

Family 139. BURSERACEAE

Revision:

Leenhouts, PW. (in collaboration with C. Kalkman & HJ Lam). 1956. *Burseraceae*. Flora Malesiana ser. 1, 5: 209-296; *ibid.* I, 6 (1972) 917-928.

Kalkman, C. 1954. *Revision of the Burseraceae of the Malaysian area in a wider sense*. Blumea 7: 498-552.

Canarium Linnaeus

Canarium asperum Benth. in JD Hook., London J. Bot. 2 (1843) 215; --Leenh., Fl. Males ser. 1, 5 (1956) 293.

ssp. **asperum** var. **asperum**

Canarium villosum Benth. & Hook.f. ex Fern.-Vill., Nov. App. (1880) 40; --Merr., EPFP 2 (1923) 354.

Canarium minutiflorum Engl. in DC, Monogr. Phan. 4 (1883) 123; --Merr., EPFP 2 (1923) 351.

Canarium calophyllum Perkins, Fragm. Fl. Philip. 1 (1904) 91; --Merr., EPFP 2 (1923) 349.

Canarium lucidum Perkins, Fragm. Fl. Philip. 1 (1904) 94; --Merr., EPFP 2 (1923) 351.

Canarium polyneurum Perkins, Fragm. Fl. Philip. 1 (1904) 96; --Merr., EPFP 2 (1923) 353.

Canarium reticulatum Merr., PJS 3 c (1908) Bot. 141; EPFP 2 (1923) 353.

Canarium apoense Elmer, LPB 3 (1911) 1083; --Merr., EPFP 2 (1923) 349.

Canarium ogat Elmer, LPB 3 (1911) 1086; --Merr., EPFP 2 (1923) 352.

Canarium euphlebium Merr., PJS 8 c (1913) Bot. 372; EPFP 2 (1923) 350.

Canarium heterophyllum Merr., PJS 10 c (1915) Bot. 19; EPFP 2 (1923) 350.

Canarium lagunense Merr., PJS 10 c (1915) Bot. 21; EPFP 2 (1923) 350.

Canarium barnesii Merr., PJS 10 c (1915) Bot. 22; EPFP 2 (1923) 349.

Canarium sanchezii Merr., PJS 10 c (1915) Bot. 27; EPFP 2 (1923) 353.

Canarium agusanense Elmer, LPB 7 (1915) 2564; --Merr., EPFP 2 (1923) 349.

Canarium urdanetense Elmer, LPB 7 (1915) 2568; --Merr., EPFP 2 (1923) 354.

Canarium samarense Merr., PJS 11 c (1916) Bot. 183; EPFP 2 (1923) 353.

Canarium unifoliolatum Merr., PJS 17 (1921) 267; EPFP 2 (1923) 354.

Borneo (rare), Philippines, Sulawesi, Lesser Sunda Isls, Moluccas, New Guinea, Solomon Isls. Throughout the Philippines. Common in primary and secondary forests on both seasonal and everwet areas, also in more open savannah-like sites, on various soil types including waterlogged, usually in the lowlands, occasionally ascending beyond 1000m.

ssp. asperum var. **clementis** (Merr.) Leenh., Fl. Males ser. 1, 5 (1956) 295.

Canarium clementis Merr., PJS 3 c (1908) Bot. 142. --Type:

Canarium leytense Elmer, LPB 3 (1911) 1081. --Type:

Canarium wenzelii Merr., PJS 9 c (1914) Bot. 363; EPFP 2 (1923) 355. --Type:

LEYTE, MINDANAO: Lanao, Davao. Medium altitude forests, altitude 700-1200m.

Canarium denticulatum Blume, Bijdr. (1826) 1162; --Leenh., Fl. Males ser. 1, 5 (1956) 272, Fig. 21-j, k; 37.

ssp. **denticulatum**

Canarium laciniatum Elmer, LPB 3 (1911) 1084; --Merr., EPFP 2 (1923) 350.

S Andaman Isls, S Burma, Sumatra, Peninsular Malaysia, Java, Borneo, Philippines.

BASILAN, MINDANAO: Zamboanga, Lanao, Davao, Agusan, Surigao. Low and medium altitude forests, ascending to 700m.

