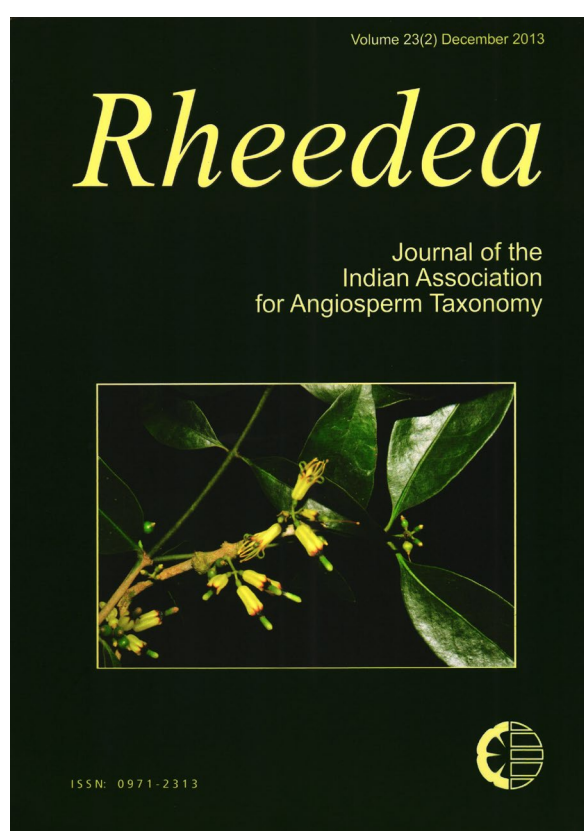




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How to cite:

Singh L.J. 2013. The genus *Macrosolen* (Loranthaceae) in Andaman and Nicobar Islands, with a new record for India. *Rheedeia* 23(2): 108-112.

<https://dx.doi.org/10.22244/rheedeia.2013.23.02.06>

Received: 27.02.2012

Revised and accepted: 12.11.2013

Published in print: 31.12.2013

Published Online: 31.12.2013

The genus *Macrosolen* (Loranthaceae) in Andaman and Nicobar Islands, with a new record for India

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Abstract

The genus *Macrosolen* Blume (Loranthaceae) is revised for Andaman and Nicobar Islands. *M. melintangensis* (Korth.) Miq. is reported for the first time from Bay Islands as a new record for India. With this, 5 species of this genus are found in these Islands. A key for the identification of species is also provided.

Keywords: India, Andaman and Nicobar Islands, Loranthaceae, *Macrosolen*, New record

Introduction

While studying the flora of Andaman and Nicobar Islands, the author collected an interesting specimen of Loranthaceae from South Andaman. On critical examination, it is identified as *Macrosolen melintangensis* (Korth.) Miq., a species so far reported only from Thailand, Indo-china, Malaya, Sumatra, Java, Borneo, Celebes and the Philippines (Barlow, 1995). Hence, the present report forms a new distributional record for India.

The genus *Macrosolen*, with about 30 species in the world, is distributed in India, Southern Asia, Malaysia, Thailand, China to New Guinea (Barlow, 1997, 2002; Wilson & Calvin, 2006a, b; Vidal-Russel & Nickrent, 2008a, b). Among them, 6 species are reported from India (Rajsekaran, 2012; Singh, 2013) and 5 species from the Bay Islands (Singh, l.c.). Most species of *Macrosolen* are aerial stem parasites and grow on dicotyledonous trees but a few grow on Gymnosperms (Wilson & Calvin, 2006a and b). Except for a few scanty reports in the early literatures (Roxburgh, 1832; Hooker, 1890; Duthie, 1903; Rajsekaran, 2012; Singh, 2013; Singh & Murugan, 2013), the parasites of Indian flora remain neglected and unexplored. The present paper deals with the taxonomic revision of *Macrosolen* in Andaman and Nicobar Islands along with a new report.

