

## Florae Malesianae Precursores—XX

### The Genus *Gymnacranthera* (Myristicaceae) in Malaysia

By JAMES SINCLAIR

#### SUMMARY

THERE ARE six species and four varieties in the genus *Gymnacranthera*. Some taxonomists may prefer to regard the varieties as subspecies since they occupy only certain geographical areas in some reasonable distributional pattern. One of the six species, namely *G. farquhariana* (Hk. f. et Th.) Warb., synonym *G. canarica* (King) Warb., is confined to southern India, while the rest are Malaysian. I have already dealt with the Malay Peninsula species in *Gardens' Bulletin*, Singapore 16 (1958) 434 in which publication will be found descriptions and details of distribution in Malaya.

The distribution of these Malayan species outside Malaya is dealt with now in the present paper but descriptions and other details are not repeated. Descriptions, however, are given for the remaining species which do not occur in the Malay Peninsula. Species on loan from a few herbaria were received after my paper "A Revision of the Malayan Myristicaceae" went to the press so these are briefly enumerated in the present account under Malay Peninsula, extra specimens. These herbaria are BO, LE and NSW. Vernacular names given here are those used outside Malaya. The only common vernacular names for *Gymnacranthera* in Malaya are *pendarah*, *chendarah*, *penarah*, *darahan*, *chendarahan*, *pendarahan* and *penarahan* and these are equally applicable to the other genera of the *Myristicaceae*. It is not necessary therefore, to repeat them under each species.

In this paper the following receive new status:—*G. crassinervis* is reduced to a variety of *G. forbesii* and *G. zippeliana* to a variety of *G. paniculata*. The following are reduced to synonyms of *G. paniculata* var. *paniculata*:—*G. acuminata* and *G. macrobotrys*, while *G. suluensis* is made a synonym of *G. paniculata* var. *zippeliana*.

KEY

a. Leaves larger than in the other species, 20–40 cm. long and 7.5–16.5 cm. broad (leaves from young or vigorous shoots of *G. forbesii* var. *crassinervis* may equal their dimensions but average leaves are smaller), covered beneath with rusty or ashy tomentum which persists for some time; nerves 19–23 pairs. Inflorescence axis rusty-tomentose with hairs 1 mm. long. Flowers rusty-tomentose, larger than those of the other species, 5–6.5 mm. long. Fruit rusty-tomentose, the apex sometimes sharply acute or slightly uncinata

b. Leaves rounded or slightly rounded at the base. Male flowers 5 mm. long and 3 mm. broad

(1) *G. bancana* var. *bancana*

b. Leaves acute at the base. Male flowers slightly larger and broader, 5–6.5 mm. long and 4 mm. broad

(1) *G. bancana* var. *borneensis*

a. Leaves smaller, not over 28 cm. and up to 10 cm. broad; not covered with rusty tomentum; nerves not more than 21 pairs. Inflorescence axis not tomentose but often puberulous to adpressed-pubescent, flowers scarcely tomentose, mostly pubescent, less than 6 mm. long. Fruit scarcely tomentose, mostly glabrous when mature, the apex obtuse or slightly acute

c. Twigs generally stout, 3 mm. thick at the apex and 5 mm. thick 12 cm. down, grey or pale straw-coloured. Leaves 10–28 cm. long and 3.3–10 cm. broad; nerves 13–21 pairs

d. Leaves often acuminate at the apex, the undersurface with a rusty tinge, less often glaucous; nerves usually fine beneath, not forming a distinct double loop. Inflorescence axis rusty-tomentulose, female 1.5 cm. long, the flowers very densely crowded and touching each other. Fruit oblong, rusty-tomentulose, becoming glabrous

(2) *G. contracta*

d. Leaves generally less acuminate, the undersurface more glaucous; nerves more prominent beneath, forming a double loop. Inflorescence axis pubescent, the male less branched, the female 2.5–3 cm. long, the flowers not densely crowded, scarcely touching each other. Fruit ellipsoid or obovoid, with some rusty scurf when young, soon glabrous

e. Leaves 10–22 cm. long and 3.3–9 cm. broad; nerves 13–17 pairs, prominent beneath, 0.3–0.5 mm. thick on the undersurface; midrib 1–1.5 mm. thick at base below

(3) **G. forbesii** var. **forbesii**

e. Leaves more coriaceous, 15–28 cm. long and 4.5–9.5 cm. broad; nerves 14–21 pairs, more prominent, 0.7–1 mm. thick on the undersurface; midrib 2–3 mm. thick at base below

(3) **G. forbesii** var. **crassinervis**

c. Twigs more slender, 1–2 mm. thick at the apex and 3–4 mm. thick 12 cm. down, brownish towards the apex, grey lower down. Leaves smaller, 6–20 cm. long and 1.5–8 cm. broad (sometimes up to 25 cm. long in some of the Celebes specimens of *G. paniculata* var. *zippeiana*); nerves 6–15 pairs

f. Leaves 10–16–(25) cm. long; nerves 8–15 pairs, prominent beneath, often with distinct interarching

g. Leaves lanceolate, 2–5.5 cm. broad; nerves 8–11 pairs. Fruit globose

(4) **G. paniculata** var. **paniculata**

g. Leaves lanceolate to elliptic, 4–8 cm. broad; nerves 10–15 pairs. Fruit oblong

(4) **G. paniculata** var. **zippeiana**

f. Leaves smaller, 6–15 cm. long; nerves 6–9 pairs, less prominent or faint below, the interarching not usually distinct

h. Leaves lanceolate or elliptic-lanceolate. Nerves not raised above, very fine and faint on the lower surface and not raised, cannot be felt by rubbing with the finger. Male flowers 3–4 mm. long. Fruit ovoid-elliptic, 2 cm. long and 1.3–1.5 cm. broad

(5) **G. eugeniifolia** var. **eugeniifolia**

h. Leaves elliptic to obovate. Nerves raised above and below, fine but those below can be felt by rubbing with the finger. Male flowers 4–5 mm. long. Fruit oblong or sub-globose, larger, up to 2.8 cm. long and 2–2.5 cm. broad

(5) **G. eugeniifolia** var. **griffithii**

- (1) **G. bancana** (Miq.) J. Sinclair in Gard. Bull. Sing. 16 (1958) 436 Fig. 53. Pl. XIII A.

*Basionym*: *Myristica bancana* Miq., Fl. Ind. Bat. Suppl. 1 (1861) 383; Warb., Monog. Myrist. (1897) 518.

*Synonyms*: *Gymnacranthera murtonii* (Hk. f.) Warb., Monog. Myrist. (1897) 357 T. 20 Figs 1–3; Gamble, Mat. F.M.P. 5, 23 (1912) 223; Ridley, F.M.P. 3 (1924) 61. *Myristica murtonii* Hk. f., Fl. Br. Ind. 5 (1886) 105; King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 297 Pl. 124 ter. *M. ferruginea* King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 298 Pl. 125. *M. amplifolia* Warb., Monog. Myrist. (1897) 517.

var. **bancana**

SUMATRA INDRAGIRI: (Indrag. Bovenlanden) Kuala Belilas, *bb27590* (L); Sungei Akar, *bb28624* (BO, L).

JAMBI: *bb13659* (BO, L).

PALEMBANG: Sine coll. as *No. 16 Medang Simpai* (L) 3 sheets Nos. 2, 22 and 25 type material of *M. amplifolia*; Banjuasin & Kubustreken, *bbE580* (BO, L); *bbE581* (BO, L); *Grashoff 645* (BO, L); Bajunglintjir, Banjuasin, *bb58E, 2P, 697* (BO) and *bb58E, 1P, 630* (BO); Rawas, *Dumas 1575* (BO, L).

BANKA: Gunong Mangkol, *Kostermans & Anta 694* (BO, L, PNH); Rindik, *bb11822* (BO, L); near Jebus, *Teijsmann 3279* (U); Ayer Limau, Muntok, *bb7609* (BO).