Canarium euryphyllum Perkins, Fragm. Fl. Philipp. 1 (1904) 99; --Merr., EPFP 2 (1923) 350; --Leenh., Fl. Males ser. 1, 5 (1956) 280.

var. **euryphyllum**

Canarium stenophyllum Merr., PJS 10 c (1915) Bot. 25; EPFP 2 (1923) 354. --Type:

Canarium microphyllum Merr., PJS 13 c (1918) Bot. 304; EPFP 2 (1923) 351. –Type:
Throughout the Philippines except Palawan. Rather common in lowland forests,
ascending to 800m. Reportedly once collected at 1700m.

var. ramosii (Merr.) Leenh., Fl. Males ser. 1, 5 (1956) 280; --*Canarium ramosii* Merr., PJS 8 c (1913)
Bot. 374, also incl. var. *parvum*; EPFP 2 (1923) 353. –Type:
Canarium paucinervium Merr., PJS 9 c (1914) Bot. 364; EPFP 2 (1923) 352. –Type:
LEYTE, SAMAR, MINDANAO: Surigao. Low altitude forests.

Canarium gracile Engl. in DC, Monogr. Phan. 4 (1883) 140; --Merr., EPFP 2 (1923) 350; --Leenh.,
Fl. Males ser. 1, 5 (1956) 282, Fig. 20c, 21m.
Canarium antonii Elmer, LPB 10 (1939) 3711, *anglice*, ex Merr., EPFP 2 (1923) 350, in syn. –Type:
Throughout the Philippines except Palawan. Low altitude forests generally, rarely up to
600m.

Canarium hirsutum Willd., Sp. Pl. 4 (1805) 760; --Leenh., Fl. Males ser. 1, 5 (1956) 287, Fig. 46.
ssp. hirsutum var. hirsutum

Canarium altissimum Blume, Bijdr. 17 (1826) 1163; --Merr., EPFP 2 (1923) 355. –Type:
Canarium multipinnatum Llanos, Fragm. Pl. Filip. 1 (1851) 107; --Merr., EPFP 2 (1923) 351. –Type:
Canarium warburgianum Perkins, Fragm. Fl. Philip. 1 (1904) 99; --Merr., EPFP 2 (1923) 355. –Type:
Canarium ahernianum Merr., PJS 1 (1906) Suppl. 70; EPFP 2 (1923) 415. –Type:
Canarium racemosum Merr., PJS 3 c (1908) Bot. 141; EPFP 2 (1923) 353. –Type:
Canarium nervosum Elmer, LPB 2 (1908) 482; --Merr., EPFP 2 (1923) 352. –Type:
Canarium costulatum Elmer, LPB 3 (1911) 1080; --Merr., EPFP 2 (1923) 349. –Type:
Canarium ellipsoideum Merr., PJS 10 c (1915) Bot. 26; EPFP 2 (1923) 350. –Type:
Canarium robustum Merr., PJS 11 c (1916) Bot. 184; EPFP 2 (1923) 353. –Type:
Canarium oxygianum Quisumb. & Merr., PJS 37 (1928) 155. –Type:
Canarium bataanense Merr. ex Sasaki, Cat. Gov. Herb. Formosa (1930) 295, nomen.
Canarium nervosum Elmer, LPB 10 (1939) 3713, descr. *Anglice* [ex Merr., EPFP 2 (1923) 352, *in syn.*];
–Type:

Throughout Malesia except New Guinea and New Britain, Carolines (Palau).
Throughout the Philippines. Rather common in primary, rarely in secondary forests, in
everwet and seasonal areas, mostly at low altitudes, occasionally up to 1800m.

Canarium luzonicum (Blume) A Gray, Wilkes Exp. Bot. (1854) 374; --Leenh., Fl. Males ser. 1,
5 (1956) 270; PJS 3 c (1908) Bot. 80; EPFP 2 (1923) 351; --*Pimela luzonica* Blume, Mus. Bot.
Lugd.-Bat. 1 (1850) 220. –Type:
Canarium oliganthum Merr., PJS 10 c (1915) Bot. 23. –Type:
LUZON, ALABAT, MINDORO, MASBATE, TICAO, BOHOL, MINDANAO. Common in
primary forests at low and medium altitudes.

Canarium odontophyllum Miq., Sum. (1861) 525; --Leenh., Fl. Males ser. 1, 5 (1956) 271, Fig. 22i.
Canarium palawanense Elmer, LPB 5 (1913) 1754. –Type:
Sumatra, Borneo, Philippines.
PALAWAN. Lowland forests, up to 450m.