Key to the species

1. Nerves on leaves prominent; racemes terminal; fruits ellipsoid 1. ***M. ampullaceus***

1. Nerves on leaves obscure; racemes axillary/ lateral; fruits globose 2
2. Pedicel 1–2 mm long 4. ***M. globosus***
2. Pedicel c. 5 mm long 3
3. Corolla in mature bud < 20 mm long 3. ***M. cochinchinensis***
3. Corolla in mature bud > 20 mm long 4
4. Leaves cuneate/ truncate at base; corolla 20–30 mm long 5. ***M. melintangensis***
4. Leaves acute at base; corolla 10–14 mm long 2. ***M. andamanensis***

1. *Macrosolen ampullaceus* (Roxb.) Van Tiegh., Bull. Soc. Bot. France 42: 442. 1894. *Loranthus ampullaceus* Roxb., Fl. Ind. 2: 209. 1824; Kurz, For. Fl. Brit. Burma 2: 316. 1877; Hook.f., Fl. Brit. India 5: 220. 1886.

Shrub, quite glabrous. Leaves opposite, elliptic-ovate/oblong or lanceolate, 7–12 × 2–4 cm, acute/ rarely rounded at base, subacute or acuminate at apex glossy above, coriaceous, golden when dry; nerves prominent; petioles 1.25 cm long. Racemes terminal, very variable with 3–6 pairs of flowers. Flowers pale yellow at base, purple at middle, green above. Calyx-limb entire. Corolla-tube oblong, 5–10 (–14) mm long, 6-angled, inflated below; lobes 6, linear-spathulate, as long as the tube, reflexed. Stamens 6, linear, spathulate, as long as the corolla tube; anther basifixed, immobile. Ovary inferior, 1-celled; ovule 1, basal placentation. Fruits

ellipsoid, red; seeds globose, yellowish brown.

Flowering & Fruiting: February-May

Distribution: India and Malaysia.

Specimens examined: INDIA, **Andaman and Nicobar Islands**: Middle Andaman, Near Mayabunder, Webi, c. 20 msl, 04.05.1973, N.P. Balakrishnan 1346; South Andaman, Tirur, 12.05.1976, N.G. Nair 3681; Little Andaman, Dugon Creek, Guest House Campus, 05.02.1981, R.K. Premanath 8406 & 8407 (PBL!).

2. *Macrosolen andamanensis* L.J. Singh, Indian J. Forest. 36(1): 56. 2013.

Evergreen shrub; branches hanging; branchlets glabrous. Leaves opposite, lanceolate, 4.3–9.1 × 1.6–3.8 cm, glossy, dull below, pale green with pinnate venation, acute at base, entire along margins, acuminate at the apex; midrib prominent and yellowish orange below; lateral nerves visible on both surfaces; petiole 0.3–1.2 cm long. Inflorescence lateral/ axillary, raceme of 1 or 2 opposite pairs of flowers; axil slender, 3–8 mm long, shortly longer in fruit, often subtended at base by an involucre of a few acuminate prophylls; pedicel slender, 2–4 mm long; bracts small, elliptic-ovate. Flowers yellow, actinomorphic, bisexual. Corolla 6-lobed, rarely 5-lobed, 10–14(–20) mm long, usually slender, slightly inflated and weakly 6-ribbed or 6-winged (rarely 5-ribbed or 5-winged) at or above the middle, acute at the apex, mostly red below, dark brown coloured at neck, green above; tube in the open flower 7–9 mm long; lobes reflexed or twisted, 4–5 mm long. Stamens 6 (5), exserted; filaments flat, tubular, 8–10 mm long; anthers red or pink, with yellow apex, acute, 2–2.5 mm long, about one fourth long as the free part of the filament. Ovary inferior, unilocular; style tubular, bent at base; stigma globose, red or pink in colour. Fruits globose, 1.5–3.5 mm in diameter; stalk 2–3 mm long, greenish yellow, turning reddish brown when ripe.

Flowering & Fruiting: July–October.

Habitat: Aerial stem parasite on *Mangifera indica* L. and *Manilkara littoralis* (Kurz) Dubbard.

Distribution: India, endemic.

Specimens examined: INDIA, **Andaman and Nicobar Islands**, South Andaman, Haddo (Port Blair) ± 90 m, 12.10.2012, Lal Ji Singh 29536; Kamarajnagar Junction, c. 100m, 29.10.2012, C. Murugan 30091; Middle Andaman, Kaushalya Nagar (Rangat), ± 60 m, 16.10.2013, Lal Ji Singh 29603 (PBL!).

