ravikumar *et al*. 2004). Since it is very rare and its habitat is facing high risk owing to habitat destruction there is a urgent need for conservation of this rare, critically endangered, palatable and medicinally important plant.

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