

MACADAMIA TERNIFOLIA F. MUELL. AND A RELATED NEW SPECIES.

L. A. S. JOHNSON, National Herbarium of New South Wales, Botanic Gardens, Sydney.

[Read 31st March, 1954.]

Synopsis.

The two chief economic species of the Proteaceous genus *Macadamia*, "Queensland Nut", have been much confused in the past. The distinctions between these are worked out and it is shown that the correct name for one is *M. ternifolia* whereas the other, hitherto undescribed, is now named *M. tetraphylla*.

There are in cultivation two common species of *Macadamia* (Proteaceae), both known under the names of "Queensland Nut", "Popple Nut", and variants of the latter. These have been greatly confused, and misleading statements are common concerning the difference, or lack of it, between them. This has been due to several causes; firstly, semi-juvenile stages of one species resemble the mature stage of the other in the possession of toothed leaves; secondly, two states of the first species have been described under two different names; and thirdly, the second species has not been described or named at all.

The first species under consideration is the type species of the genus, *M. ternifolia* F. Muell., of which *M. integrifolia* Maiden & Betche is a synonym. This has toothed leaves in its earlier stages and often flowers in those stages, but in the fully mature stage the leaves are entire (whence the name *M. integrifolia*). This species is found in Queensland from Maryborough south to Beechmont and possibly in New South Wales, and various strains are cultivated. The second species, which has toothed leaves at all stages, has been wrongly known as *M. ternifolia* in New South Wales and overseas. It appears to grow naturally only on the far North Coast of New South Wales and the adjoining part of Queensland, but is also commonly cultivated. Those who know both species as living plants, calling the first *M. integrifolia* and the second (wrongly) *M. ternifolia*, have naturally been puzzled by statements (e.g. that of Francis, 1951, p. 91) to the effect that it is doubtful whether *M. integrifolia* is even varietally distinct from *M. ternifolia*. These statements are, however, technically quite accurate as made by those who have (correctly) applied the name *M. ternifolia* to dentate-leaved states of the first species.

The species may be distinguished as follows:

1. Leaves mostly in whorls of 4, always regularly spinose-dentate with about 35-40 teeth on each side, subsessile or on petioles not longer than 0.2 cm., lamina 7-25 cm. long, \pm truncate at the base, with 13-20 pairs of main lateral nerves. Inflorescence markedly loose-pubescent, often arising from older wood as well as new shoots, flowers somewhat purplish, seed surface somewhat wrinkled or with shallow depressions *M. tetraphylla*.
- 1*. Leaves in whorls of 3 or sub-alternate, never in whorls of 4, in earlier stages irregularly spinose-dentate with up to 10 teeth on each side, in later stages entire, petiolate with petioles 0.4-1.5 cm. long, lamina 5-15 cm. long, tapered at the base, with 7-12 pairs of main lateral nerves. Inflorescence sparingly puberulous, usually near the ends of slender shoots, flowers cream, seed surface smooth *M. ternifolia*.

MACADAMIA TETRAPHYLLA L. Johnson, sp. nov.

Typification: Lismore, N.S.W., T. G. Hewitt, IX.1909 (N.S.W. 25513), fl. HOLOTYPE.

Arbor mediocris staturae vel frutex altus, saepe multicaulis, cortice dense lenticellato. Ramuli verticillati, teretes dense lenticellati. Folia ramuli uniuscujusque superiora quaternata, infima opposita, media ternata, sessilia vel subsessilia (petiolis 0.2 cm. longis, brevioribusve) oblongo-ob lanceolata, 7-25 cm. longa, 2.0-4.5 cm. lata, patentia, rigidiusculae coriacea, novella plus minusve colorata, glabra vel infra in costa

media praesertim sparsissime pilosa pilis fuscis vel pallidis perpaucis, costa media prominens praesertim infra, pares nervorum primariorum lateralium 13-20, venuli coarctate reticulati et praesertim supra prominuli; apex laminae subacutus vel acutus, mucronatus, basis plus minusve truncata vel arcte contracta non sensim attenuata; margines semper regulariter antrorse spinoso-dentati dentibus utrinque 35-40, spinis 0.15-0.2 cm. longis.

