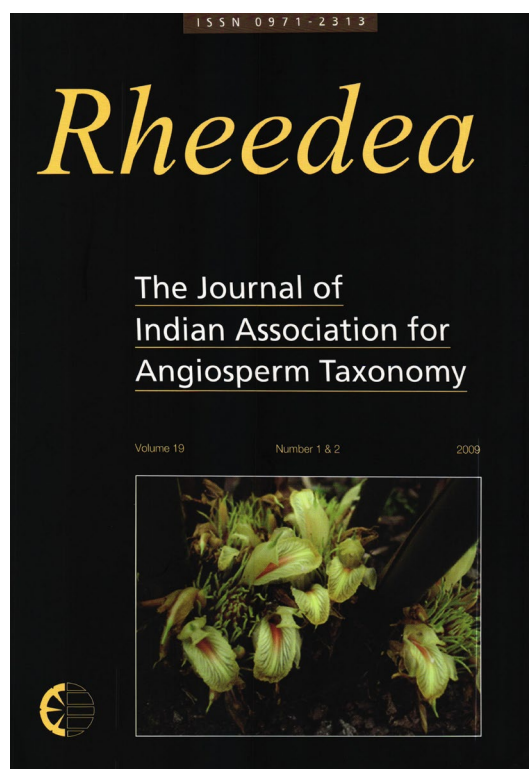




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A Review of the Genus *Mussaenda* (Rubiaceae) from Great Nicobar Island, India, including a New Species

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Abstract

Five species of the genus *Mussaenda* L. are reported from Great Nicobar Island. Out of these *M. nicobarica* is described as a new species, *M. wallichii* G. Don is collected after Kurz's collection, *M. frondosa* L. and *M. macrophylla* Wall. are widely distributed species while for the Indian flora *M. villosa* Wall. ex Hook.f. is confined to Great Nicobar Island. A taxonomic account of *Mussaenda* species from Great Nicobar Island along with a new species is presented.

Keywords: *Mussaenda*, Rubiaceae, New Species, Great Nicobar Island

Introduction

The genus *Mussaenda* L. is one of the largest genera of Rubiaceae (Davis *et al.*, 2009), being represented by c. 200 species, distributed mostly in the forests of tropical Old World (Govaerts *et al.*, 2006; <<http://www.kew.org/wcsp/rubiaceae>>) while in India it is represented by 14 species (Santapau & Henry, 1973). Parkinson (1923) reported one species from the Andaman Islands, while Pandey & Diwakar (2008) listed four species from Andaman and Nicobar Islands. Hajra & Rao (1999) reported three species of the genus from Great Nicobar Island. This Island is well explored floristically by many researchers (Sahni, 1958; Nair, 1976; Thothathri *et al.*, 1976; Balakrishnan & Rao, 1983; Hore, 1985; Balakrishnan *et al.*, 1989; Hajra & Rao, 1999; Shimpale *et al.*, 2006a, b). While working on the flora of Great Nicobar Island, under the project, "Conservation of Biodiversity in Great Nicobar Biosphere Reserve: Ecosystem Dynamic and Maintenance of Biodiversity" sanctioned by Ministry of Environment and Forests, New Delhi, some five species of the genus were collected in a six months stay at Great Nicobar Island. With the help of literature, we could determine three species, *viz.* *M. frondosa* L., *M. villosa* Wall. ex Hook.f. and *M. macrophylla* Wall. and identity was confirmed by matching the specimens with species deposited in Herbarium of Botanical Survey of India, Port Blair (PBL). However, two specimens did not match with any deposited species of the genus in Indian

