

NOTES ON *CLEIDION NITIDUM* (EUPHORBIACEAE) FROM ANDAMAN & NICOBAR ISLANDS, INDIA

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ABSTRACT

Cleidion nitidum (Mull. Arg.) Thwaites ex Kurz is collected from a range of localities from Andaman & Nicobar Islands. The issues concerning its identity, affinity with *C. javanicum*, *C. microcarpum* and *C. ramosii* and distribution are deliberated. It is described and illustrated.

Keywords : *Cleidion javanicum*, *Cleidion microcarpum*, *Cleidion ramosii*, Taxonomy.

INTRODUCTION

The Andaman & Nicobar Islands with a total geographical area of 8,250sq km, situated 1200km off the South-Eastern Coast of India in the Bay of Bengal, stretches from Myanmar in North to Sumatra (Indonesia) in South (6°45' to 13° 41' N lat. and 92° 12' E to 93° 57' E long.). These Islands harbour luxuriant lowland rain forests besides wetlands, mangroves and coral reefs. The floral elements of these Islands often show close affinity with those of Indonesia, Malaysia, Myanmar, Thailand and Sri Lanka.

Muller Argoviensis (1866) described *Mallotus nitidus* based on Thwaites material collected from Sri Lanka. Kurz (1877) published a combination, *C. nitidum* after his collections from Andaman Islands. Neither pistillate flowers nor opened staminate flowers are included in both descriptions as the type material is devoid of them. Hook.f. (1887) had drawn Kurz description in the Flora of British India as for the inflorescence bearing staminate flowers is concerned but the description on pistillate flowers was added by him based on Ceylon material collected by Gardner. This was further reproduced in subsequent floras of Ceylon (Trimen, 1898; Dassanayake, Fosberg and Clayton, 1997). These works have emphasized the poor quality of material particularly for pistillate flowers and opened staminate flowers. In a recent enumeration of family Euphorbiaceae in India (Balakrishnan and Chakrabarty, 2007), *C. nitidum* was keyed out with no emphasis on the stated lapses. The species was reported very recently with a good photoplate from Tamil Nadu and as a new record for Peninsular India (Kottaimuthu, 2012).

One of the authors of the present communication (MVR) collected *Cleidion* material from North Andaman, Diglipur forest range under a DBT program on "Quantitative Assessment and Mapping of Plant resources of Andaman & Nicobar Islands". The genus is distinctive for its unique anthers in staminate flowers and longer stigmas in pistillate flowers. The same author has recollected them about half year later from Middle Andaman, Mayabunder forest range (Tugapur area). While critically studying these specimens for identity, the authors found two more collections similar to the present collections, (*M.K. Vasudeva Rao* 8993 and *N.P. Balakrishnan* 345) annotated as *C. javanicum* at PBL. A decisive study combined with scrutiny of a revisionary study on the genus *Cleidion* Merr. in Malesia (Kulju & Welzen, 2005) and specimens helped the authors in confirming its identity as *Cleidion nitidum*, hitherto known only from Sri Lanka, Andaman & Nicobar Islands and Tamil Nadu. In the process, the authentic Kurz material was also traced in CAL.

Greater variability in pistillate flowers was observed in the material collected from different localities in Andaman & Nicobar Islands. Its report from Tamil Nadu further enriched our understanding on the species. Its apparent affinity with *C. microcarpum* and *C. ramosii*, two of the seven species reported from Malesia, in the light of recent collections, is deliberated in the present communication.

TAXONOMY

Cleidion nitidum (Mull. Arg.) Thwaites ex Kurz, J. Asiat. Soc. Bengal, Part 2, Nat. Hist. 42(2): 245.1873 & For. Fl. Burma 2:391.1877; Hook. f., Fl. Brit. India 5:444.1887; Trimen, Handb. Fl. Ceylon 4:69.1898; C.E. Parkinson, For. Fl. Andaman Is. 244.1923; Chakrab. & Balakr., J. Econ. Tax. Bot. Add. Ser. 9:44, f. 11.1992; Philcox in Dassan. & Clayton, Rev. Handb. Fl. Ceylon 11: 168. 1997; Balakr. & Chakrab., The Family Euphorbiaceae in India 136.2007; Kottaimuthu, Life Sciences Leaflets 4: 31.2012. (Figs. 1 & 2.)

Mallotus nitidus Muell.- Arg., DC, Prodr. 15(2): 979.1866. Type: *Thwaites* 2469 C.P.!