MALAY PENINSULA: Johore and Singapore. For list see Gard. Bull. Sing. 16 (1958) 438. Extra specimens:—*Corner S.F.N. 29945* (BO); *Kiah S.F.N. 32193* (BO); *Sinclair S.F.N. 39502* (BO); *Wall. Cat. 6803* (LE).

DISTRIBUTION: Sumatra, Banka, Malay Peninsula.

TYPE MATERIAL: *M. bancana* Miq., *Banka, Teijsmann 3279*. *M. amplifolia* Warb., Palembang, *S. coll. No. 16 Medang Simpai*, *M. ferruginea* King, *Wall. Cat. 6803* (BM, G, K, LE); *Ridley Nos. 1835* (BM, CAL, MEL, SING); *4815* (CAL, MEL, SING) and *3364* (CAL, K, SING) all Singapore; *M. murtonii* Hk. f., Singapore, *Murton 13* (K).

VERNACULAR NAMES: Sumatra:—*medang simpai*, *kayu asap*, *punggung kidjang*.



var. **borneensis** (Warb.) J. Sinclair in Gard. Bull. Sing. 16 (1958) 439.

*Basionym:* *G. murtonii* (Hk. f.) Warb. var. *borneensis* Warb., Monog. Myrist. (1897) 359.

*Synonym:* *M. murtonii* Hk. f. var. *borneensis* (Warb.) Boerl., Handl. Fl. Ned. Ind. 3, 1 (1900) 88 *nom. alt.*

BORNEO SARAWAK: Kuching, *Beccari Nos. 1211* (A, C, FI, G & Boiss, K, M, P, S) and *3977* (FI, G, K) both as type material of this variety.

This variety is not very much different from the typical form but the leaves are cuneate at the base and the male flowers slightly larger, 5–6.5 mm. long and 4 mm. broad in dried material. Those of var. *bancana* are 5 mm. long in dried material and up to 6 mm. in fresh.

(2) **G. contracta** Warb., Monog. Myrist. (1897) 360 T. 20 Figs 1–4; Sinclair in Gard. Bull. Sing. 16 (1958) 439. Fig. 54.

*Synonym:* *Myristica contracta* (Warb.) Boerl., Handl. Fl. Ned. Ind. 3, 1 (1900) 88 *nom. alt.*

SUMATRA BILLITON: *van Rossum 63* (BO, L); *sine coll. Herb. Billiton 30* (L).

MALAY PENINSULA: Malacca, Singapore. For list see Gard. Bull. Sing. 16 (1958) 441.

BORNEO SARAWAK: Near Kuching, *Haviland Nos. 1650* (BO, CAL, L, SING); and *2253* (SING); *Haviland & Hose 3308* (CAL, K, L, SAR); *Beccari Nos. 321* (BO, C, FI, G & Boiss., K, M, NY, P, S); *419* (FI, G, K) and *2999* (FI, G, K, P); Sungei Semengoh F.R., *Muas SAR 179* (SING); Gunong Kayangeran, Lawas, *Omar 81* (SING); S. Kenaban, Upper Plieran, *Pickles SAR Nos. 3446* (SING); *3496* (SING); *3526* (L); *3531* (SING).

BRUNEI: Andalau F.R., *Ashton BRUN 568* (SING); Cpt. 5, Andalau F.R., Kuala Belait, *Ashton, Smythies & Wood SAN 17514* (L, SING).

BRITISH

N. BORNEO: Mengalong F.R., Sibubu River, 3½ miles S.S.W. of Sipitang, *G.H.S. Wood SAN 15155* (L, SAN, SING); Ulu Moyah, 8 miles S.S.E. of Malaman, Sipitang, *G.H.S. Wood SAN 16266* (BO, SAN, SING); Tambato, Tambunan; *Puasa & Angian 4023* (L); 4 miles from Ranau on path to Poring Hot Springs, *G.H.S. Wood & Charrington SAN 16368* (SAN, SING).

PULAU SEBATIK: *Kostermans 9154* (L, SING).

PULAU  
NUNUKAN: Bulungan, *bb Nos. 26195* (BO, L); *29349* (BO, L) and *29364* (BO, L); Simengkadu, *Meijer 2395* (PNH).

PULAU  
TARAKAN: Gil-Diola Pannusion, *Meijer 2475* (PNH).

EAST AND  
NORTH-EAST  
BORNEO: The following all West Kutei:—Sabintulung, *bb15807* (BO); Longbleh, *bb16048* (BO, L); and *bb16146* (BO, L); *S.I. bb16792* (L); *bb16838* (L); Kahala, *bb28356* (BO, L, SING) and Sei Ritan, *bb32494* (BO, L); the following 5 are East Kutei:—*Kostermans 7241* (BO, L, PNH, SING); Sungei Bambang, *Kostermans 6086* (BO, L, PNH); Sungei Sangasanga near Samarinda, *Kostermans 7730* (BO, PNH, SING); Gunong Sekrat, S. of Sangkulirang, *Kostermans 5955* (BO, L); Sungei Boi, *bb14886* (BO); Sungei Wain, Balikpapan, *Achmat bb Nos. 34310* (BO, L) and *34363* (BO, L); Gunong Haping, Riko, Balikpapan, *bb14971* (BO, L); Muan region near Sg. Riko, *Kostermans 4288* (BO, PNH); Berouw, *bb19027* (L) and *bb19088* (BO, L); Beneden Dajak, *bb19456* (BO, L); Puruk, Tjahu, *bb10029* (BO).

SOUTH AND  
SOUTH-EAST  
BORNEO: Karuing, Sampit, *bb9928* (BO); Tehang, Sampit, *bb10233* (BO).

DISTRIBUTION: Billiton, Malay Peninsula and Borneo.

TYPE MATERIAL: *Gymnacranthera contracta* Warb. *Beccari Nos. 321; 419* and *2999*. *Motley 1284* (K) quoted by Warburg as a syntype is *G. forbesii* var. *crassinervis*.

VERNACULAR NAMES: Billiton:— *salak*, Sarawak:— *Kumpang* (Malay); *badok*, *lahu*, *hungi* (Kayan). N. Borneo:— *lunau* (Dusun Tambato); *lupi* (Kedayan). Indonesian Borneo:— *mandarahan*, *dara-dara*, *tabulah* (at Berouw).

(3) *G. forbesii* (King) Warb., Monog. Myrist. (1897) 363 T. 20 Figs 1–2; Gamble, Mat. F.M.P. 5, 23 (1912) 224; Ridley, F.M.P. 3 (1924) 61; Sinclair in Gard. Bull. Sing. 16 (1958) 441 Fig. 55. Plate XIIIIB.

*Basionym*: *Myristica forbesii* King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 306 Pl. 137.

var. **forbesii**

SUMATRA WEST COAST: Kampong Sipisang, Agam, *bb2876* (BO).

