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THE PODOCARPUS SPECIES OF AMBON (PODOCARPACEAE)

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One of the first descriptions of a plant recognizably of the important genus *Podocarpus* was the *Lignum emanum* of Rumphius in 1743. Included was a sketch of the leaf and the mention of provenance, namely: Amboina in high rocky mountains, Ema and Hitu regions. When D. Don described *Podocarpus neriifolius* in 1824 he gave *Lignum emanum* as a synonym, crediting Wallich with this determination. Indeed, *Podocarpus neriifolius* has been collected on Ambon and was the first post-Linnean species of *Podocarpus* to be described for the Malesian region, even though the type specimens came from Nepal. In 1847 Endlicher transferred the synonymy of *Lignum emanum* to *Podocarpus bracteatus* Blume, the second and only other species of the genus pertaining to Malesia described up to that time. *Podocarpus bracteatus* was described from Java and extends into New Guinea although it has not in fact been identified from Ambon. In this same year Blume described a group of new species, one of which he specifically related to *Lignum emanum* with the name *Podocarpus rumphii* and by synonymy. His type material derived from New Guinea, even though *P. rumphii* certainly is known from Ambon. Numerous subsequent authors have accepted the synonymy of *Lignum emanum* with *Podocarpus rumphii.*

A new approach in identifying the species of Rumphius was taken in 1913 by C. B. Robinson who attempted to duplicate the collections by visiting the actual locations given by Rumphius. He identified his collection number 309 as representing *Lignum emanum.* This specimen, however, is not *Podocarpus rumphii.* In writing on Rumphius's Herbarium in 1917, Merrill suggested as much and called for a critical comparison. Two studies covering Malesian *Podocarpus* have since appeared. The first, by Wasscher in 1941, makes no distinction between the type represented by *Robinson 309* and *Podocarpus rumphii.* A substantial portion of the specimens cited by Wasscher under *P. rumphii* belong in *P. neriifolius.* The second study by Gray in 1958 is much the same in that a similar mixture of material is cited. Incredibly, the only specimen common among the considerable lists of both Wasscher and Gray is *Robinson 309* which Merrill had already questioned as belonging to *P. rumphii.* Gray had not seen the type material of this latter species and was really not at all clear concerning its true character. Some of the specimens belonging to the taxon represented by *Robinson 309* were included by Gray under the new species *Podocarpus ridleyi* of Malaya because of the extra resin canals and the continuous upper hypoderm and in spite of a distinct difference in leaf shape and ecological habitat.

The crux of the problem of the identification of *Lignum emanum* is the fact that two superficially similar species of *Podocarpus* intermingle in the forests of

Ambon. The species described as *P. rumphii* is widely distributed from New Guinea to the Philippines. The large leaves have an indistinctly marked upper midrib as in *Robinson 309* due to a continuous upper hypoderm. The leaf margins, however, are parallel, abruptly tapered to an acute or slightly acuminate apex. There are the usual three vascular resin canals. The foliage bud is a small pyramid with overlapping scales. The pollen cones are generally in clusters of three, four, or five. The elongated microsporophylls with minute tips are tightly packed. The large seed is subtended by a receptacle usually formed of three swollen scales, the third and smallest furthest from the seed, a morphology unique within *Podocarpus*. *Robinson 309*, by contrast, has a smaller linear-lanceolate leaf with a more or less rounded apex. The crowded foliage bud scales about 4 mm long have distinctly spreading tips. The pollen cones are solitary and the not elongated microsporophylls are more or less overlapping. The smaller seed is subtended by a receptacle of two swollen scales below which the two bracts are about twice as long as those of *P. rumphii*. *Robinson 309* and other similar specimens have been collected at the locations mentioned by Rumphius but true *P. rumphii* specimens are well represented in collections from Ambon. Specimens similar to *Robinson 309* are known from Celebes to New Guinea but have not previously been separately described.