Shrub to a small tree, 3 - 5 (- 8) m high, monoecious or dioecious; stem 15 - 45 cm diam.; bark silvery grey outside, reddish inside; young branches lenticellate. Leaves simple, alternate, shortly petioled; petioles 0.5 - 1 cm long, often bent and faintly bulged at both ends, with 3 - 5 glands abaxially at the junction of lamina with petiole; stipules early caducous; lamina broadly to elliptically lanceolate, rarely they turn obovate, 10 - 15 × 4 - 6.5 cm, acute to attenuate at base, sub-entire near to middle in the margins, crenate to serrate above the middle, acute to acuminate at apex, thicker and rarely glandular in the margins, coriaceous, glossy, glabrous, dark green above and apple green below when fresh, copper coloured on drying; secondary nerves 5 - 9 pairs, immersed above, raised beneath, arching upwards, forming loops near to the margin. Inflorescences with pistillate and staminate flowers on separate branches in monoecious habit; inflorescences with staminate flowers leaf-opposed, confining to terminal branches, single, red granulated, up to 20 cm long; staminate flowers small, pale yellow, 3 - 5 flowers per node; pedicels minutely bristly, up to 1 mm long; sepals ovate, 1 - 2 mm long, thick, punctate, tufted hairy at tip outside, reflexed in open flowers; stamens ca 50, packed in a cluster on a raised thalamus; filaments ca 1 mm long, attached dorsally; anthers monothealous, with a tuft of bristles at tip, dehiscing from above. Pistillate inflorescences axillary, 3 - 5 cm long, with 1 - 5 pistillate flowers, older flowers above, devoid of abscission mark; bracts ovate, ca 1 mm long, persistent. Sepals 3, ca 1 mm long, ovate, acute at tip, glabrous, caducous in fruit. Ovary 3-loculed, appressed hairy; styles 3, connate, very insignificant, ca 0.5 mm long, bifurcated above; stigmas 6, prominent, 1.5 - 2 cm long, purplish and hairy on adaxial face, glabrous on dorsal face. Capsules 3-lobed, 4 - 6 × 6 - 10 mm, brownish when dry, glabrous; seeds 3, with elliptic hilum.

Distribution - India (Andaman & Nicobar Islands and Tamil Nadu) and Sri Lanka.

Habitat & Ecology - Common, usually found in evergreen/semi-evergreen forests and often forming small patches where the forest is more or less free of under-growth.

Flowering: January - March; *Fruiting*: August - November.

Notes- It is distinctive from *C. javanicum* by absence of domatia in leaf venation axils and inflorescences bearing pistillate flowers branched and, with 3-lobed capsules in fruit. It is also distinctive from *C. microcarpum* by possessing shorter and often bent petioles which are bulged on both ends, inflorescences bearing staminate flowers confining to terminal portions and the whole material turning copper coloured on drying. But it goes with *C. microcarpum* in other features of the leaf, inflorescence bearing pistillate flowers branched with 1 - 5 nodes and deeply divided stigmas from three lobed carpels. It also differs from *C. ramosii*, a very closely allied species of *C. microcarpum*, by inflorescence bearing pistillate flowers with nodes all through and with no abscission zone at basal part of pedicel of pistillate flowers (bracts only in upper half and abscission zone at basal part of pedicel of pistillate flowers in *C. ramosii*).

Specimens examined: All specimens are from PBL unless otherwise mentioned.

Old specimens: South Andaman Islands, without date, *S. Kurz* s.n.(CAL); Middle Andaman, 27-04-1964, *Ellis* and *Ramamurthy* 18961; South Andaman, 12-09-1973, *N. P. Balakrishnan* 345; South Andaman, 9-01-1974, *N.P. Balakrishnan* 750; Little Andaman, 10-01-1976, *N. Bhargava* 3381; Middle Andaman, 20-11-1976, *N. G. Nair* 4839; Middle Andaman 6-11-1977, *N. Bhargava* 6412; Little Andaman, 27-11-1977, *N. Bhargava* 6581-82; South Andaman, 26-05-1980, *T. A. Rao*, *T. Chakraborty* and *R. K. Premanath* 7682; North Andaman, 12-05-1982, *M.K. Vasudeva Rao* 8993; Middle Andaman, 08-11 -1990, *P. Lakshmi Narshiman* 15197; North Andaman, Mayabunder, 04-12-1992, *B. K. Sinha* 16247; North Andaman, 16-01-1998, *M. Tigga* and *G. S. Lakra* 16936; North Andaman, Saddle Peak National Park, 14-04-2001, *R. Sumati* 17325; South Andaman, 24-02-