- EAST COAST: Lumban Ria, Asahan, *Rahmat Si Boeea* 7984 (SING); Aek Kanopan, Lundut Concession, Kualu, *Bartlett* Nos. 7052 (NY) and 7299 (NY).
- INDRAGIRI: Belimbing (Indrag. Bovenlanden), *bb28501* (BO, L); Danau Menkuang, *bb27559* (BO, L); Kuala Belilas, *bb27644* (BO, L); Pagarumbei Tjenako, *bb25783* (L).
- BENKULEN: Suka Radja, *Forbes* Nos. 2976 (A, BM, CAL, K, L, LE) and 3061 (A, BM, CAL, FI, L, LE).
- PALEMBANG: Lematang Ilir, Semangus, *bb32217* (BO, L) and *bbT512* (BO, L); Banjuasin & Kubustreken, *Endert* Nos. 62E.1P.595 (BO, L); 62E.1P.604(L); 62E.1P.606 (L); 62E.1P.610 (BO); 62E.1P.619 (BO, L); 62E.1P.620 (L); 63E.1P.620 (BO, L) and 86E.1P.606 (BO).
- PULAU  
SIMALUR: *Achmad* Nos. 1258 (BO, L); 1316 (L); 1376 (L); 1442 (L); 1452 (L) and 1554 (L).
- PULAU  
ENGGANO: Near Boea-boea, *Lütjeharms* 4365 (A, BO, L, NY, SING).
- BANKA: Gunong Mangkol, *Kostermans & Anta* 813 (BM, L, PNH); Toboali, *bb1945* (BO); Ayer Limau, Muntok *bb7843* (BO).
- RIOUW AR-  
CHIPELAGO: P. Bintang, *Teijsmann s.n.* (BO).
- MALAY PENINSULA: Penang, Province Wellesley, Perak, Trengganu, Pahang, Selangor, Negri Sembilan, Malacca, Johore, Singapore. For list see *Gard. Bull. Sing.* 16 (1958) 443. Extra specimens:—*Corner S.F.* Nos. 28712 (BO); 28970 (BO); 36961 (BO); *King* Nos. 6591 (BO, LE); 6784 (BO); 6973 (BO, LE); 7419 (BO); 8756 (LE); *Ngadiman S.F.N.* 36866 (BO); *Sinclair S.F.N.* 37936 (BO); *Wray* 1429 (LE).
- DISTRIBUTION: Siam, Sumatra, Banka, Riouw, Malay Peninsula.
- TYPE MATERIAL: *Myristica forbesii* King, Penang, *Maingay* 1293 (CAL, K); Malacca, *Maingay* 1295 (K); Singapore, *Ridley* Nos. 6157 (SING) and 6270 (K, SING).
- VERNACULAR NAMES: Sumatra:—*edaran uding, salak*. Banka:—*salak*.

var. *crassinervis* (Warb.) J. Sinclair, **stat. nov.**

*Basionym:* *G. crassinervis* Warb., *Monog, Myrist.* (1897) 362 T. 20 Figs 1–3.

*Synonym:* *Myristica crassinervis* (Warb.) Boerl., *Handl. Fl. Ned. Ind.* 3, 1 (1900) 88 *nom. alt.*—**Fig. 1.**

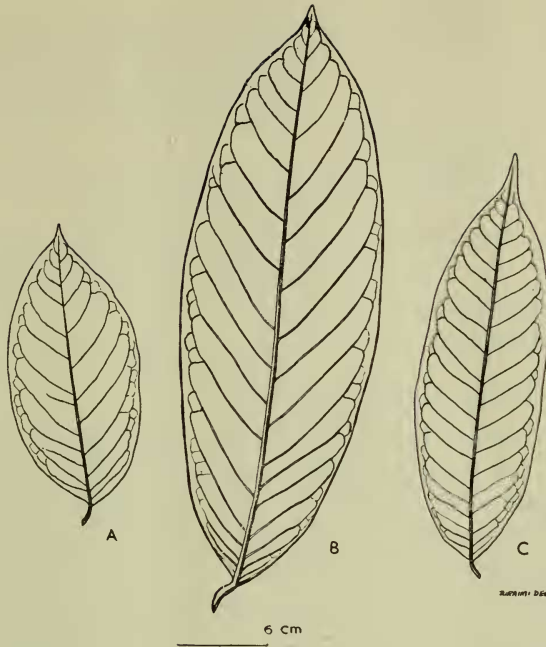


Fig. 1. A, *Gymnacranthera forbesii* (King) Warb. B, *G. forbesii* var. *crassinervis* (Warb.) J. Sinclair. C, *G. forbesii*. A, from Ridley 9464. B, from Sinclair, Kadim & Kapis 9248. C, from Symington 24081 all in Herb. Sing.

Tree 10–20 m. high. Bark greyish brown, slightly rough but not fissured, brittle, inner bark brown; sap red, copious. Leaves coriaceous, dark to medium green above and slightly glossy, glabrous beneath, oblong-elliptic to oblong-lanceolate; nerves 14–21 pairs, very prominent below and there 0.7–1 mm. thick; midrib also prominent, 2–3 mm. thick below at base; length 15–28 cm.; breadth 4.5–9.5 cm.; petiole stout, 1.5–2.5 mm. thick. Inflorescence axis rusty-puberulous. Flowers yellow, male and female more or less as in var. *forbesii*. Fruit as in var. *forbesii*, ellipsoid or slightly obovoid, obtuse at the apex, 2 cm. long and 1.3 cm. broad.

BORNEO SARAWAK:

Kuching, *Beccari 1119* (FI, G, K, LE, P); near Long Kapa, Mount Dulit (Ulu Tinjar), 4th Div., *Richards 2289* (A, K, SING).

BRITISH

N. BORNEO: Sugut, *Fraser 241* (CAL, K); Ulu Moyah, 8 miles S.S.E. of Malaman, Sipitang, *G.H.S. Wood, SAN 16689* (SAN, SING); Gunong Temporangan, Ranau, *Sinclair 9248* (A, B, BM, E, K, L, M, SAN, SING).

EAST AND  
NORTH-EAST  
BORNEO:

Paru, Thony, Tidungsche Landen, *bb Nos.* 17806 (L); 17837 (BO, L) and 18356 (A, BO, L); Berouw, *bb18463* (BO, L, SING); Mentawir, Balikpapan, *bb13918* (B, BO, L, SING).

SOUTH AND  
SOUTH-EAST  
BORNEO:

Banjermasin, *Motley 1284* (K); Marampan, *bb11437* (BO).

WEST BORNEO:

Perigi Limus, Gunong Sendjudjuh, Sambas, *B. de Jong bb7045* (BO); Sungei Labai, Sanggau, *B. de Jong bb7859* (BO).

DISTRIBUTION: Borneo.

TYPE MATERIAL: *G. crassinervis* Warb., Syntypes, *Beccari 1119* and *Fraser 241*.

VERNACULAR NAMES: Berouw:—*ukut*.

I have to reduce this species to a variety of *Gymnacranthera forbesii*. It is a more magnificent version of *forbesii* with larger, more coriaceous leaves, and thicker nerves, midrib and petiole. The records show that it is confined to Borneo whereas the var. *forbesii* has not been found there.

- (4) ***G. paniculata*** (A. DC.) Warb., *Monog. Myrist.* (1897) 370. T. 20; Merrill in *Philip. J. Sc.* 1 (1906) Suppl. 55 et *Enum. Philip. Fl. Plants* 2 (1923) 181; Elmer, *Leafl. Philip. Bot.* 3 (1911) 1059.

*Basionym:* *Myristica paniculata* A. DC. in *Ann. Sci. Nat. Bot.* 4, 4 (1855) 31 et *Prodr.* 14 (1856) 200; F.-Vill. *Nov. App.* (1880) 177; Vidal, *Phan. Cuming. Philip.* (1885) 139 et *Rev. Pl. Vasc. Filip.* (1886) 221.

*Synonyms:* *Gymnacranthera acuminata* Merr. in *Philip. Journ. Sci. Bot.* 12 (1917) 265. *G. laxa* Elm., *Leafl. Philip. Bot.* 8 (1915) 2772. *G. macrobotrys* Merr. in *Philip. Journ. Sc. Bot.* 13 (1819) 284.

var. ***paniculata***—Fig. 2.

Tree 12–30 m. high with lax, horizontally spreading branches. *Bark* rather smooth, yellowish grey; sap red. *Twigs* slender at the apex, reddish brown and 2 mm. thick there, lower down straw-coloured and 3–4 mm. thick. *Leaves* thinly coriaceous, dark green and shining above, glaucous beneath with yellowish green midrib, drying olive green or brownish green above and pale brown or glaucous beneath, lanceolate, base acute, apex acuminate; nerves 8–11 pairs, average 8, faint or indistinct above, fine but prominent beneath, drying chocolate brown, curving and arching near the





Fig. 2. *Gymnacranthera paniculata* (A. DC.) Warb. var. *paniculata*.