3. *Macrosolen cochinchinensis* (Lour.) Van Tiegh., Bull. Soc. Bot. France 41: 122. 1894; Barlow, Fl. Males. 13: 366. 1997. *Loranthus cochinchinensis* Lour., Fl. Coch. 195. 1790.

Shrubs. Leaves opposite or scattered, lamina narrowly to broadly elliptic or ovate, 4–16 × 2–7 cm, cuneate to truncate at base, acuminate or acute but sometimes obtuse or shortly rounded at apex, lustrous above, dull below; petioles 3–10 mm long. Inflorescences lateral, subumbellate or spicate, racemes 2–7-flowered. Calyx-limb entire. Corolla in mature bud 6-merous, mostly yellow or green or rarely pink or red below, dark-coloured at the neck and yellow or red above; tube in open flower 5–10 (–14) mm long; lobes reflexed. Stamens 6; anther 0.5–2.0 mm long, acute, about half to one third as long as the free part of the filament. Ovary inferior, 1-celled; ovule 1, placentation basal. Fruits globose, brownish green, glossy; seeds globose, yellowish brown.

Flowering & Fruiting: August

Distribution: India, China, Malaysia and New Guinea.

Specimen examined: INDIA, **Andaman and Nicobar Islands**, Little Andaman, Water fall, 14.08.2004, L. Rasingam 17579 (PBL!).

4. *Macrosolen globosus* (Roxb.) Van Tiegh., Bull. Soc. Bot. France 42: 442. 1894. *Loranthus globosus* Roxb., Fl. Ind. 2: 206. 1824; Kurz, For. Fl. Brit. Burma 2: 315. 1877; Hook.f., Fl. Brit. India 5: 220. 1886; Parkinson, For. Fl. Andaman Islands 230. 1923.

Shrubs. Leaves opposite (rarely alternate or 3-nately whorled), elliptic-lanceolate, 6–10 × 3.5–6 cm, entire at margin, subacute or acuminate, nerves very obscure, pale brown when dry; petioles 5–10 mm long. Inflorescences axillary, 3–7-flowered, glabrous; pedicels c. 1.25 mm long. Calyx-limb entire, c. 2.5 mm long. Corolla-tube oblong, pink, 5–6-angled, inflated; lobes 5–6, yellow, greenish orange with yellow tips, linear-spathulate, as long as tube. Fruits globose, c. 8 mm long across, blackish; seeds globose, dark black.

Flowering & Fruiting: June - November.

Habitat: Parasite on *Briedelia* sp. and *Eugenia javanica* Lam.

Distribution: Malaysia, India.

Specimens examined: INDIA, **Andaman and Nicobar Islands**, Car Nicobar, Lapathy, 14.06.1974, N.G. Nair 1637; Mus,

14.11.1975, N.G. Nair 2884 (PBL!); Mus, 14.11.1975, N.G. Nair 2893; Tee Top, 03.06.1975, N.G. Nair 2658; Sawai, 04.06.1975, N.G. Nair 2665.

5. *Macrosolen melintangensis* (Korth.) Miq., Fl. Ind. Bat. 1(1): 830. 1856; Barlow, Blumea 40(1): 26. 1995 & Fl. Males. 13. 372. 1997; Barlow, Fl. Thailand 7(4): 693. 2007. *Loranthus melintangensis* Korth., Verh. Bat. Aenootsch 17: 281. 1839. *M. javanus* Danser, Bull. Jard. Bot. Buitenzorg III, 11: 289. 1931; Backer & Bakh. f., Fl. Java 2: 70. 1965. Figs. 1, 2

Woody herbs; branches hanging; branchlets glabrous. Leaves opposite, elliptic-ovate, (5-) 8–12 (-18) × 1.5–6.0 cm, shortly cuneate to truncate at base, entire along margins, usually slight to strongly acuminate or acute at apex, shining or glossy above, dull and pale below; venation pinnate, visible on the upper surface, with only midrib raised, dark coloured and visible below; petiole (3-) 6–15 (-18) mm long. Inflorescence lateral/axillary subumbellate recemes of 2–4 opposite pairs of flowers, axil usually slender, 3–10 (-16) mm long



Fig. 1. *Macrosolen melintangensis* (Korth.) Miq.: **a.** Flowering twig; **b.** Inflorescence; **c.** Flower bud; **d.** Flower; **e.** Flower (split open); **f.** Stamens; **g.** Pistil; **h.** Ovary T.S. (40X); **i.** Fruits.