herbaria. Therefore, the specimens were sent to Royal Botanic Gardens, Kew (RBG, K) for expert's comment. Dr. Aaron Davis (RBG, K), remarked that, "specimen - *Shimpale* 610 is a good match with *M. wallichii* G. Don, while specimen *Shimpale* 568 is very close to the type of *M. malaccensis* Ridl." and stated "I am unable to make a positive identification because we only have one specimen (the type) at K. I would be very circumspect about describing this as new species" (*pers. comm.*). After these comments we conducted a literature review (Hooker, 1882; Kurz, 1887; Ridley, 1923; Bremer & Thulin, 1998; Mathew, 1998; Chamchumroon & Puff, 2003; Alejandro *et al.*, 2005; Sumathi, 2005; Govaerts *et al.*, 2006; Davis *et al.*, 2009). After critical analysis and comparison of the specimen with *M. malaccensis* we observed a number of differences confirming its novelty. Report of *Mussaenda wallichii* from Great Nicobar Island is a rediscovery after a gap of more than 130 years. All specimens are deposited in the Herbarium of Centre for Environmental Management of Degraded Ecosystems, University of Delhi, Delhi.

Key to species of *Mussaenda* in Great Nicobar Island

1. Calyx teeth persistent..... **M. wallichii**
1. Calyx teeth deciduous..... 2

2. Scandent shrubs; corolla tube very slender.....**M. villosa**
2. Erect shrubs; corolla tube broad 3
3. Calyx lobes much shorter than ovary.....**M. macrophylla**
3. Calyx lobes longer than ovary..... 4
4. Calyx ± glabrous; corolla silky hairy**M. frondosa**
4. Calyx hirsute; corolla densely brownish golden-hirsute.....**M. nicobarica sp. nov.**

Mussaenda frondosa L., Sp. Pl.: 177. 1753; B. K. Sinha in Hajra & P. S. N. Rao, Fl. Great Nicobar Isl.: 267. 1999. *M. frondosa* L. var. *ingranata* C. B. Clarke in Hook.f., Fl. Brit. India 3: 89. 1882.

Flowering & Fruiting: May – August.

Occurrence: Frequent along stream banks and forest edges.

Specimens Examined: INDIA, **Great Nicobar Island**, Nevy Dera forest, 10.5.2003, *Shimpale* 173; 12 km East-West road, 18.6.2003, *Shimpale* 785.

Distribution: This is a widespread species. It is also reported from the Indian mainland and is common in the Western Ghats.

Mussaenda macrophylla Wall. in Roxb., Fl. Ind. 2: 228. 1824; C. E. Parkinson, Forest Fl. Andaman Isl.: 187. 1923; Chao, Fl. Taiwan 4: 310. 1978; B. K. Sinha in Hajra & P. S. N. Rao, Fl. Great Nicobar Isl.: 268. 1999.

Flowering & Fruiting: May – June.

Occurrence: Frequent in inland forest.

Specimen Examined: INDIA, **Great Nicobar Island**, Nevy Dera forest, 10.5.2003, *Shimpale* 200.

Distribution: This species is also reported from tropical Himalaya, Khasia, Pegu, Andaman & Nicobar Islands, Taiwan, Nepal and Philippines.

Mussaenda nicobarica Shimpale, S. R. Yadav & Babu, *sp. nov.* **Fig. 1**

Mussaenda malaccensis Ridl. similis, et foliis ac calycis bractea atque corollae tubo utrimque dense pubescentibus, lobis apicaliter in seta extensis, staminibus infra tubi media parte insertis differt.

Typus: INDIA, **Great Nicobar Island**, Galathea National Park, 24 km on North-South road, 28.5.2003, *Shimpale* 568 (Holotypus, K; Isotypii, CAL, SUK).