A, Leafy twig with male flowers. B, male flowers enlarged. C, fruit. A-B, from Cuming 901. C, from Borden 669.

margins; reticulations invisible; length 10–16 cm.; breadth 2–5.5 cm.; petiole slender, 1 cm. long. *Male inflorescence* much branched, 4–10 cm. long. *Male flowers* minutely pubescent outside and inside, 3–4 mm. long and 2–3 mm. broad; pedicels 2–4–(5) mm. long, average 3 mm.; column 2 mm. long with 8 anthers. *Female inflorescence* short, 1 cm. long. *Female flowers* not seen. *Fruit* globose or sub-globose, orange outside, pinkish or pinkish orange inside, 2 cm. long and 1.8–2 cm. broad; stalk about 1 cm. long. *Aril* dull pinkish red. *Seed* banded light brown and black.

PHILIPPINES SINE LOC.: *Vidal Nos.* 3552 (K) and 3558 (K).

MINDORO: Baco River, *McGregor* 231 (K, NY); Paluan, *Ramos Nos.* 39587 (A, CAL, NSW, NY) and 39655 (BO, CAL, NSW); Mt. Halcon, *Edaño* 3584 (A); Pinamalayan, *Ramos* 40816 (SING); 40819 (A, SING) and 41102 (A, DD, G, K, UC); Bongabong River, *Merritt* 3663 (K).

BABUYAN

ISLANDS: Calayan Island, *Velasco* 26647 (A, BO, K, NY); *Peñas* 26705 (UC).

LUZON:

Bangui, Prov. Ilocos Norte, *Ramos* 27463 (A, BO); Bangui to Claveria, Prov. Ilocos Norte, *Ramos* 33100 (BM, BO, CAL, L, SING); Burgos, Prov. Ilocos Norte, *Ramos* 32727 (BRI, NSW, SING); *Paraiso* 30242 (NY, UC); Prov. Cagayan, *Bernardo* 13105 (BM, NSW); Pinagsongayan River, Prov. Cagayan, *Edaño* 78564 (BO, K, NY, SING); Prov. Cagayan, *Ramos* 14552 (BM, BO, E, K, L); Prov. Isabella, *Darling* 14843 (BM, NSW); Prov. Nueva Vizcaya, *Cenabre & Porte* 28547 (BM); Lamao River, Prov. Bataan, *Barnes* 174 (K, NSW, NY, SING); *Borden Nos.* 669 (BM, K, NSW, NY, SING); 1138 (UC) and 2940 (NY); Mt. Mariveles, Lamao River, Prov. Bataan, *Williams Nos.* 566 (NY) and 640 (NY); Montalban, Prov. Rizal, *Loher Nos.* 12310 (M, UC) and 13962 (BO); Balabac, Prov. Rizal, *Loher* 14942 (A, BM); Prov. Laguna, *Amarillas Nos.* 24664 (BM, TOFO) and 24940 (BO, UC); Prov. Laguna, *Curran* 19280 (BRI); Los Baños, Mt. Maquiling, Prov. Laguna, *Elmer Nos.* 17606 (A, BM, BO, CAL, G, K, L, NY, PNH, S, UC); 17962 (A, BM, BO, C, G, K, L, NY, PNH, UC) and 18381 (A, BO, G, K, L, NY, UC); *Navarro* 9475 (PNH) and *Perdido* 9476 (PNH); *Sinclair* 9458 (material not yet distributed); Prov. Laguna, *Vidal* 508; Baler, Principe, Prov. Quezon, *Merrill* 1029 (K) and *Quisumbing* 2457 (A, PNH, SING); Casiguran,

Prov. Tayabas, *Ramos & Edaño 45422* (B, BM, BRI, G, MEL, NY, UC); Prov. Camarines, *Ramos 1544* (A, BM, BO, BRI, CAL, G, L, NSW, NY, PNH); Albay, Prov. Sorsogon, *Curran 10606* (BO) Albay Prov., *Cuming 901* (BM, C, G, K, L, LE, M, MEL, NY, UPS); Irosin, Mt. Bulusan, Prov. Sorsogon, *Elmer 15769* (A, BM, BO, G, K, L, NY, UC); Lake Bulusan, *Sinclair 9586* (material not yet distributed).

SIBUYAN: Magallanes (Mt. Giting-giting), *Elmer Nos. 12068* (A, BM, BO, BRSL, CAL, E, FI, G, K, L, LE, NSW, NY) and *12138a* (A, BM, BO, BRSL, CAL, E, FI, G, K, L, LE, NSW, NY).

TICAO: *Clark 1016* (NY).

SAMAR: *Sherfese, Cenabre & Cortes 21074* (K).

LEYTE: Near Dagami, *Ramos 1171* (BM, BRSL, G, K, L, M).

PANAY: Mt. Macosolon, Prov. Capiz, *Ramos & Edaño 30766* (BM, NSW, SING); Lila-cao, Prov. Capiz, *Ramos & Edaño 31450* (BM, BO, CAL, L); Prov. Capiz, *Hirro 23954* (NY).

SULU

ISLANDS: Tawitawi, Sulu Prov. *Ramos & Edaño Nos. 44047* (LE, NY, UC) and *44284* (A, B, BM, BO, G, K, NY, PNH, SING, UC).

BASILAN: *Miranda 18969* (BO, BRI, C, CAL, E, L); *Reillo Nos. 15460* (BM, BO, L, NSW, NY) and *15489* (BM).

MINDANAO: Santa Maria, Distr. of Zamboanga, *Reillo 16444* (K, L, NY); Cabadbaran, Mt. Urdaneta, Prov. Agusan, *Elmer 13715* (A, BM, BO, E, G, K, L, LE, NSW, NY); Butuan Sub. Prov., *Miranda 20529* (BM); Surigao, *Wenzel Nos. 2672* (A, BO, G, K, M, NY, UC) and *2853* (A, B, BO, G, K, M, NY, SING, UC).

BORNEO BRITISH

N. BORNEO: Bukit Kasiladan, Ranau, *Sinclair 9266* (B, E, K, L, SAN, SING) sterile.

DISTRIBUTION: Philippines and probably North Borneo. Lowland forests.

TYPE MATERIAL: *M. paniculata* A. DC., *Cuming 901*. *G. acuminata* Merr., *Sherfese, Cenabre & Cortes 21074*. *G. laxa* Elmer, *Elmer 13715*. *G. macrobotrys* Merr., *Ramos 1171*.

VERNACULAR NAMES: *anuping* (Sul.); *batu-batu* (Bik.); *dagang* (Tag.); *dumadaka* (Ilk.); *laguan* (Mang.); *magandau* (Mbo.); *malakapa* (Mang.); *pamitogan* (Ibn.); *yango*, (P. Bis).

*Gymnacranthera acuminata*, *macrobotrys* and *laxa* are not different species. It is true that there is some variability in size of flowers and length of pedicels in *G. paniculata* and at first sight *laxa* with its loose spreading panicle, may at least appear to be a variety. Specimens of *paniculata* with young unopened flower buds have short pedicels and look very different from those with mature flowers. Such immature specimens, from what I have seen, are more frequent in herbaria than the last-mentioned. The same observations on the compactness and laxity of young and old inflorescences also apply to the var. *zippeliana* and such progressive stages of growth ought not to mislead one. The bark of var. *paniculata* is lighter and more yellowish than that of *eugeniifolia* or any of the Malayan species.

*Sinclair 9266* from North Borneo is sterile and is most probably *G. paniculata*. It is quite reasonable that it should occur in North Borneo.

var. **zippeliana** (Miq.) J. Sinclair, **stat. nov.**

*Basionym*: *M. zippeliana* Miq., Ann. Mus. Bot. Lugd.-Bat. 2 (1865) 50; Scheff., in Ann. Jard. Buit. 1 (1876) 45.