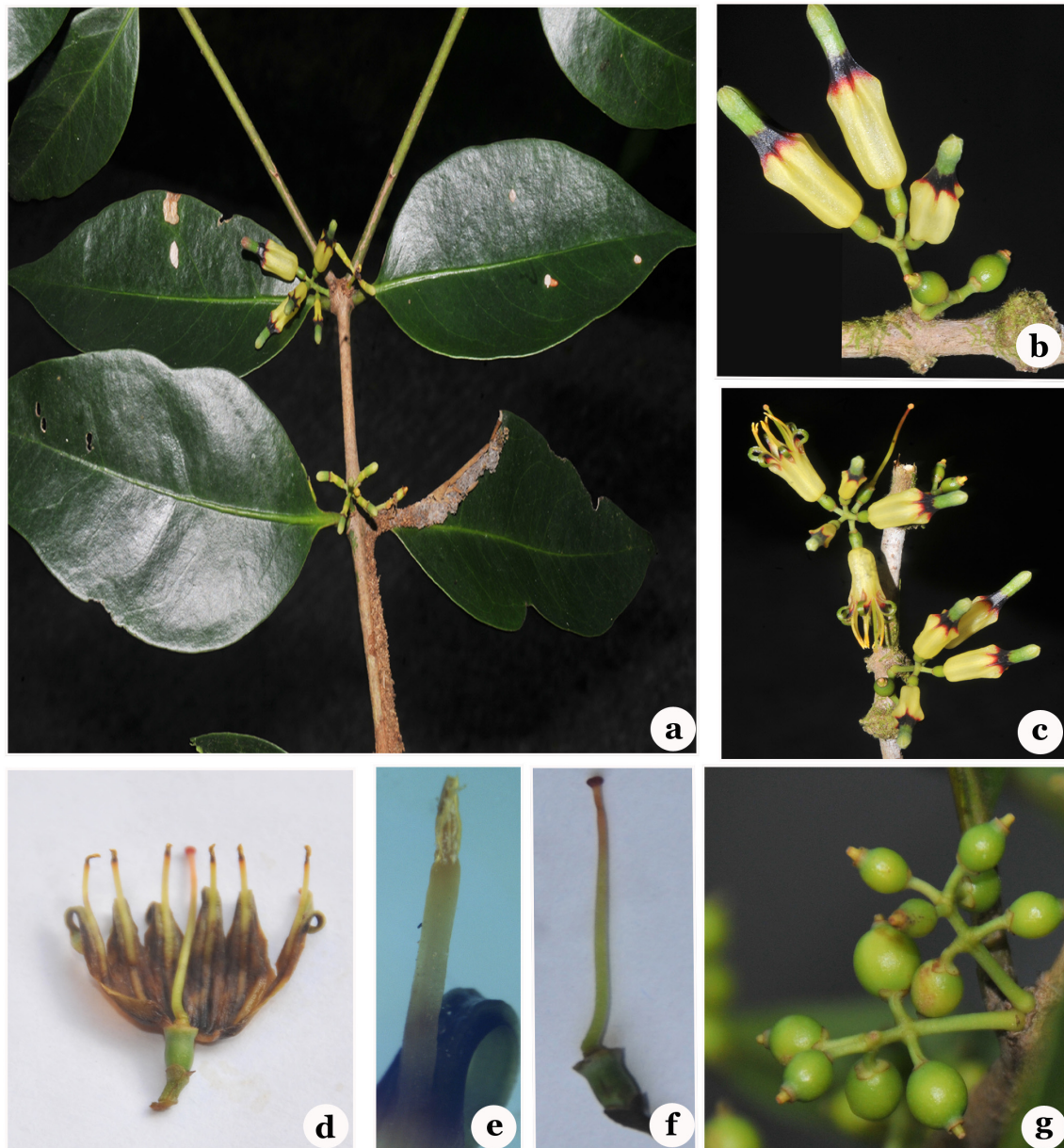


Fig. 2. *Macrosolen melintangensis* (Korth.) Miq.: **a.** Flowering twig; **b, c.** Inflorescences; **d.** Flower (split open); **e.** Stamen; **f.** Pistil; **g.** Infructescence