Canarium ovatum Engl. in DC, Monogr. Phan. 4 (1883) 110; --Merr., EPFP 2 (1923) 352. --Leenh.,
Fl. Males ser. 1, 5 (1956) 271, Fig. 22f. –Type:
Canarium melioides Elmer, LPB 3 (1911) 1079; --Merr., EPFP 2 (1923) 351. –Type:
LUZON: Quezon, Laguna, Camarines, Albay, Sorsogon, POLILLO, SEMIRARA
(Cabuya), LEYTE, SAMAR, MINDANAO: Surigao. Cultivated in other parts of Malesia,
Melanesia and Micronesia on account of the highly prized nuts.

Canarium vrieseanum Engl. in DC, Monogr. Phan. 4 (1883) 142, t. 3, Fig. 15-18; --Leenh., Fl.
Males. ser. 1, 5 (1956) 291.

forma williamsii (C Robinson) Leenh., Fl. Males ser. 1, 5 (1956) 291; --Canarium williamsii C Robinson, PJS 3 c (1908) Bot. 185. --Type:
Canarium dolichophyllum Merr., PJS 10 c (1915) Bot. 20; EPFP 2 (1923) 350. --Type:
Canarium tongcalingii Elmer, LPB 3 (1911) 1082; --Merr., EPFP 2 (1923) 354. --Type:
Canarium sibulanense Elmer, LPB 3 (1911) 1085; --Merr., EPFP 2 (1923) 353. --Type:
MINDANAO: Zamboanga, Lanao, Davao, Agusan. Primary and secondary forests, altitude up to 500m.

forma stenophyllum Leenh., Blumea 8 (1959) 194; Fl. Males ser. 1, 5 (1956) 291.
MINDANAO: Davao. Primary and secondary forests, altitude up to 500m.

Non-native cultivated taxa:

Canarium indicum L., Amoen. Acad. 4 (1759) 143; --Leenh., Fl. Males ser. 1, 5 (1956) 287; --Leenh., Fl. Males ser. 1, 5 (1956) 266.

var. indicum

Solomon Isls, New Hebrides, New Britain, New Ireland, New Guinea, Moluccas, N Sulawesi. Introduced in the Philippines.

2. **Dacryodes** Vahl

Literature:

Kalkman, C. 1954. *Revision of the Burseraceae of the Malaysian area in a wider sense*. Blumea 7: 500-522. (Treats section Tenuipyrena Engl.)

Dacryodes costata (Benn.) HJ Lam, Ann. Jard. Bot. Buitenz. 42 (1932) 204, t. 14f; --Leenh., Fl. Males ser. 1, 5 (1956) 226; --Leenh., Fl. Males ser. 1, 5 (1956) 228.
Sumatra, Peninsular Malaysia, Banka, Billiton, Borneo, Philippines.
LEYTE.

Dacryodes incurvata (Engl.) HJ Lam, Ann. Jard. Bot. Buitenz. 42 (1932) 204; --Leenh., Fl. Males ser. 1, 5 (1956) 224; --Canarium incurvatum Engl. in DC, Monogr. Phan. 4 (1883) 138.
--Type:

Santiria nitida Merr., Publ. Govt. Lab. (Philipp.) no. 35 (1906) 29; EPFP 2 (1923) 352. --Type:

Canarium nitens Merr., PJS 10 c (1915) Bot. 24; EPFP 2 (1923) 352. --Type:

Sumatra, Peninsular Malaysia, Borneo, Philippines.

LUZON: Zambales, Bataan, Laguna, SIBUYAN, PANAY, NEGROS, MINDANAO: Zamboanga.

Dacryodes longifolia (King) HJ Lam, Ann. Jard. Bot. Buitenzorg 42 (1932) 202; Bull. Jard. Bot. Buitenzorg ser. 3, 12 (1932) 340, t. 4, Fig. 9; --Kalkm., Blumea 7 (1954) 509; --Leenh., Fl. Males ser. 1, 5 (1956) 228; --Santiria longifolia King, J. As. Soc. Beng. 62, 2 (1894) 258. --Type from

var. longifolia

Peninsular Malaysia, Borneo, Philippines.

MINDANAO.

Dacryodes macrocarpa (King) HJ Lam, Ann. Jard. Bot. Buitenz. 42 (1932) 203, t. 5, Fig. 8; t. 14, Fig. 106 & 111; --Leenh., Fl. Males ser. 1, 5 (1956) 226, Fig. 11; --Santiria macrocarpa King, J. As. Soc. Beng. 62, ii (1894) 256.

var. merrillii HJ Lam, Ann. Jard. Bot. Buitenz. 42 (1932) 203; --Leenh., Fl. Males ser. 1, 5 (1956) 228; --Santiria elliptifolia Merr., PJS 13 c (1918) Bot. 305; EPFP 2 (1923) 355. --Type:

LUZON: Camarines. Low altitude forests. Known only from the type collection.