*Synonyms*: *G. zippeliana* (Miq.,) Warb., Monog. Myrist. (1897) 372. *G. suluensis* Warb., Monog. Myrist. (1897) 373; Elmer, Leafl. Philip. Bot. 3 (1911) 1058; Merr., En. Philip. Flowering Plants 2 (1923) 181.—**Fig. 3.**

Tree 10–25 m. high, very similar to var. *paniculata*. *Bark* greyish or medium brown, slightly striate; sap red. *Leaves* more variable than in var. *paniculata*, generally longer and broader but not always, lanceolate, oblong-lanceolate, elliptic or oblanceolate; nerves 10–15–(17) average 12 pairs; length 10–21 cm. long; breadth 4–8 cm. *Male inflorescence* branched, usually slightly shorter than in var. *paniculata*. *Female inflorescence* 2 cm. long. *Male and female flowers* 3 mm. long, adpressed pubescent inside and outside; pedicels 3 mm. long in the male and 2 mm. long in the female; ovary 2 mm. long, rusty tomentose; flowers of both sexes yellow. *Fruit* oblong, yellowish green, ridged, 2–3 cm. long and 1–1.5 cm. broad. *Seed* dark brown.

PHILIPPINES MINDORO: Lubang Island, *Rosenbluth 12237* (CAL).

BASILAN: *Vidal Nos. 3546* (K) and *3561* (K).

MINDANAO: Surigao Prov., *Ramos & Pascasio 34462* (A, CAL, BRI, K, NSW, NY, SING, UC); Todaya, (Mt. Apo), District of Davao, *Elmer 10941* (A, BM, BO, BRSL, CAL, E, FI, G, K, L, LE, NSW, NY).

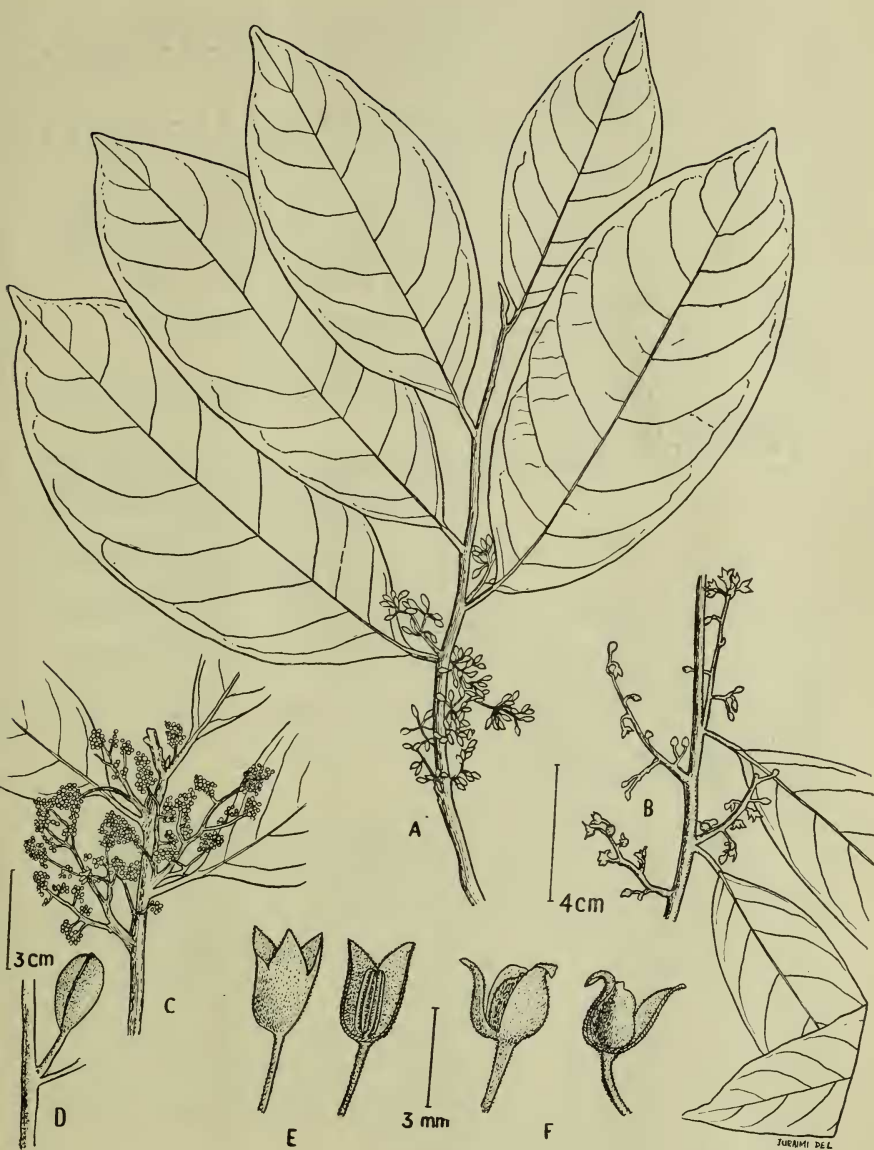


Fig. 3. *Gymnacranthera paniculata* var. *zippeliana* (Miq.) J. Sinclair.

A, Leafy twig with male flowers. B, leafy twig with female flowers. C, male flowers in bud. D, fruit. E, male flowers enlarged. F, female flowers enlarged. A and E, from *Forbes 329* (L); B and F, from *Carr 16172* (SING). C, from *Hoogland 4618* (L); D, from *Carr 12064* (SING).



- CELEBES NORTH PENINSULA: Manado, Minahassa, *Koorders Nos. 18147* (BO, L) and *18150* (BO); Bongomeme, Gorontalo, Manado, *bb19416* (BO, L).
- CENTRAL CELEBES: Poso, Lapé, *bb29466* (BO, L); Usu, Malili, *bb Cel/II 303* (BO, L); *bb Cel/II 352* (BO, L) and *bb Cel/II 316* (BO, L); Thawtta, Tole-tole, Kawata, Malili, *bb Cel V/255* (BO, L); La Roua, Malili, *bb1880* (L); Malili, *bb Cel/II 402* (BO, L); Lingkomomo, Malili, *bb8567* (BO); Lobose, Malili, *bb11421* (BO).
- SOUTH-EAST PENINSULA: Sangona, *Kjellberg 950* (BO, S).
- PULAU MUNA: Wakadea, *bb5870* (L).
- PULAU BUTON: Kambowa, *bb6643* (BO) and *bb6645* (BO, L).
- MOLUCCAS TALAUD ISLANDS: S.W. slope of G. Duatu, Karakelong, *Lam 2919* (L, PNH) and *2942* (L); E. slope of G. Piapi, Karakelong, *Lam 3329* (L).
- OBI ISLANDS: Laiwui, *bb23778* (A, BO, L, SING) and *bb23779* (A, BO, L, SING).
- BURU: Balo-balo, *bb25191* (L); Walpangat, *bb22815* (L).
- AMBON: *Robinson 239* (A, BM, BO, K, L, NY).
- KAI ISLANDS: *Jaheri 80* (BO) and *714* (L).
- NEW GUINEA VOGELKOP (DUTCH WEST NEW GUINEA): Sorong, *Beccari 221* (FI); Andai, *Beccari 705* (FI); Pikipik, *bb22252* (BO) and *bb22273* (A, BO, L); Modan, *bb22311* (BO); Manokwari, Dessa, Momi, *bb33490* (A, L, SING) and *Kostermans 300 = bb33490* (A, BO, L, SING); Dossi, Manokwari, *bb15907* (BO); Tainidi, 3 km. from Manokwari, *Kostermans 2975* (A, BO, K, L); McCluer Gulf, *Warburg 20723* (A); P. Aiduma (Aituma) *Zippelius s.n.* (CAL, L); Rauna, *bb22537* (BO); Sennen, Nabire, *Kanehira & Hatusima s.n., 7th March, 1940* (BO); Fakfak, Onakasi, *bb32694* (BO, L).
- DUTCH NORTH NEW GUINEA: Bernard Bivak, Hollandia, *bb25748* (L, BO, SING); Pionier Bivak, Hollandia, *bb31329* (BO).
- DUTCH SOUTH NEW GUINEA: s.l., *Versteeg 1472* (BO, K, L).