(or slightly longer in fruit), often subtended at the base by an involucre of a few acuminate prophylls. Flowers yellow, actinomorphic, bisexual; pedicels slender, (1-) 2–4 mm long (to 5 mm in fruit); bracts 3, ovate, acute at apex. Corolla in mature bud 6-merous, (15-) 20–30 (–35) mm long, usually slender, slightly inflated and weakly 6-ribbed or 6-winged at or above the middle, clavate, angular and usually acute at the apex, mostly pink, brown or orange, with a dark band at the basal neck and grading to yellow or green above; tube in the open flower 12–18 mm long, lobes reflexed, 2–3 mm long.

Stamens 6; filaments flat, 1–1.5 cm long; anthers 1.5–3 mm long, about two thirds as long as the free part of the filament. Ovary inferior, 1-celled; style tubular and bent at base; stigma globose, orange in colour. Fruits globose, 2–4 mm in diam., stalk 0.5–1.9 mm long, greenish yellow, turning reddish brown when ripe; seeds globose, blackish brown.

Flowering & Fruiting: November–January.

Habitat: Aerial stem parasite on *Mangifera indica* L. and *Horsfieldia glabra* (Blume) Warb. in humid and open tropical forests from ± 114 to 163 m altitude.

Distribution: India, Peninsular Malaysia to Cambodia, southwards and eastwards to Sumatra, Borneo, Java, Celebes, Thailand and Philippines.

Specimens examined: INDIA, **Andaman and Nicobar Islands**, South Andaman, Dhanikari, 29.03.1980, Jerome xaxza 797; Nayashahar, Dhannikhari Experimental Garden-cum-Arboretum, 16.11.2011, 11°34'.303" N & 92°40'.258" E, Lal Ji Singh 29520; 19.12.2011, 11°34'.303" N & 92°40'.258" E, Lal Ji Singh 29521; Tirur Forests area of Harpattabad, 29.12.2011, 11°43'.201" N & 92°36'.481" E, Lal Ji Singh 29522; Forest Area of Nayashahar, 30.12.2011, 11°33'.027" N & 92°31'.219" E, Lal Ji Singh & C. Murugan 29523; Port Blair, School line, Near Vivekananda Kendra Vidyalaya School, Opp. Airport, 07.01.2012, 11°39'.076" N & 92°43'.889" E, C. Murugan 29801.

Notes: Barlow (1995) stated that habitat details are very poorly known, there is a solitary record of *Ficus* sp. as host. In the present study, the authors recorded *Mangifera indica* and *Horsfieldia glabra* as hosts for the first time. More recently L.J. Singh (2013) stated that most Indian species of *Macrosolen* grow on dicotyledonous trees with high host specificity may some times show a visual resemblances to preferred host.

Acknowledgements

The author is thankful to Dr. P. Singh, Director and Dr. D.K. Singh, Scientist-F, Botanical Survey of India, Kolkata for constant support and encouragement; Dr. C. Murugan, Head of Office, Botanical Survey of India, Port Blair for facilities; Dr. V.S. Kumar, IBLO, Royal Botanic Garden, Kew for providing relevant literature. The author is grateful to Prof. D.R. Misra and Prof. D.K. Chouhan, Department of Botany, University of Allahabad and Prof. A.K. Pandey, Department of Botany, University of Delhi for their valuable suggestions. I also thank Dr. S. Prabhu and Smt. Ushalata for technical support.

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Received: 27.02.2012

Revised and Accepted: 12.11.2013



RHEEDEA

Journal of the Indian Association for Angiosperm Taxonomy



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Published by Indian Association for Angiosperm Taxonomy

This volume of Rheedia is published with partial financial assistance from
Department of Science and Technology, Government of India, New Delhi