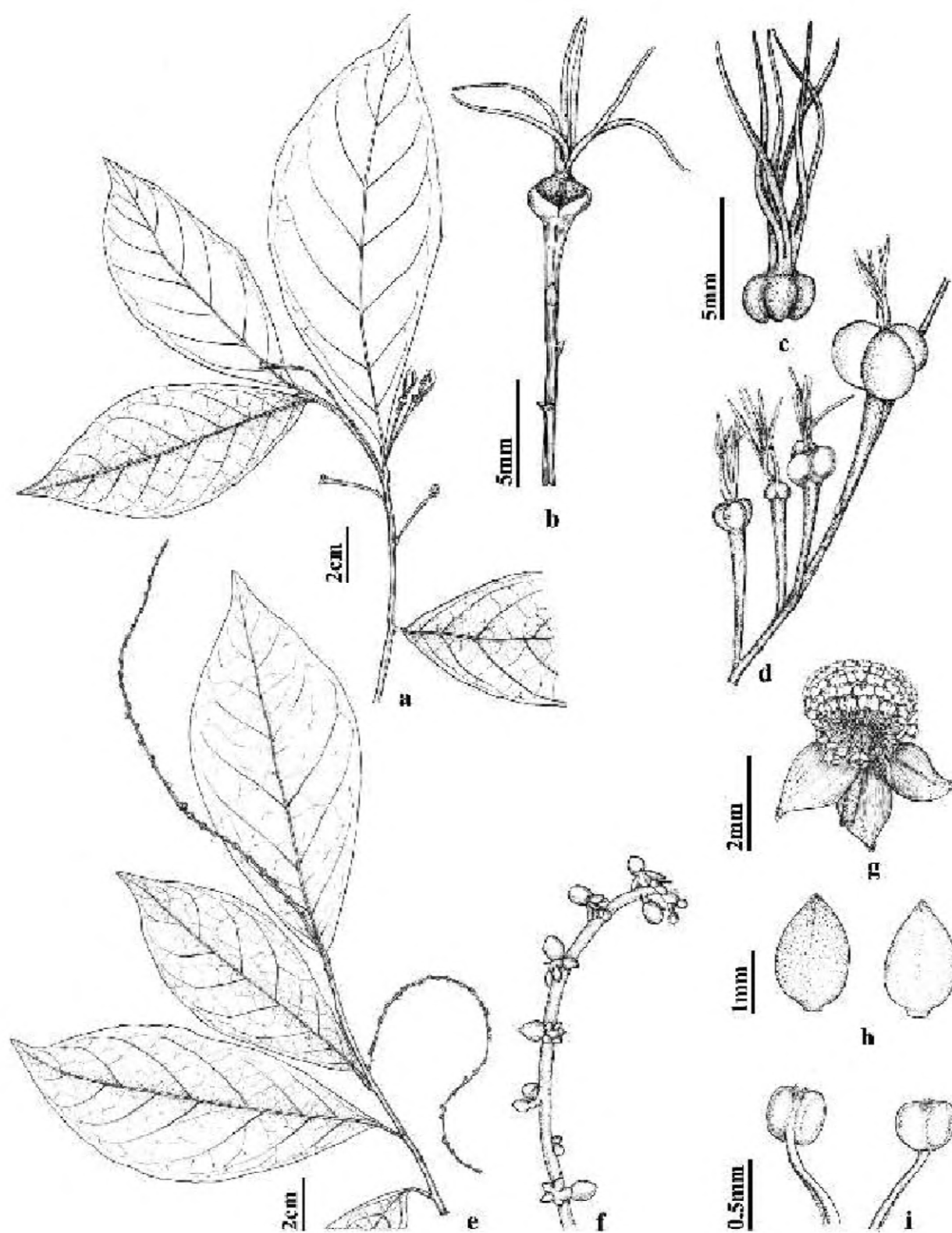


Fig. 1. *Cleidion nitidum* (Muell. Arg.) Thwaites ex Kurz, **a**, female twig - habit, **b** - **d**, pistillate inflorescence, **e**, male twig - habit, **f**, staminate inflorescence, **g**, staminate flower, **h**, petals, **i**, stamens