What, then, is the species described by Rumphius as *Lignum emanum*? He, obviously, did not visualize more than one species on Ambon. It would be easy to accept *Robinson 309* as representing *Lignum emanum* because it was collected at a location mentioned by Rumphius. The limited evidence given by Rumphius suggests otherwise. His figure shows a slightly acuminate leaf and the dimensions he gives correspond well with *Podocarpus rumphii* while being beyond the range of those characterizing the unnamed species. I have to conclude that the plant actually described by Rumphius is the same as the species named *Podocarpus rumphii* by Blume. Rumphius apparently observed the other species at the locations which he mentions in his text and, because he believed them to represent the same entity as the material he described, appended these locations to his description. The attempt to include *Robinson 309* within *Podocarpus rumphii* has contributed to a confusion as to the true character of this species and kept the other species from being recognized. I shall name the latter species *Podocarpus levis*.

Podocarpus levis de Laubenfels, *sp. nov.*

Arbor ad 25 m alta. *Folia* plantarum iuvenilium lanceolata, acuta, ad 20 cm longa, 14 mm lata; folia plantarum adultarum 10—14 cm longa, 10—14 mm lata, anguste lanceolata; apicis anguste rotundis; supra levia, per costam tenuiter elevata. Alabaster foliarus ovoideus, 4 mm diametrus; perulis triangularibus, acutis, 3—4 mm longis, apicibus divergentis. *Strobili* masculi solitarii, laterales, cylindracei, 3—4 cm longi, 4 mm diametri; squamae triangularae, 1.5 mm longae. Strobili feminei pedunculares ca. 7 mm longis, foliolis duis ca. 4 mm longis, receptaculis 5—6 mm longis, seminis ca. 8 mm longis.

T y p u s : *Van Dijk bb 30484* (L; iso in A, S), Japen I., West Irian.

CELEBES. Malili: Usu, *Waturandang Cel/II–285* (A, BO), *286*, 200 m (BO, L, S), *287* (BO), *288* (BO), *325* (BO, K, L); Pasi Mananqui, *Burki bb 23263*, 10 m (BO). — Southeastern part, Staring Bay, *Pella 55*, ♀ (BO); Singkobale near Towuti Lake, *Kjellberg 3973*, 300 m (BO).

MOLUCCAS. Ambon, Hitu messen, *Robinson 309*, 700 m (BO, BM, K, L, NY, US); Mt. Salhutu, *Teysmann s.n.*, ♂ (BO, L), *Beccari*, 1872 (FI); Ema, Mt. Hori, *Teysmann s.n.* (BO, L).

NEW GUINEA. West: Japen I., Mariatu, *Van Dijk bb 30473* (BO, NY), *bb 30474*, ♂, 500 m (A, BO, L, S), *bb 30484*, ♂, 500 m (L, holotype; A, S, isotypes), *bb 30650*, ♂, 250 m (BO, L); Aipiaimi, Papuma, *Wolle bb 20061*, ♂, seashore (BO); Aisau, *Iwanggin BW 9226*, ♂, 210 m (A, L, LAE, S); Sumberaba, *Aet & Idjan (Van Dijk) 830*, ♀ (A, K, BO, L). Angra-meos I., headwaters of the Wetabatie, *Samuels BW 666*, ♀, 205 m (A, BO, K, L, LAE, S).

Among the species of *Podocarpus* with continuous upper hypoderm (manifested by a smooth upper surface and weakly marked midvein) and remotely similar leaf size and shape, *P. levis* is distinguished by spreading bud scales and a rounded leaf apex. The most closely related species may be *P. ridleyi* which has elongated bud scales and shares the additional leaf resin canals. The leaf of *P. ridleyi* is narrowly lanceolate and acute. The fruit of *P. levis* often bears two seeds in which case there is a third scale in the receptacle between the two fertile scales. The receptacle becomes reddish. The bud for the pollen cone is similar to the foliage bud but somewhat smaller. The bark is brown and peeling but not fissured. The Robinson specimen was not selected for the type because it is sterile and apparently somewhat juvenile. Besides, this specimen was selected, incorrectly it would appear, to represent *Lignum emanum*.

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