

Extended distribution of *Madhuca insignis* (Radlk.) H. J. Lam. (Sapotaceae) - A Critically Endangered species in Shimoga District of Karnataka
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Madhuca Buch-Ham ex J. Gmelin is an Indo-Malayan genus belonging to the Sapotaceae family, consisting about 100 different species (Mabberley 2008). In India this genus consists of 5 species *M. bourdillonii*, *M. longifolia* var. *longifolia*, *M. longifolia* var. *latifolia*, *M. neriifolia* and *M. insignis* of which *M. longifolia* (Koen), *M. neriifolia* (Moon) H. J. Lam. and *M. bourdillonii* (Gamble) H. J. Lam. are very common and widely distributed in India and Sri Lanka Western Ghats (Govaerts *et al.*, 2001). *Madhuca insignis* or *Bassia insignis* (Radlkofer 1882) first found its mention in Radlkofer study with a detailed description of the species. Later intensive explorations carried out by various botanists remained unsuccessful for over a century and soon *M. insignis* found its way into the IUCN Red list of threatened species as an extinct (Nayar & Shastry 1990; Oldfield *et al.*, 1998) taxon. It was rediscovered after a long gap of about 120 years from the type locality, a village known as Kaup of Udupi District, with only two individuals (Bhat 2003). Following which there were other reports of its existence in Venur and Nodoli of Dakshina Kannada (Kumar *et al.*, 2004; Ravikumar *et al.*, 2004; Udayan 2004). Recently a new report of the species was made from the Kasaragod District, Kerala (Prasad and Raveendran 2013).

Floristic Exploration: During the floristic exploration undertaken in Shimoga district of Karnataka, a riparian Sapotaceae species similar to the morphological description of *Madhuca insignis* (Radlk.) H. J. Lam. was located near Linganamakki Dam area, Sagara Taluk (lat: 14° 10' 03.84", log: 74° 49' 13.321") about 10 kms from Jog falls (Fig.2). On detailed study with the specimens already



Fig 1. Photographs of *Madhuca insignis* (a - habit, b - inflorescence, c - tender fruit).

deposited in the Herbarium of the Department of Applied Botany, Mangalore University (HSS-3501, 3502, 3504), it was identified as *Madhuca insignis* (Radlk.) H. J. Lam.

Discription: *Madhuca insignis* (Radlk.) H. J. Lam. (Fig.) in Bull. Jard. Bot. Buitenzorg ser. 3. 7: 182. 1925; Nayar & Shastry, Red Data Book Indian Pl. 3: 247. 1990; Govaerts *et al.*, World Checklist and Bibliography. Sapotaceae 129. 2001; Bhat, Fl. Udupi. 339. 2003; Udayan Silva's Newsletter 295: 4. 2004; Kumar *et al.*, Phytomorphology 54: 210. 2004; Ravikumar *et al.*, Phytotaxonomy 4: 120. 2004. *Bassia insignis* Radlkofer, Sitzungsber, Math.-Phys. Cl. Konigal. Bayer Akad. Wiss. Muchen 12: 309. 1882.

Morphology: Medium-sized evergreen trees, deep rooted, about 18-20 mts tall. The bark is normally dark and scaly; branchlets stout; terminal cone 2.5-3.0 mm long. Leaves simple, alternate, 9-14 x 3-6 cm, glabrous, narrowed at the petiole, rounded at apex, thickened at margins; midrib prominent, rounded below, shallowly grooved above and crested; secondary nerves 10-13 pairs; petiole 0.8-1.4 cm, grooved above, rounded

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Fig 2. Location of *Madhuca insignis* in Linganamakki

below, glabrous. Flowers 6-17 in axillary clusters, fragrant, creamish; pedicel glabrous, 1-2 cm. Calyx-lobes 4 in number; sepals 6-8 x 4-6 mm. Corolla yellowish, having a band of shiny yellow hairs at the base within the thickened tube; lobes 5 - 6, glabrous within. Stamens 20, reddish, in two series, found attached to the throat of the corolla tube; filaments 1-2 mm long, reddish in colour. Ovary ovoid, glabrous; stigma simple. Fruit fusiform-ovoid, 2.5-3 x 0.5-1.2 cm, single seeded, fleshy; persistent style 1-1.6 cm long; pericarp thin, glabrous. Seed one per fruit, 2.0-2.3 x 2.1-2.2 cm, convexly flattened, smooth, shiny and brown (Fig.1).

Specimens examined: Date of Collection: 27-11-2013. Linganamakki Dam area, Sagara Taluk, Shimoga District, Karnataka, India, H. S. Shenoy, 2347, Pilikula Nisarga Dhama Herbarium, Mangalore.

Distribution: Reported in regions of Dakshina Kannada, Udupi Districts of Karnataka and Kasaragod District of Kerala.

Habitat: Riparian species found near the banks of the water bodies. Mainly associated with *Garcinia morella* (Gartner) Desr., *Lagerstroemia missionis* (Wallich ex G. Don) and other riparian species.

Flowering and Fruiting

November-April.

Status: Assessed as "Extinct" by IUCN and CAMP (IUCN 2013; Molur 1995).

Uses: Source of firewood, green manure, fruits edible, oil from seeds as medicine.

Notes: *Madhuca insignis* calls for individual attention not because of its recognised use but because it is deemed to be under threat of imminent extinction. Hence much of the focus is shifted towards *ex-situ* conservation in botanical gardens and gene banks, most importantly the need of the hour being conservation of the countable number of individuals that have been located in their natural habitats after a gap of nearly 120 years, as these habitats are facing high risk owing to habitat fragmentation and destruction.

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