PAPUA:

Thu, Vailala River, *Brass* 971 (A, BRI, K, SING); Wuroi, Oriomo River, Western Division, *Brass* 5903 (A, BRI, BO, NY); Lake Daviumbu, Middle Fly River, *Brass* 7897 (A, BM, BO, BRI, L, LE); Kokoda, *Carr Nos.* 16141 (SING); 16172 (CANB, L, SING) and 16467 (BO, SING); Koitaki *Carr* 12064 (L, SING); Sogerri Region, *Forbes Nos.* 236 (A, BM, CAL, FI, K, L, LE, PNH, SING); 329 (A, BM, CAL, E, FI, K, L, LE, PNH, SING); 350 (BO, CAL, E, FI, K, L, LE); 375 (BM, CAL, E, FI, K); 396 (BM, E, FI, L); 646 (BM, CAL, FI, K, L) and 709 (BM, FI, LE); about 1 km. S.E. of Bundi Barracks, Tufi sub-district, Northern Division, *Hoogland* 4618 (A, CANB, L, LAE); Vaimuru, Vanapa River, Central Div., *McDonald N.G.F.* 8166 (CANB, SING); Yalu, Atzera Range near Lae, *Womersley N.G.F.* 3205 (BRI, CANB, LAE).

MANDATED  
TERRITORY  
OF NEW  
GUINEA  
(KAISER  
WILHELMS-  
LAND):

Sepik, *Ledermann Nos.* 6551 (SING); 6917 (SING); 7790 (SING); 9659 (L) and 10456 (L); Quembung, Morobe District, *Clemens Nos.* 2149 (A, B, SING); and 2189 (A, B, SING); above Gabensis, Morobe District, *Floyd N.G.F.* 7251 (BRI, CANB, LAE, NSW, SING); Sattelberg, *Nyman* 750 (BRSL); Wobbe, *Schlechter* 16338 (A, E, G, K, L, NY, S; SING); Gati Mts., *Schlechter* 17186 (A, E, G, K, L, NY, S, SING); Ramu Valley about 5 miles S.E. of Faita Air Strip, Madang sub-division, *Saunders Nos.* 208 (CANB, LAE); 229 (CANB, LAE); 236 (CANB, LAE); 247 (CANB, L, LAE); 255 (CANB, L, LAE); 260 (CANB, LAE); 265 (CANB, L, LAE); 293 (CANB, L, LAE); 297 (CANB, L, LAE); 308 (CANB, L, LAE); 338 (CANB, L, LAE); 352 (CANB, L, LAE); 361 (CANB, L, LAE); 378 (CANB, L, LAE); 394 (CANB, LAE); 405 (CANB, L, LAE); 451 (CANB, L, LAE); 477 (L, LAE); 480 (A, CANB, L, LAE); 492 (CANB, LAE); 497 (CANB, L, LAE); 504 (CANB, L); 504A (LAE); 507 (CANB, LAE); 512 (CANB, L, LAE); 515 (CANB, LAE); 517 (CANB, LAE); 521 (CANB); 522 (CANB, LAE) and 526 (LAE); Bengi, *Lane-Poole* 805 (BRI); Dobodura Area, *N.G.F.* 2036 (BRI, LAE).

NEW BRITAIN: Keravat, *Coppack N.G.F.* 7036 (BRI, CANB, LAE, SING); *Floyd Nos.* 3449 (CANB, BRI, BO, L, NSW, PNH, SING) and 7009 (BRI, CANB, L, LAE, NSW, PNH, SING); *Womersley N.G.F.* 3409 (BM, BRI, CANB, LAE, NSW, PNH, SING); Vudal Divide, *Womersley N.G.F.* 7929 (BRI, CANB, NSW, SING).

SCHOUTEN

ISLANDS:

P. Biak, *Feuilletau de Bruyn* 446 (BO); *bb Nos.* 30770 (A, BO, L, SING); 30805 (BO, L); 30819 (A, BO, L, SING).

PULAU JAPEN: *Aet & Idjan* 798 (A, BO, K, L); *bb Nos.* 30254 (A, BO, L, SING); 30490 (BO, L, SING); 30493 (A, BO, L, SING); *bb*30528 (A, BO, L); 30532 (A, BO, L, SING); 30536 (A, BO, L, SING) and 30591 (A, BO, L, SING); Serui, *bb*30657 (BO); *Mariarattu, bb. Nos.* 30378 (BO, L, SING); 30396 (A, BO, L); 30420 (A, BO, L); 30427 (BO, L, SING); 30430 (A, BO, L, SING) and 30459 (A, BO, L, SING).

DISTRIBUTION:

Philippines, Celebes, Moluccas, New Guinea.

TYPE MATERIAL:

*M. zippeliana* Miq., P. Aiduma, *Zippelius s.n.*, *G. suluensis* Warb., Syntypes *Vidal Nos.* 3546 and 3561.

VERNACULAR NAMES: Talaud Islands:— *lahu*. New Guinea:— *saksak, hokol* (Amele); *mobo, gadagod, kini* (Bilia); *gisek, sarenki, gaigihab, dzidzir, minip, bisip* (Dumpu); *gamukua* (Faita); *koreaŋ* (Onjob); New Britain:— *goma* (Maprik); *kokomo* (Pidgin).

I cannot accept *G. paniculata* and *zippeliana* as two distinct species after having examined the large list of specimens enumerated above. The former has a globose fruit and the latter an oblong one and this seems to be the best character for distinguishing them. The leaves of the variety *zippeliana* are generally larger and broader with more veins, but this is not always the case and one may have to rely on geographical distribution to identify sterile material.

(5) *G. eugeniifolia* (A. DC.) J. Sinclair in *Gard. Bull. Sing.* 16 (1958) 444. Fig. 56. Pl. XIV.

*Basionym*: *Myristica eugeniifolia* A. DC., *Ann. Sc. Nat.* 4, 4 (1855) 29 et *Prodr.* 14, 1 (1856) 190; *Miq., Fl. Ind. Bat.* 1, 2 (1858) 58; *Hk. f., Fl. Br. Ind.* 5 (1886) 113.

*Synonyms*: *Gymnacranthera farquhariana* (Hk. f. et Th. sensu King) Warb., *Monog. Myrist.* (1897) 365 T. 22 Figs 1–2;

Gamble, Mat. F.M.P. 5, 23 (1912) 225; Ridley, F.M.P. 3 (1924) 62 [omnino pro parte quoad specimina malayana tantum]. *Myristica farquhariana* Hk. f. et Th. sensu Fl. Br. Ind. 5 (1886) 108 pro parte; King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 305 pro parte [non Hk. f. et Th., Fl. Ind. (1855) 162 sensu stricto = A. DC., Prodr. 14, 1 (1856) 200 et Miq., Fl. Ind. Bat. 1, 2 (1858) 63 = species ex India tantum = Synonym *G. canarica* (King) Warb.]

var. **eugeniifolia**

- SUMATRA TAPANULI: Sibolga, *bb19305* (A, L).  
WEST COAST: Painan, Br. Belantai, *bb3995* (L).  
EAST COAST: Masihi F.R., Asahan, *Krukoff 4052* (A, BRI, BO, G, L, LE, NY, SING); vicinity of Lumban Ria, Asahan, *Rahmat Si Boeea 8035* (A, S, SING); Ayer Kandis near Rantau Parapat, Bilia, *Rahmat Si Toroes 2407* (A, NY, UC).  
INDRAGIRI: (Indrag. Bovenlanden) Sungei Akar, *bb28598* (BO, L, SING); Hutan Pulau Lawas near Taratak Ayer Hitam, Taluk region, *Meijer 4394* (SING).  
LINGGA: P. Singkep, *bb5891* (BO).  
MALAY PENINSULA: Kedah, Penang, Perak, Selangor, Negri Sembilan, Malacca, Johore, Singapore. For list see Gard. Bull. Sing. 16 (1958) 446. Extra specimens:—*Corner S.F.N. 29955* (BO); *Hervey Aug. 1886*, Malacca (BO); *King Nos. 4640* (BO, LE); *5801* (BO, LE); *6141* (LE); *6620* (BO, LE); *6631* (BO) and *6932* (LE); *Ngadiman S.F.N. 34628* (BO).  
DISTRIBUTION: Sumatra, Lingga and Malay Peninsula.  
TYPE MATERIAL: *M. eugeniifolia* A. DC., Penang, *Gaudi-chaud 116* (FI, G & Prodr. holotype, P).  
VERNACULAR NAMES: Sumatra:—*mandaharan, kayu gadjah*.

var. **griffithii** (Warb.) J. Sinclair in Gard. Bull. Sing 16 (1958) 447 Fig. 57.