Inflorescentiae axillares pseudoracemosae patentes vel subnutantes omnibus partibus pubescentibus, 12-30 cm. longae, rhachidis parte infima pedunculiforma 2-5 cm. longa. Bracteae minutae caducae, irregulariter dispositae vel quasi-verticillatae, quaeque flores duos in pedicellis patentibus circiter 0.2-0.3 cm. longis subtendens. Perianthium pallide lilacinum 0.6 cm. longum extus pubescens, intus glabrum, limbo post anthesin revolutum; filamentorum pars libera circiter 0.025 cm. longa, antherae 0.1 cm. longae, pallidae, longitudinaliter dehiscentes; glandulae in discum cupuliformem coalitae; ovarium sessile villosulum, stylus cum ovario 0.8-1.0 cm. longus viride pallens infra pubescens supra glaber ad apicem anguste claviformis, stigma verum terminale minutum. Folliculus in pedicello brevissime crassiusculo, apiculato-globosus circiter 2.0-3.0 cm. diametro, glaber, paulo rugulosus, tarde dehiscens. Semen unicum apiculato-globosum, 1.5-2.0 cm. diametro, subfuscum vel laete castaneum, aliquanto nitidum, plus minusve rugosum vel laeviusculum, edule.

Specimens examined.—*Queensland*: Moreton District: Numinbah Valley, 2 miles south of Beechmont road turn-off, J. H. Beaumont, i.1954 (NSW. No. 26573), "furthest north of *M. tetraphylla* in this valley", fr.; Advancetown, Numinbah Valley, J. H. Beaumont, i.1954 (NSW. No. 26574), veg.; Natural Arch, Numinbah Valley, J. H. Beaumont, i.1954 (NSW. No. 26572), fr. *New South Wales*: North Coast: Near Mullumbimby, J. Farrell, 17.ix.1919 (NSW. No. 25504), fl.; Burringbar, Pope, ii.1897 (NSW. No. 25503), old infl.; Ballina to Bangalow, J. H. Maiden and J. L. Boorman, i.1903 (NSW. No. 25505), young fr.; Nimbin, E. Cheel, 13.ix.1926 (NSW. No. 25502), fl. buds; Lismore, Rothwell, xi.1906 (NSW. No. 25500), veg; Lismore, T. G. Hewitt, ix.1909 (NSW. No. 25513), fl., Holotype; Richmond River, — (NSW. No. 25506), fl.; Clarence River, — (NSW. No. 25501), fl.; without locality, — (NSW. No. 25507), fl. *Cultivated*: Botanic Gardens, Sydney, E. Bêche, ix.1901 (NSW. No. 25508), "pink-flowering", fl., ix.1901 (NSW. No. 25509), "white-flowering", fl., L. A. S. Johnson, ii.1951 (NSW. No. 25512), "bushy shrub 12 feet, branching from base, fl. were mauve or pale lilac", fr.; Ashfield, E. Cheel, 28.x.1929 (NSW. No. 25511), veg.

The distribution of this species and the occurrence of hybrids are discussed under *M. ternifolia*. The maximum size of the species in its natural habitat, lowland rainforest or rainforest margins, is not known, though quite massive trunks are said to be formed. In cultivation it is often quite shrubby, several-stemmed from the base, and of densely bushy habit. The characters which distinguish it are given in the key above, and also under *M. ternifolia*. Variation in thickness of testa is notable, especially in cultivated plants. The flowers are usually pale lilac but occasionally pink or whitish. Occasional specimens are found, especially in cultivation, in which the leaves on most branches remain ternately rather than quaternately arranged, but these plants are absolutely typical in other respects and the ternate arrangement does not indicate hybridity unless accompanied by other intermediate features. On all such plants I have been able to find some shoots exhibiting the characteristic tetraphyllous condition.

This is the more common of the cultivated species in New South Wales, and in this State as well as in Hawaii it has been regarded as *M. ternifolia*. Mueller's type, however, and the *M. ternifolia* of Queensland botanists, is the following species.

MACADAMIA TERNIFOLIA F. Muell.

In *Trans. Phil. Inst. Vict.*, ii, 1858: 72.

Typification: "In forests on the Pine River of Moreton Bay. Hill and Mueller." Part of this material, without precise indication of locality or collector is NSW. No. 25491 and agrees entirely with Mueller's plates (l.c.).



Woodhill, A. R. 1954. "Experimental crossing of *Aedes* (*Stegomyia*) *pseudoscutellaris* Theobald and *Aedes* (*Stegomyia*) *polynesiensis* Marks (Diptera, Culicidae)." *Proceedings of the Linnean Society of New South Wales* 79, 19–20.

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