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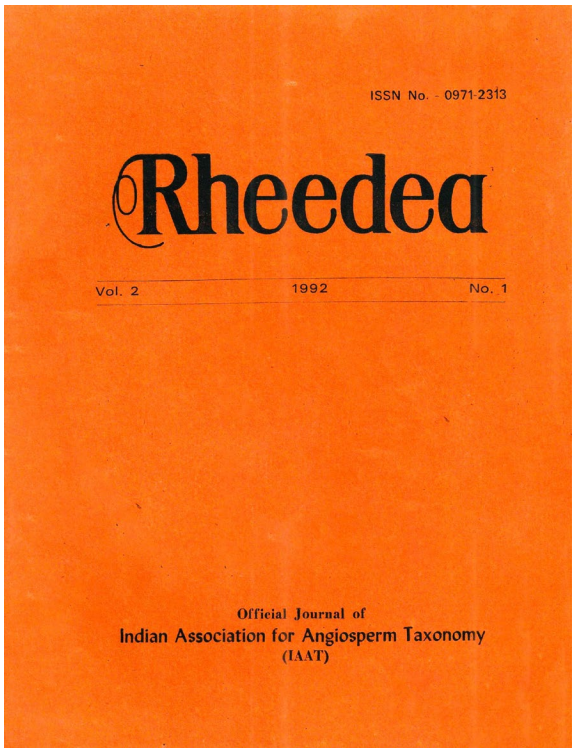

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Reinstating *Leea robusta* Roxb. (Leeaceae)

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Abstract

Leea macrophylla Roxb. ex Hornem., *L. robusta* Roxb. and *L. venkobarowii* Gamb., which have been considered to be conspecific by Ridsdale (1974), were subjected to a revised taxonomic study using live specimens and herbarium material. The latter two were found to be so closely similar that they are treated here as conspecific under the priorable name *Leea robusta*. However, *L. macrophylla* differed from *L. robusta*, as treated here, significantly in several different morphological features. So, *L. robusta* is reinstated here, as a distinct species.

Leea van Royen ex Linn., is a taxonomically difficult genus. Characterised by uniform vegetative and floral features and almost similar habitat preferences, species delimitation in the genus is highly problematic. Earlier authors recognised the different species based mostly on the pinnation of leaves and this often proved to be unsatisfactory.

Thus, of the fifteen species of the genus in India (Lawson, 1875), Gamble (1918) has recorded ten in the South. In a recent revision of the family, Ridsdale (1974), however, reduced the ten South Indian species into five. Of these, *L. macrophylla* Roxb. ex Hornem is the most complex, because as Ridsdale (1974) commented "previous authors have recognised some three to four basic entities (in it), further geographic isolates of these being described as species in local Floras based on the nature of leaves". According to him, the leaves are highly variable from unifoliolate, trifoliolate to 1-3 pinnate ones, but "the flower structure is essentially the same in all cases. Differences in such features as the degree of indentations of the lobes of the staminodial tube, as reported in the literature, could not be confirmed; those which exist are clearly due to age; the staminodial tube in older open flowers withers and thus appears less indented than in the bud". Consequently, he reduced a number of species published by earlier authors into the synonymy of *L. macrophylla*, and characterised it as a highly polymorphic species with respect to the nature of leaves, but, conceded that "In some taxa such as *L. macrophylla* it may be possible to recognise subspecific taxa, when in the future more material is available and the species has been studied extensively in the field". Admittedly, his study of Indian species is based wholly on herbarium specimens available at Kew.

During our revisionary studies on the genus in India, we were particularly attracted by *L. robusta* Roxb. and *L. venkobarowii* Gamble, which now stand reduced to *L. macrophylla* (Ridsdale, 1974). All the three taxa are available in Kerala. We have studied live specimens in

the field and the laboratory and have examined authentic herbarium specimens.

Gamble (1917) distinguished *L. venkobarowii* from *L. robusta* by its apiculate staminodial lobes as against entire or slightly notched or serrate staminodial lobes in the latter. But, our observations confirm Ridsdale's observation given above; that the differences in the staminodial lobes are largely due to age and dessication. When flowers from living material were examined, they displayed apiculate staminodial lobes as illustrated by Gamble on the type sheet (*Gamble* 14646, K) of *L. venkobarowii*. This apiculation is due to a thin inwardly Keeled apex which, otherwise, is rounded as described by Roxburgh (1824). This keeled apex withers and distintegrates on drying and storage (as has been noted by Ridsdale on the same sheet) making it extremely difficult to differentiate from those of *L. robusta*. The difference in the leaf characters, mentioned by Gamble, to differentiate this species pair are untenable, because they are highly variable. These two species are similar in most other respects also, and hence we consider them to be conspecific, and treat them under the name *L. robusta* Roxb., which has priority over *L. venkobarowii* Gamb.