Dacryodes rostrata (Blume) HJ Lam, Ann. Jard. Bot. Buitenz. 42 (1932) 203, t. 11, Fig. 59; t. 13, Fig. 109; --Leenh., Fl. Males ser. 1, 5 (1956) 225, Fig. 2d; --Santiria rostrata Blume, Mus. Bot. Lugd.-Bat. 1 (1850) 212.

Santiria samarensis Merr., PJS 10 c (1915) Bot. 31; EPFP 2 (1923) 356. --Type:
S Vietnam, Sumatra, Peninsular Malaysia, Banka, Billiton, Borneo, Philippines,
Sulawesi.
LUZON: Camarines, PALAWAN, LEYTE, SAMAR, MINDANAO. Damp forests at low
and medium altitudes.

3. *Garuga* Roxburgh

Garuga floribunda Decne., Nouv. Ann. Mus. Hist. Nat. Paris 3 (1834) 477; --Leenh., Fl. Males ser. 1,
5 (1956) 215, Fig. 2b, 5, 6.

var. floribunda

Garuga abilo (Blanco) Merr., Publ. Govt. Lab. (Philipp.) no. 35 (1905) 73; EPFP 2 (1923) 356; --*Guaiacum*
abilo Blanco, Fl. Filip. (1837) 364. --Type:

Garuga littoralis Merr., PJS 10 c (1915) Bot. 27, incl. var. *paucijuga*; EPFP 2 (1923) 356. --Type:

Garuga clarkii Merr., PJS 10 c (1915) Bot. 29; EPFP 2 (1923) 356. --Type:

Peninsular Malaysia, Java, NE Borneo, Philippines, Sulawesi, Lesser Sunda Isls,
Moluccas, New Guinea, N Australia, Melanesia.

Throughout the Philippines. Low to medium altitude thickets and secondary forests in the
more seasonal parts of the archipelago.

4. *Protium* Burman *filius*

Revision:

Leenhouts, PW. 1952. *Revision of the Burseraceae of the Malaysian Area in a wider sense. I.*
Protium Burman f. Blumea 7: 154-160.

Protium connarifolium (Perkins) Merr., PJS 10 c (1915) Bot. 30; EPFP 2 (1923) 348; --HJ Lam,
Bull. Jard. Bot. Buitenz. ser. 3, 12 (1932) 320; --Leenh., Blumea 7 (1952) 155; Fl. Males. ser. 1, 5
(1956) 215, Fig. 4g; --*Canarium connarifolium* Perkins, Fragm. Fl. Philip. 2 (1904) 92. --Type:

Protium philippinensis Elmer, LPB 7 (1915) 2571. --Type:

PALAWAN. Forests along streams at low altitudes.

5. *Santiria* Blume

Santiria apiculata Benn., *in* Hook., Fl. Brit. Ind. 1 (1875) 537; --Leenh., Fl. Males ser. 1, 5 (1956) 234,
Fig. 13a-e. --Type from Peninsular Malaysia.

var. apiculata

Santiria glabra Merr., PJS 10 c (1915) Bot. 30; EPFP 2 (1923) 355. --Type:

Santiria lagunensis Merr., PJS 10 c (1915) Bot. 31; EPFP 2 (1923) 355. --Type:

Sumatra, Peninsular Malaysia, Borneo, Philippines, Sulawesi, Moluccas.

LUZON: Laguna, LEYTE, MINDANAO: Lanao.

Santiria grandiflora Kalkman, Blumea 7 (1954) 525, f. 7; --Type from Sarawak.

Borneo (Sarawak; Sabah) and SE Philippines.

MINDANAO: Surigao del Sur (Carmen, SUDECOR Logging Concession), *E. Sotalbo* ----
(PUH). New to the Philippines.

Santiria laevigata Blume, Mus. Bot. 1 (1850) 211, t. 40, incl. var. *applanata*; --Kalkman, Blumea 7 (1954) 540; --Leenh., F
forma laevigata

Sumatra, Banka, Billiton, Peninsular Malaysia, Borneo, Philippines, C Sulawesi.

MINDANAO.

Santiria tomentosa Blume, Mus. Bot. 1 (1850) 211; --Kalkman, Blumea 7 (1954) 529; -Leenh., Fl.
Males ser. 1, 5 (1956) 231. --Type

Sumatra, Banka, Billiton, Peninsular Malaysia, Borneo, Philippines.

MINDANAO.