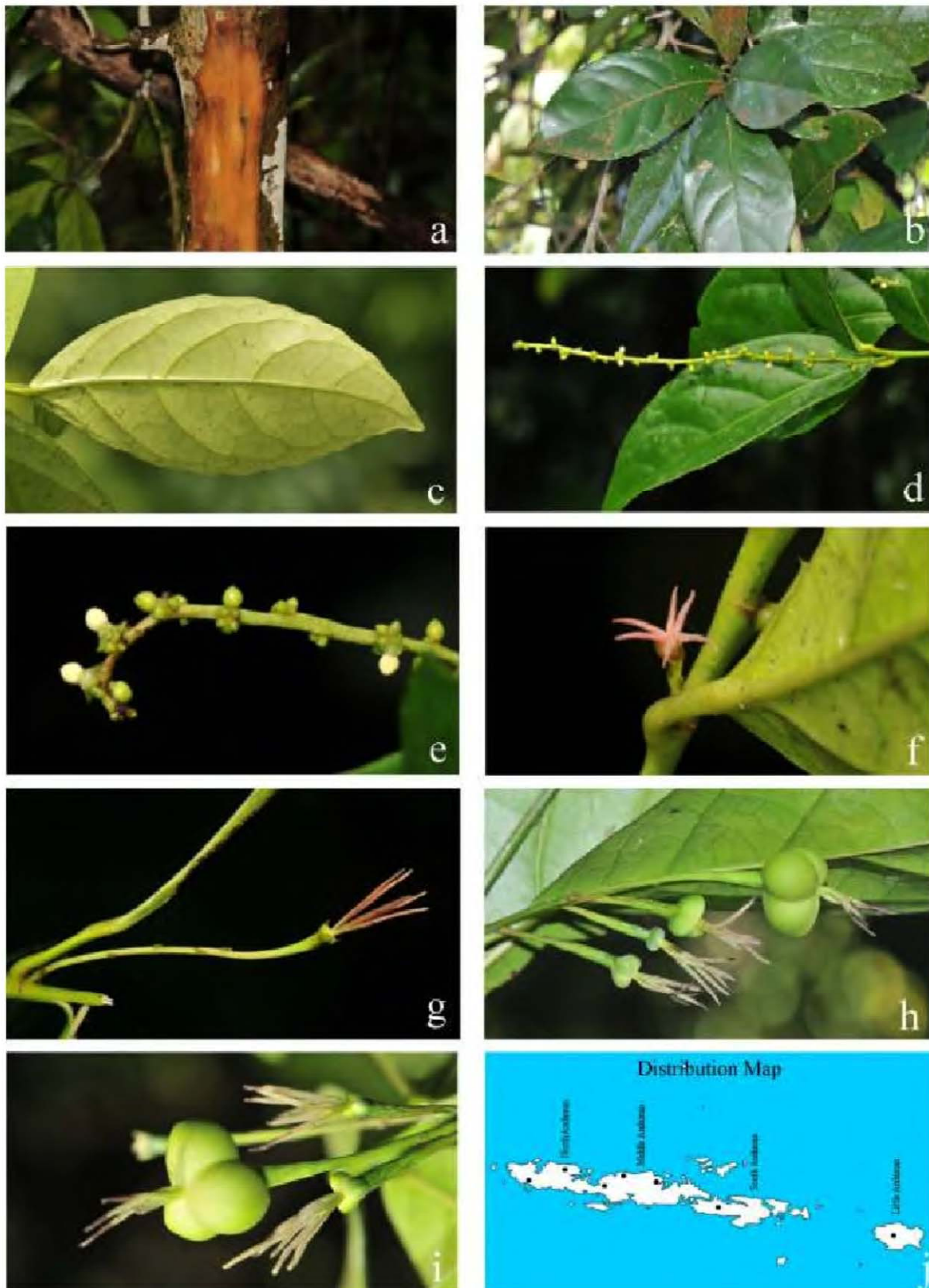


Fig. 2. *Cleidion nitidum* (Muell. Arg.) Thwaites ex Kurz, **a.** portion of stem, **b.** twig, **c.** dorsal surface of leaf, **d - e.** male inflorescence, **f - i.** pistillate inflorescence, **j.** distribution map

2004, *K. Karthigeyan* 21350, 19224, 19207; Little Andaman, 21-12-2004, *L. Raisingam* 20907. New collections: North Andaman, Radha Nagar, 20-02-2011, *M.V. Ramana* 099 N 13°22'16.5", E 92°55'22.7") (CAL & PBL); Mayabunder forest range, Tugapur area, 04-09-2011, *M.V. Ramana* 0495 (CAL & PBL); Mayabunder forest range, Tugapur area, 05-09-2011, *M.V. Ramana* 0499 (CAL & PBL), N 12°50'51.7" E 92°51'19.9', Alt. 12m; Digilipur forest range, Milan gram, 08-09-2011, *M.V. Ramana* 0517 (CAL & PBL), N 13°19'06.2" E 92°55'25.5", Alt. 140m; Saddle Peak National Park, North Andaman, 18-10-2011, *M.V. Ramana* 0554, N 13°09'26.1", E 93°01'12.3") (CAL & PBL).

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