But, our observations have revealed that *L. robusta* (including *L. venkobarowii*) is different from *L. macrophylla* in several characters including those of leaves and staminodial lobes. The stipules and seeds are strikingly different in the two species. In *L. macrophylla* the stipules are very large (reaching to a size of 8 × 5 cm), glabrous and are some-what suborbicular in shape while those of *L. robusta* are smaller (to about 4 cm long), puberulous and elliptic-oblong in shape. The seeds are smooth in the former and distinctly muricate in the latter. Moreover, there is no overlapping variations in the nature of leaves of the two taxa. *L. macrophylla* never displays pinnate leaves as in *L. robusta*. The latter, on the other hand, bears pinnate leaves throughout its adult life and never exhibits unifoliolate leaves (except at times in the juvenile stage) as in *L. macrophylla*.

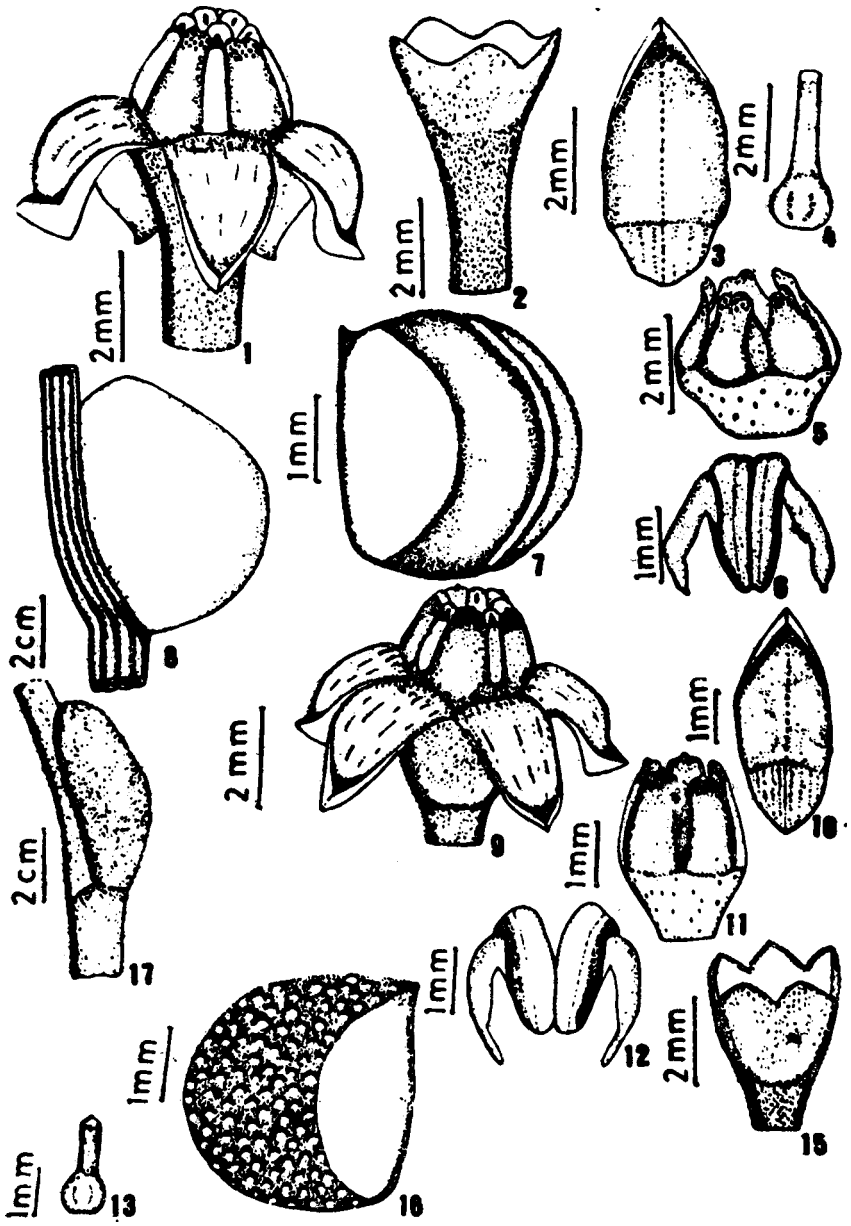
Characters of leaves, stipules and seeds form a formidable set of characters for species delimitation in this *L. macrophylla* - *L. robusta* complex. *L. robusta* Roxb. is hence re-instated here as a distinct species. Consequent change in nomenclature and amended descriptions are provided here along with other relevant notes.

L. macrophylla Roxb. ex Hornem., Hort. Hafn. 1: 231. 1813: Roxb., Fl. Ind. ed. 1, 2: 465. 1824; Voigt, Hort. Sub. Calcutta 29. 1845; Wight, Ic. Pl. Ind, Or. 3: t. 1154. 1846; Dalzell & Gibson. Bomb. Fl. 41. 1861; Lawson in Hook. f., Fl. Brit. Ind. 1: 664. 1875; Clarke, J. Bot. 19: 137. 1881; Brandis, For. Fl. 152. 1902; Gamble, Fl. Pres. Madras 239. 1918; Ridsdale, Blumea 22: 85. 1974; Nair & Henry, Fl. Tamilnadu 1: 83. 1983, *p. p.*

Type: Serampore *Roxburgh* s. n. in Herb Hornem. (C).