*Basionym*: *G. farquhariana* var. *griffithii* (Hk. f.) Warb. Monog. Myrist. (1897) 368; Gamble, Mat. F.M.P. 5, 23 (1912) 226 pro parte; Ridley, F.M.P. 3 (1924) 62.

*Synonyms*: *Myristica griffithii* Hk. f. Fl. Br. Ind. 5 (1886) 109; King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 304 Pl. 135 excl. *Curtis 2406* and *2458*. *M. farquhariana* Wall. Cat. 6795, sphalmate 6798, *nom. nudum*; Hk. f. et Th., Fl. Ind. (1855) 162; Hk. f., Fl. Br. Ind. 5 (1886) 108; King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 305 Pl. 135 [omnino pro parte]. *G. farquhariana* (Hk. f. et Th.) Warb. sensu Warb., Monog. Myrist.

(1897) 365; Gamble, Mat. F.M.P. 5, 23 (1912) 226; Ridley, F.M.P. 3 (1924) 62. *M. farquhariana* var. *major* King in Ann. Roy. Bot. Gard. Calc. 3 (1891) 306 Pl. 136 Fig. 4. *G. farquhariana* var. *major* (King) Gamble, Mat. F.M.P. 5, 23, (1912) 226; Ridley, F.M.P. (1924) 62. *G. apiculata* Warb., Monog. Myrist. (1897) 359 T. 2o Figs 1–2. *M. apiculata* (Warb.) Boerl., Handl. Fl. Ned. Ind. 3, 1 (1900) 88 *nom alt.*

SUMATRA EAST COAST: Langga Pajung, Sungei Kanan, Kota Pinang, *Rahmat Si Toroës 3425* (A, NY); Gunong Si Papan, Kalubi, Kota Pinang, *Rahmat Si Toroës Nos. 3886* (A, NY) and *3944* (A, NY).

BANKA: Bihang, S. Banka, *bb Nos. 15100* (BO) and *15104* (BO).

MALAY PENINSULA: Perak, Selangor, Malacca, Johore, Singapore. For list see Gard. Bull. Sing. 16 (1958) 447. Extra specimens:—*Corner S.F.N. 29499* (BO); *Griffith 4355* (LE); *Kiah S.F. Nos. 32157* (BO) and *37718* (BO); *King 7928* (BO, LE); Wall. Cat. *6795* (LE); *Ridley 3365* (NSW).

BORNEO SARAWAK: *Beccari 2246* (FI, G, K, LE, S); *Hose* (probably), *June 1906, PNH acc. No. 23664* (PNH); Loba Kubang Protected Forest, *Jara SAR 540* (SAR, SING); *Anderson SAR 2723* (SAR, SING); Baram, *Anderson SAR Nos. 2017* (SAR, SING) and *3251* (SAR, SING); 6th mile F.R., Kuching, *Muas SAR 98* (SING).

BRUNEI: Berakas F.R., *Ashton BRUN 837* (SING); Labu F.R., Temburong, *Ashton, Smythies* and *Wood SAN 17434* (SAN, SING).

BRITISH  
N. BORNEO: *Damit River, Md. Tahir 798* (A, NY, SING).

EAST AND  
NORTH-EAST  
BORNEO: *Sebakis R. region, Kostermans 9301* (L, SING).

DISTRIBUTION: Sumatra, Banka, Malay Peninsula and Borneo.

TYPE MATERIAL: *G. farquhariana* var. *griffithii* (Hk. f.) Warb., Malacca, *Griffith 4356* (A, CAL, K, holotype, P). *M. farquhariana* var. *major* King, Perak, *King Nos. 6548* (CAL, DD, E, FI, K, L); *6622* (BM, CAL, DD, G, K, L, SING); *6736* (CAL, MEL, UPS); *7928* (CAL, FI, G, K, L) and Perak *Wray Nos. 2399* (CAL, K, SING) and *2695* (CAL, FI, K, SING); Malacca, *Griffith 4355* (A, CAL, FI, K, LE, M); *G. apiculata* Warb., Sarawak, *Beccari 2246* (FI, G, K, LE, S).

VERNACULAR NAMES: Sarawak:—*Kumpang* (Malay).



**Excluded Species**

- Gymnacranthera cryptocaryoides* Elmer = **Knema kunstleri**  
(King) Warb.  
*G. ibutii* Holth. = **Horsfieldia macrocoma** (Miq.) Warb.  
*G. lanceolata* Merr. = **Myristica agusanensis** Elmer  
*G. negrosensis* Elmer = **M. cumingii** Warb.  
*G. stenophylla* Warb. = **K. stenophylla** (Warb.) Sinclair  
*G. sulphurascens* Elmer = **M. elliptica** var. **simiarum** (A. DC.)  
Sinclair.  
*G. urdanetensis* Elmer = **M. cumingii** Warb.

LIST OF COLLECTORS' NUMBERS

- ACHMAT—1258; 1316; 1376; 1442; 1452 and 1554 forbesii var.  
forbesii; bb34310 & bb34363 contracta.  
AET & IDJAN—798 paniculata var. zippeliana.  
AMARILLAS—24664 & 24940 paniculata var. paniculata.  
ANDERSON—SAR Nos. 2017; 2723 & 3251 eugeniifolia var.  
griffithii.  
ASHTON—BRUN 568 contracta; BRUN 837 eugeniifolia var.  
griffithii.  
ASHTON, SMYTHIES & WOOD—SAN Nos. 17434 eugeniifolia var.  
griffithii; 17514 contracta.  
BARNES—174 paniculata var. paniculata.  
BARTLETT—7052 & 7299 forbesii var. forbesii.  
bb Nos.—1880 paniculata var. zippeliana; 1945 forbesii var.  
forbesii; 2252 paniculata var. zippeliana; 2876 forbesii var.  
forbesii; 3995 eugeniifolia var. eugeniifolia; 5870 paniculata  
var. zippeliana; 5891 eugeniifolia var. eugeniifolia; 6643 &  
6645 paniculata var. zippeliana; 7045 forbesii var. crassinervis;  
7609 bancana var. bancana; 7843 forbesii var. forbesii;  
7859 forbesii var. crassinervis; 8567 paniculata var. zippeliana;  
9928 contracta; 10029 & 10233 contracta; 11421 paniculata  
var. zippeliana; 11437 forbesii var. crassinervis; 11822  
& 13659 bancana var. bancana; 13918 forbesii var. crassinervis;  
14886 & 14971 contracta; 15100 & 15104 eugeniifolia  
var. griffithii; 15807 contracta; 15907 paniculata var.  
zippeliana; 16048; 16146; 16792 & 16838 contracta; 17806;  
17837; 18356 & 18463 forbesii var. crassinervis; 19027 &  
19088 contracta; 19305 eugeniifolia var. eugeniifolia; 19416

paniculata var. zippeliana; 19456 contracta; 22273; 22311; 22537; 22815; 23778; 23779; 25191 & 25748 paniculata var. zippeliana; 25783 forbesii var. forbesii; 26195 contracta; 27559 forbesii var. forbesii; 27590 bancana var. bancana; 27644 forbesii var. forbesii; 28356 contracta; 28501 forbesii var. forbesii; 28598 eugeniifolia var. eugeniifolia; 28624 bancana var. bancana; 29349 & 29364 contracta; 29466 paniculata var. zippeliana; 30254; 30379; 30396; 30420; 30427; 30430; 30459; 30490; 30493; 30528; 30532; 30536; 30591; 30657; 30770; 30805; 30819 & 31329 paniculata var. zippeliana; 32217 forbesii var. forbesii; 32494 contracta; 32694 & 33490 paniculata var. zippeliana; 34310 & 34363 contracta; E580 & E581 bancana var. bancana; T512 forbesii var. forbesii; Cel/II 303; Cel/II 316; Cel/II 352; Cel/II 402; Cel/V 255 paniculata var. zippeliana; 58E 1P630 & 58E 2P697 bancana var. bancana; 62E 1P595; 62E 1P604; 62E 1P606; 62E 1P610; 62E 1P619; 62E 1P620; 63E 1P620; 86E 1P606 forbesii var. forbesii.

