THE GENERIC IDENTITY OF XANTHOSTEMON BRACHYANDRUS
C. T. WHITE:
LINDSAYOMYRTUS NOVUM GENUS (MYRTACEAE)

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Two decades ago the senior author was urged by the West New Guinea Forest Service
to name a rather common canopy tree of New Guinea and the Moluccas. Among two
dozen collections there was only one in flower, from the island of Ceram. Though the
species was certainly new for Malesia, the absence of fruit explained his hesitation to refer
it to one of the genera of the Tristania-Xanthostemon-Metrosideros complex to which it
clearly belonged. It was finally described as Metrosideros nigroviridis Steen., the specific
epithe two Tristania species, T. macrosperma F. v. M.
from Papua and T. longivalvis F. v. M. from Papua and Queensland, which also have
greenish leaves when dried and dark, terete twigs. By their half-inferior capsules with
numerous winged seeds these two species are, however, true Tristanias.

Around Tristania there are in Malesia several satellite genera, viz. Kjellbergiodendron
Burret, Whiteodendron Steen., and Basisperma C. T. White.

All these genera differ from Tristania proper in different sets of characters, relating
mainly to both androecium and gynoecium, but all have in common a reduction in the
number of seeds and simultaneously an increase in seed size, and folded cotyledons.

Whiteodendron Steen., Act. Bot. Neerl. 1 (1952) 436, fig. 1, from Borneo, has the sta-
mens in 3 large connate phalanges, and a 3-celled superior ovary, but a capsule containing only one seed. The pericarp is differentiated in 2 layers, the endocarp being chartaceous. The venation is closed by the presence of a distinct intramarginal vein.

_Basisperma_ C. T. White, J. Arn. Arb. 23 (1942) 84, pl. 1, from New Guinea, has free phalanges, obviously consisting of free stamens (complete flowers are not yet fully known), but the ovary is 2-celled, superior; the capsule is indehiscent and possesses also a differentiated pericarp. Seeds 1—3, basally attached, with a thickish, red testa. It differs from the other genera by axillary inflorescences. The venation is closed.

_Kjellbergiodendron_ Burret, Notizbl. Berl.-Dahl. 13 (1936) 101, fig. 5; Merr., J. Arn. Arb. 33 (1952) 162; Steen., Act. Bot. Neerl. 1 (1952) 440, fig. 2; Blumea 8 (1955) 171 (descr. of fruit), from Celebes and the Moluccas, possesses phalanges distinctly connate into a staminal ring. Its ovary is 2-celled; the indehiscent fruit is inferior, with an undifferentiated fleshy pericarp, and contains only one basally attached large seed. Both species of this genus are very coarse in leaves, twigs and flowers as compared with the other genera mentioned. The venation is closed.

Comparing _Xanthostemon brachyandrus_ with the genera mentioned above, it appears that there are considerable differences: it differs from all in the mostly flat cotyledons, and from each of the three genera mentioned in other important characters. This has led us to consider it as related to and possibly derived from the _Tristania_ matrix, but sufficiently distinct to accommodate it into a genus in its own right. This we have named in honour of the late Lindsay Smith.

**LINDSAYOMYRTUS gen. nov.**


**Distribution:** East Malesia and North Queensland.

**Lindsayomyrtus brachyandrus** (C. T. White) Hyland & Steen., _comb. nov._ — _Fig. 1._


Additional description of the fruit, seed, germination, and seedling:

_Fruit_ variable, sometimes dehiscing longitudinally so that the ovary wall opens out completely and sheds the seed. In other cases the fruit is shed without dehiscing. Fruit frequently one-seeded but occasionally 2- or 3-seeded. Fruit shape variable; one-seeded fruits being more or less flattened ovoid with two small laterally attached lobes near the base; these lobes are the remains of the undeveloped ovary cells. Two-seeded fruits reniform, with a poorly developed median lateral lobe. Three-seeded fruits three-lobed and depressed at the apex, lobes with rounded lateral margins. Three-lobed fruits are the largest: about 2 cm long and 3 cm broad.

_Seed_ 1—2.3 cm diameter, flattened-ovoid to irregularly circular in outline, attached to
the base of the fruit. Testa smooth, shiny brown at maturity, rather thin and papery on the margins but thicker and more leathery towards the centre. Cotyledons with a marginal horseshoe-shaped ring of smooth tissue almost surrounding a central, sculptured, shallowly pitted, region. Cotyledons marked by numerous oil glands but lacking any obvious venation. Albumen absent; embryo straight, 3—4 mm long, 1.5 mm broad.

As can be observed from the figure there is quite some variation in the detailed shape and structure of the cotyledons. At first it was assumed that this went parallel with the feature whether the fruit contained only one well-developed seed or two, but after opening many fruits there seems to be no regularity. The conchiform cotyledons show hardly any trace of the clefts observed in the massive ones and furthermore they are almost equal in size and shape, which is not the case in the massive cotyledons.

Germination phanerocotylar (epigeal), hypocotyl 2—4 cm long, epicotyl 4—12 cm long. Cataphylls are sometimes produced before true leaves (eophylls). The first eophylls are a pair of opposite leaves which are often closely followed by a spiral of two or three more leaves. The overall effect is a whorl of 4 or 5 leaves and close inspection is required to elucidate the true arrangement.

After germination the cotyledons appear to retain their size and are just sucked out. In
the glasshouse, the cotyledons remain on the seedling for about one month or slightly longer but all are generally shed within two months.

As to the wood structure there seems to be a discrepancy between the Queensland and New Guinea specimens. In all five trees collected in North Queensland the wood has sections of bark included in the wood, a feature which is, according to Mr. H. D. Ingle (Melbourne), also found in and characteristic for four species of the Eugenia/Syzygium complex, one of which is even named after this character 'Bark in the Wood' (Eugenia angophoroides F. v. M.). These bark inclusions Mr. Ingle did not find in the New Guinean wood samples he had at his disposal. For the present we cannot account for this discrepancy; it may be a variable feature.

A striking feature of this species is the colour of the young leaves. On both seedlings and large trees they are dark bluish purple later turning pink or reddish. The bluish purple colour is quite striking and unknown in other rain forest species in North Queensland.


**Notes.** In the sterile state this species is easy to distinguish from Tristiana macrosperma and T. longivalvis which possess finely puberulent younger parts.

In Queensland it appears to be confined to a narrow belt of lowland rain forest between Harvey Creek in the south and Mt Amos in the north, i.e. a latitudinal range of 1°30'. This belt of rain forest is the wettest in North Queensland, and where L. brachyandrus occurs the annual rainfall generally exceeds 300 cm. The tree appears to be more common along creeks and gullies but is found in other situations as well. The tree produces quite large seed crops and regenerates well, but the seedlings appear to need plenty of sunlight for rapid growth. It could therefore be regarded as a shade-intolerant species which would be favoured by disturbances such as cyclones.