L. simplicifolia Griff., Not. Pl. Asiat. 4: 597. 1854, nom. illeg.

Herbs with tuberous roots, not more than 1.5 m tall. Stem stout, ridged, glabrous. Leaves alternate, simple, very large, up to 52 × 38 cm, coriaceous, glabrous above and hoary puberulous beneath, deeply cordate at base, margin irregularly serrate; lateral nerves opposite,



Figs. 1-8 *L. macrophylla*. 1. Flower; 2. Calyx; 3. Petal; 4. Pistil; 5. Staminodial tube; 6. Anthers; 7. Seed; 8. Stipule.

Figs. 9-16: *L. robusta*. 9. Flower; 10. Petal; 11. Staminodial tube; 12. Anthers; 13. Pistil; 15. Calyx; 16. Seed.

parallel, equidistant. Petiole 15-20 cm long. Stipule somewhat suborbicular, glabrous, 8 × 5 cm. Inflorescence terminal, corymbose panicles. Flowers greenish white, upto 7 × 4.25 mm. Calyx puberulous, lobes 5, short, obtuse. Petals five, 5.5 × 2.5 mm, hooded at apex, deflexed. Staminodial tube 3.75 mm above the collar and 2.5 mm wide; lobes with 0.5 mm deep sinus at apex, the free part of the tube to 2 mm long; anthers united by margin. Style cylindrical, 2.5 mm long. Berries greyishblack when ripe, 6-seeded. Seed coat smooth with a longitudinal groove on the dorsal side.

Found most commonly as undergrowth in deciduous forests and teak planations. The young plants of this species, with its large leaves, may often be mistaken for teak saplings. The aerial shoots die off after every growing season and are regenerated from the rootstock during the next monsoon.

Flowering: July - September. Fruiting: October - November.

Specimens examined: Trichur Dist., Peechi, *Sasidharan* 4978, 4979 (KFRI); Malappuram Dist., Nilambur, *Mathew* 25799, 33400, 34201; *Umadevi* 50222 (CALI).

L. robusta Roxb. (Hort. Beng. 18. 1814, *nom. nud.*) Fl. Ind. 1, 2: 472. 1824; Lawson in Hook. f., Fl. Brit. Ind. 1: 667. 1875, *p. p.*; Clarke, J. Bot. 19: 164. 1881; Brandis, Ind. Trees 179. 1906; Gamble, Fl. Pres. Madras 240. 1918.

Type : *Wallich* 6826 (K.).

L. venkobarowii Gamb., Kew Bull. 26. 1917 & Fl. Pres. Madras 240. 1918.

Type: *Gample* 14646 (K).

L. macrophylla sensu Ridsd., Blumea 22: 85. 1974, p. p. Mani, & Sivar., Fl. Calicut 70. 1982; Nair Henry, Fl. Tamilnadu 83. 1983 p. p ; Ramach. & Nair, Fl. Cannanore 108. 1988.

Subshrubs with tuberous roots. Stem to 2 m tall, terete, pubscent. Leaves pinnate or bipinnate, to 1.5 m long. Petiole terete, pubescent. Stipulus elliptic - oblong, puberulous, about 4 cm long. Leaflets membranous, pubescent, elliptic-acuminate, base cordate or acute, margin serrate, distal leaflets larger, to 25 × 12 cm, lateral nerves 10-12 pairs. Petiolules 1 cm long. Inflorescence terminal corymbose panicles. Flowers greenish white, about 4 mm across. Calyx campanulate, 3.5 mm long; lobes 5, 1.5 mm long, acute, pubescent without. Petals 5, elliptic - acute, 4.5 × 2 mm, hooded at apex, cohering in bud, free and deflexed later. Staminodial lobes 5, connate to form a tube, the upper free part 2 mm long, distal end of the lobes crested, apiculate; collar 1.5 mm long; Stamens five; anthers united by margin. Style cylindrical, 1.5 mm long; stigma simple. Berries depressed globose, 6-seeded, dark purple on ripening. Seed coat muricate on the dorsal surface.

Flowering : July - September. Fruiting : November - December.

This species is common along the lateritic slopes and Ghats of the West Coast of India. In drier areas, the aerial shoots die off annually and regenerate during the next growing season, as in *L. macrophylla*. In juvenile stage, the first few leaves are often unifoliolate, while the later ones are pinnate or bipinnate. A couple of trifoliolate leaves are also

often seen between the unifoliolate and pinnate leaves.

Specimens examined: Kannur Dist., Kuthuparamba, *Gamble* 11299, 11300, 11101 (MH); Kannoth, *Ramachandran* 132686, 132687, 114833, 114834 (MH); Wynad Dist., Begur, *Ramachandran* 132684, 132685 (MH); Malapputam Dist., Nilambur, *Umadevi* 50228 (CALI), Calicut University Campus, *Umadevi* 50229 (CALI)

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