BECCARI—119 forbesii var. crassinervis; 221 paniculata var. zippeliana; 299; 321 & 419 contracta; 705 paniculata var. zippeliana; 1211 bancana var. borneensis; 2149 & 2189 paniculata var. zippeliana; 2246 eugeniifolia var. griffithii; 3977 bancana var. borneensis.

BERNARDO—13105 paniculata var. paniculata.

BORDEN—669; 1138 & 2940 paniculata var. paniculata.

BRASS—971; 5903 & 7897 paniculata var. zippeliana.

CARR—12064; 16141; 16172 & 16467 paniculata var. zippeliana.

CENABRE & PORTE—28547 paniculata var. paniculata.

CLARK—1016 paniculata var. paniculata.

CLEMENS—2149 & 2189 paniculata var. zippeliana.

COPPACK—N.G.F. 7036 paniculata var. zippeliana.

CURRAN—10606 & 19280 paniculata var. zippeliana.

DARLING—14843 paniculata var. paniculata.

DUMAS—1575 bancana var. bancana.

EDAÑO—3584 & 78564 paniculata var. paniculata.

ELMER—10941 paniculata var. zippeliana; 12068; 12138a; 13715; 15769; 17606; 17962 & 18381 paniculata var. paniculata.

FUILLETAU de BRUYN—446 paniculata var. zippeliana.

- FLOYD—N.G.F. Nos. 3449; 7009 & 7251 *paniculata* var. *zippeliana*.
- FORBES—236; 329; 350; 375; 396; 646 & 709 *paniculata* var. *zippeliana*; 2976 & 3061 *forbesii* var. *forbesii*.
- FRASER—241 *forbesii* var. *crassinervis*.
- GRASHOFF—645 *bancana* var. *bancana*.
- HAVILAND—1650 & 2253 *contracta*.
- HAVILAND & HOSE—3308 *contracta*.
- HIRRO—23954 *paniculata* var. *paniculata*.
- HOOGLAND—4618 & 4896 *paniculata* var. *zippeliana*.
- HOSE—June 1906, PNH acc. No. 23664 *eugeniifolia* var. *griffithii*.
- JAHERI—80 & 714 *paniculata* var. *zippeliana*.
- JARA—SAR 540 *eugeniifolia* var. *griffithii*.
- B. de JONG—bb 7045 & bb 7859 *forbesii* var. *crassinervis*.
- KJELLBERG—950 *paniculata* var. *zippeliana*.
- KOORDERS—18147 & 18150 *paniculata* var. *zippeliana*.
- KOSTERMANS—300 & 2975 *paniculata* var. *zippeliana*; 4288; 5955; 6086; 7241; 7730 & 9154 *contracta*; 9301 *eugeniifolia* var. *griffithii*.
- KOSTERMANS & ANTA—694 *bancana* var. *bancana*; 813 *forbesii* var. *forbesii*.
- KRUKOFF—4052 *eugeniifolia* var. *eugeniifolia*.
- LAM—2919; 2942 & 3329 *paniculata* var. *zippeliana*.
- LANE-POOLE—805 *paniculata* var. *zippeliana*.
- LEDERMANN—6551; 6917; 7790; 9659 & 10456 *paniculata* var. *zippeliana*.
- LOHER—12310; 13962 & 14942 *paniculata* var. *paniculata*.
- LÜTJEHARMS—4365 *forbesii* var. *forbesii*.
- MCDONALD—N.G.F. 8166 *paniculata* var. *zippeliana*.
- MC GREGOR—231 *paniculata* var. *paniculata*.
- MD TAHIR—798 *eugeniifolia* var. *griffithii*.
- MEIJER—2395 & 2475 *contracta*; 4394 *eugeniifolia*.
- MERRILL—1029 *paniculata* var. *paniculata*.
- MERRITT—3663 *paniculata* var. *paniculata*.
- MIRANDA—18969 & 20529 *paniculata* var. *paniculata*.

- MOTLEY—1284 *forbesii* var. *crassinervis*.  
MUAS—SAR Nos. 98 *eugeniifolia* var. *griffithii*; 179 *contracta*.  
NAVARRO—9475 *paniculata* var. *paniculata*.  
N.G.F.—2036 *paniculata* var. *zippeliana*.  
NYMAN—750 *paniculata* var. *zippeliana*.  
OMAR—81 *contracta*.  
PARAISO—30242 *paniculata* var. *paniculata*.  
PERDIDO—9476 *paniculata* var. *paniculata*.  
PEÑAS—26705 *paniculata* var. *paniculata*.  
PICKLES—SAR Nos. 3446; 3496; 3526; 3531 *contracta*.  
PUASA & ANGIAN—4023 *contracta*.  
QUISUMBING—2457 *paniculata* var. *paniculata*.  
RAHMAT SI BOEEA—7984 *forbesii* var. *forbesii*; 8035 *eugeniifolia* var. *eugeniifolia*.  
RAHMAT SI TOROES—2407 *eugeniifolia* var. *eugeniifolia*; 3425 & 3944 *eugeniifolia* var. *griffithii*.  
RAMOS—1171; 1544; 14552; 27463; 32727; 33100; 39587; 39655; 40816; 40819; 41102 *paniculata* var. *paniculata*.  
RAMOS & EDAÑO—30766; 31450; 44047; 44284 & 45422 *paniculata* var. *paniculata*.  
RAMOS & PASCASIO—34462 *paniculata* var. *zippeliana*.  
REILLO—15460; 15489 & 16444 *paniculata* var. *paniculata*.  
RICHARDS—2289 *forbesii* var. *crassinervis*.  
ROBINSON—239 *paniculata* var. *zippeliana*.  
ROSENBLUTH—12237 *paniculata* var. *zippeliana*.  
van ROSSUM—63 *contracta*.  
SAUNDERS—208; 229; 236; 247; 255; 260; 265; 293; 297; 308; 338; 352; 361; 378; 394; 405; 451; 477; 480; 492; 497; 504; 504A; 507; 512; 515; 517; 521; 522 & 526 *paniculata* var. *zippeliana*.  
SCHLECHTER—16338 & 17186 *paniculata* var. *zippeliana*.  
SHERFESEE, CENABRE & CORTES—21074 *paniculata* var. *paniculata*.  
SINCLAIR—9248 *forbesii* var. *crassinervis*; 9266, 9458 & 9586 *paniculata* var. *paniculata*.  
TEIJSMANN—3279 *bancana* var. *bancana*; s.n. *forbesii* var. *forbesii*.  
VELASCO—26647 *paniculata* var. *paniculata*.  
VERSTEEG—1472 *paniculata* var. *zippeliana*.

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VIDAL—508 paniculata var. paniculata; 3546 paniculata var. zippeliana; 3552 & 3558 paniculata var. paniculata; 3561 paniculata var. zippeliana.

WARBURG—20723 paniculata var. zippeliana.

WENZEL—2672 & 2858 paniculata var. paniculata.

WILLIAMS—566 & 640 paniculata var. paniculata.

WOMERSLEY—3205 & 7929 paniculata var. zippeliana.

G.H.S. WOOD—SAN Nos. 15155 & 16266 contracta; 16689 forbesii var. crassinervis.

G.H.S. WOOD & CHARRINGTON—SAN 16368 contracta.

ZIPPELIUS—s.n. paniculata var. zippeliana.



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