Hirsute shrubs, 2–3 m high; young branches lenticellate, somewhat angled, compressed at nodes, hirsute; hairs golden-brown, appressed. Leaves decussate, stipulate, petiolate; stipules interpetiolar, ovate, acute, *c.* 7 × 5 mm, hirsute outside, glabrous inside; petiole 1.3–1.6 cm long, hirsute; lamina broadly obovate, 12–24 × 6–10 cm, cuneate to acuminate at base, entire along margins, acuminate at apex; acumen up to 1.2 cm long; lateral nerves 15–18 pairs; surface appressed-hirsute above, densely so beneath. Inflorescence a trichotomous cyme, up to 15 cm long, hirsute. Flowers 5-merous, pedicellate. Bracts tridentate, hirsute; middle lobe longer than lateral lobes. Calyx lobes 5, almost free, ovate, 1.2–1.4 × 0.2 cm, shorter than corolla tube, 3–5-nerved, deciduous; modified calyx lobe broadly linear-ovate or obovate, up to 10 × 4.5 cm, creamy white, acute at base, acuminate at apex, hirsute on both sides, strongly 6 or 7-nerved; stalk *c.* 3 cm long. Corolla salverform, *c.* 3 cm across, orange-coloured; tube cylindrical, 1.5–1.8 cm long, hirsute outside, densely hairy inside; lobes 5, valvate in bud, attached at apex and forming a setae, hairy outside, glabrous inside. Stamens 5, attached below the middle of tube; filaments very short, *c.* 2 mm long; anthers linear, *c.* 2 mm long. Ovary 5–7 mm long, sparsely pubescent, 2-loculed; style simple; stigma bifid. Berries 1–1.2 × 0.8–1 cm, sparsely pubescent, tip areolate; areole with a ring of hairs. Seeds many.

Etymology: The specific epithet '*nicobarica*' is based on the type locality, Great Nicobar Island.

Flowering & Fruiting: May – August.

Habitat & Distribution: *Mussaenda nicobarica* is restricted to a small area in Galathea National Park of Great Nicobar Island. It is very rare in occurrence and is known only from two localities; based on a continuous survey of the island for six months, population is estimated to be 15. It grows along hill slopes facing the sea on the eastern side of the island. Its typical associates are *Dillenia andamanica* C. E. Parkinson, *Casearia grewiaefolia* Vent. var. *gelonoides* (Blume) Sleumer, *Atalantia monophylla* (L.) DC. and *Leea indica* (Burm.f.) Merr.

Specimens Examined: INDIA, **Great Nicobar Island**, Galathea National Park, 24 km on North-South road, 28.5.2003, *Shimpale* 568 (Holotype, K; Isotypes, CAL, SUK).

Notes: *Mussaenda nicobarica* is similar to *M. malaccensis* Ridl. but differs in having leaves that are densely hairy on both surface (vs. only on the lower surface); modified calyx bracts hirsute on both surfaces (vs. sparsely hairy); corolla tubes

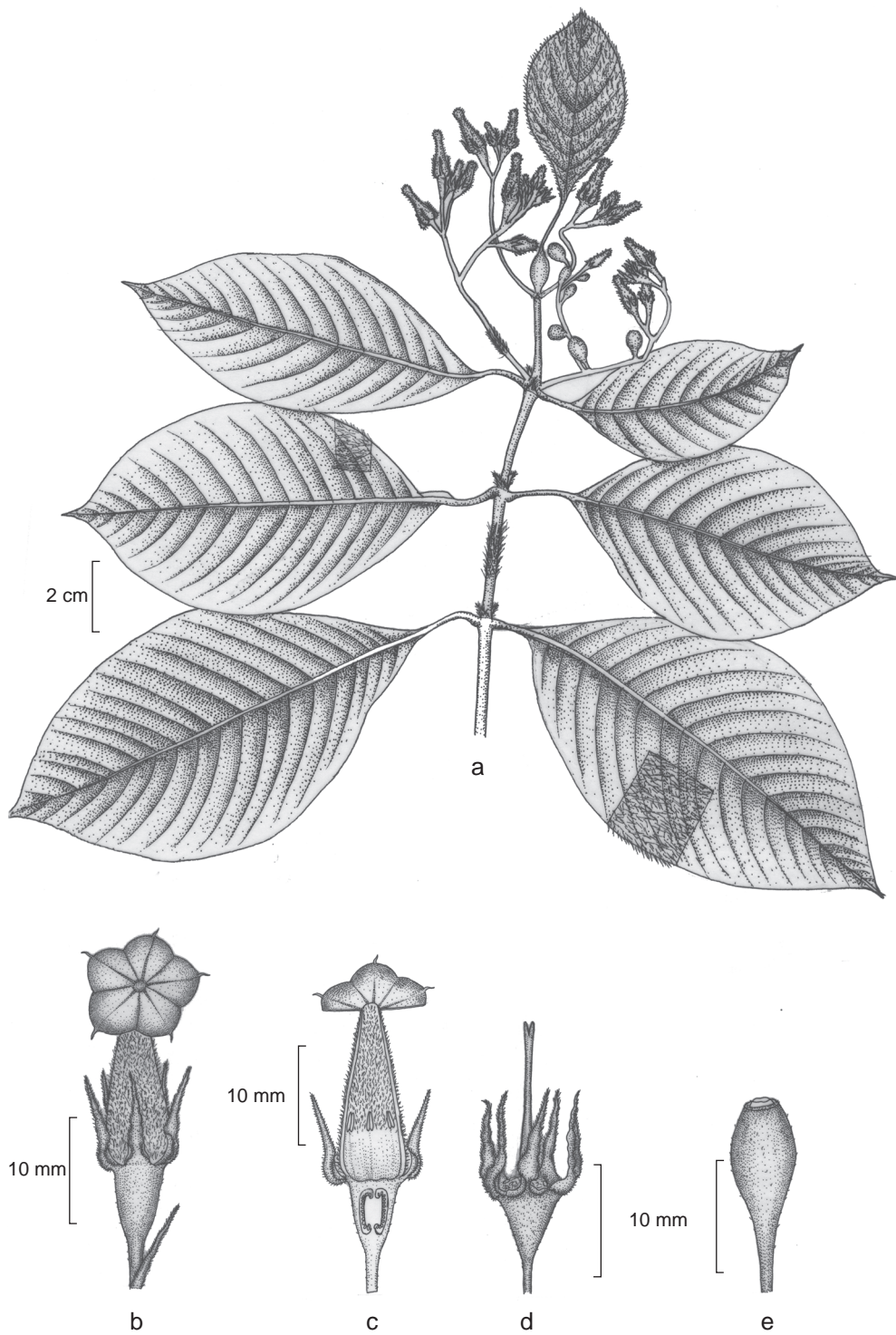


Figure 1. *Mussaenda nicobarica* Shimpale et al.: a. Flowering shoot; b. Flower; c. L.S. of Flower; d. Calyx with pistil; e. Fruit.

densely hairy on both surfaces (vs. hirsute only on outer surface); corolla lobes cuspidate at the apex and forming a setae (vs. acute at apex); stamens attached below the middle portion of tube (vs. at the middle of the tube).

Mussaenda villosa Wall. ex Hook.f., Fl. Brit. India 3: 91. 1882; B. K. Sinha in Hajra & P. S. N. Rao, Fl. Great Nicobar Isl.: 268. 1999.

Flowering & Fruiting: March – April.

Occurrence: Rare, in littoral forest.

Specimen Examined: INDIA, **Great Nicobar Island**, Nevy Dera forest, 20.3.2003, *Shimpale* 167.

Distribution: This species is confined to Great Nicobar Island.

Mussaenda wallichii G. Don, Gen. Hist. 3: 490. 1834; Hook.f., Fl. Brit. India 3: 88. 1882.

Flowering & Fruiting: May – June

Occurrence: Rare; along stream banks.

Specimen Examined: INDIA, **Great Nicobar Island**, Nevy Dera stream, 2.5.2003, *Shimpale* 610.

Note: This species was reported from Great Nicobar Island by Kurz (1876). Rao (1986) included this species from Nicobar Island in his checklist based on Kurz. It was not included in the Flora of Great Nicobar Island (Sinha, 1999). However, it was later reported by Pandey & Diwakar (2008) on the basis of collection deposited in PBL.

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