

lae, and the fruit with convex shiny scales in 13 vertical rows; *C. microsphaerion* in Sabah has fruit with  $\pm$  flat dull smaller scales in 17–18 vertical rows. The present species appears to have two seeds per fruit—they are like very small lentils, and must represent one of the smallest seeds in the genus; it is not known whether two seeds are always present. The variation in *C. microsphaerion* is not yet completely understood so it may seem premature to describe the present taxon as new; however the fruit and leaf sheaths appear very different when closely compared with those of *C. microsphaerion*.

12. ***Calamus laevigatus* Mart. var. *serpentinus* J. Dransf. var. nov.** a varietate typica colore viride-cinnamomeo, petiolo brevi, foliolis non reflexis, habitu saepe caespitoso, squamis fructus porphyreis differt. Typus: Borneo, Sabah, *Dransfield* JD5789 (holotypus K; isotypus SAN).

Solitary or clustering rather slender rattan with stems climbing to 10 m. Stem without sheaths c. 6 mm diam., with sheaths to 13 mm diam., internodes to 10 cm. Sheaths pale yellowish-green, armed with scattered or laterally grouped short bulbous-based triangular black-tipped spines to 3 mm frequently with apical tufts of brown hairs, and abundant pale to dark brown scales between the spines; where spines grouped laterally, their bases confluent into short collars bearing very small spines between the main spines. Knee rather poorly developed. Ocrea low, ciliate-fringed with pale brown hairs. Leaf cirrate to 115 cm including the cirrus to 60 cm; petiole 2–3 cm, semi-circular in cross-section armed with very few scattered bulbous-based spines; leaflets pale yellowish-green, 9–11 on each side of the rachis, grouped in 2's in distal area, solitary proximally, very narrow, linear,  $\pm$  pendulous, not reflexed across the stem, to 30  $\times$  1 cm, frequently narrower, all  $\pm$  the same length, margins somewhat thickened, armed with scattered inconspicuous bristles; transverse veinlets conspicuous. Staminate inflorescence to 1 m branching to three orders, as in type variety but rachillae shorter and more slender (to 7  $\times$  1.5 mm). Pistillate inflorescence to 75 cm, with four partial inflorescences, more slender and laxer than in the type; partial inflorescences with few distant rachillae to 70  $\times$  2 mm. Ripe fruit as in type variety but with scales reddish-brown. Fig. 8.

SABAH. Beluran District, Pulau Sapi, Bt. Merongo, *Dransfield et al.* JD5735 (K, SAN, SAR); Telupid District: slope of Bt. Tangkunan, *Dransfield et al.* JD5781 (K, L, SAN, SAR), JD5789 (holotype K; isotype SAN).

*C. laevigatus* var. *serpentinus* is conspicuously different from the other varieties of *C. laevigatus* in Sabah. It is confined to soils derived from ultrabasic rock, and it is thus possible that it is merely an ecotype of *C. laevigatus* var. *laevigatus*; yet it is so distinctive in its consistently pale brownish-green colour, its leaves with short petiole and not reflexed leaflets, and the frequent presence of suckers, that I feel it must receive some taxonomic status until experimental work can be done on the response of typical *C. laevigatus* to different soil types. The specific epithet refers to the habitat—soils derived from ultrabasic rock (serpentine).

13. ***Calamus diepenhorstii* Miq. var. *major* J. Dransf. var. nov.** a varietate typica et varietate *exulanti* Becc. habitu magno, vaginis foliorum in sicco

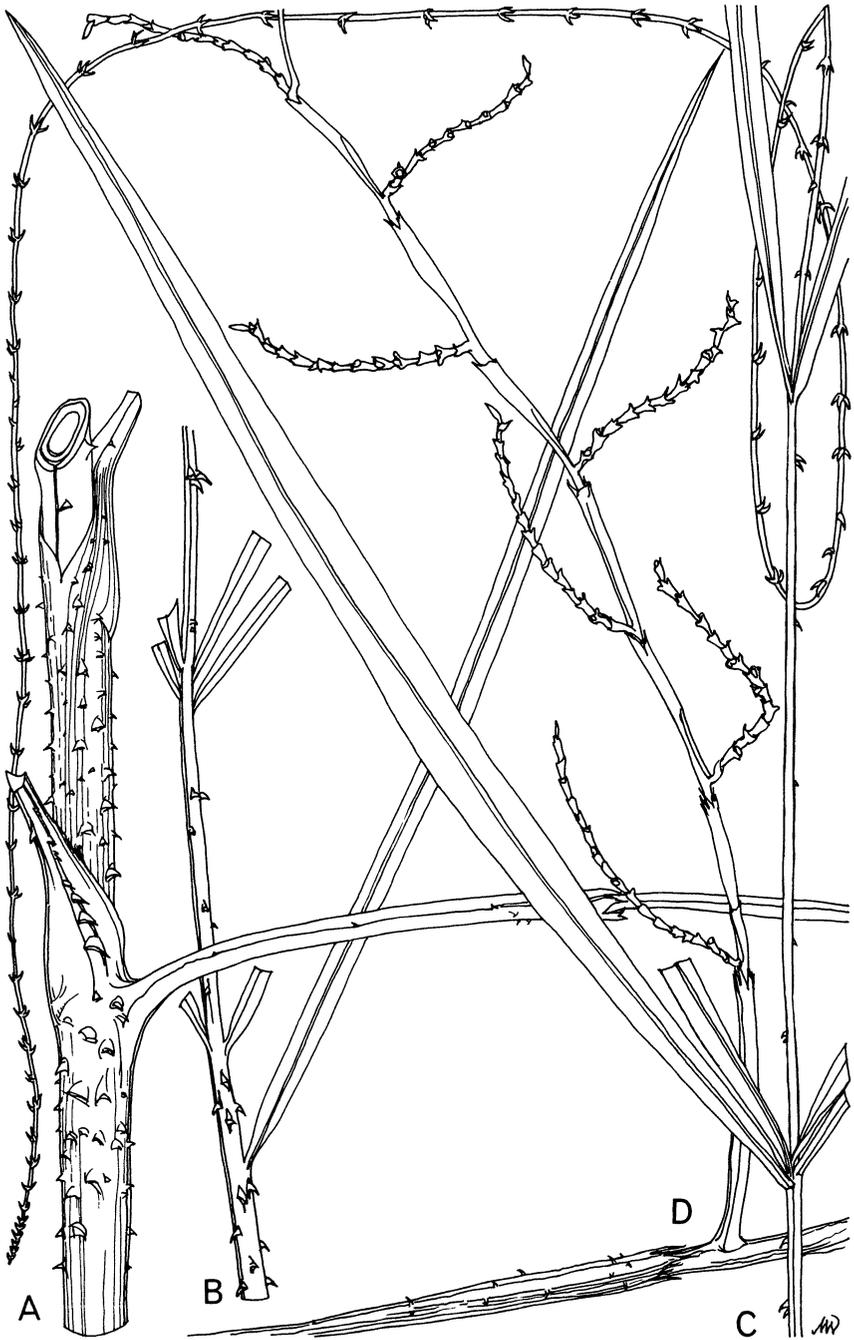


FIG. 8. *Calamus laevigatus* var. *serpentinus*. **A** stem with sheaths and base of inflorescence  $\times \frac{2}{3}$ ; **B** mid-portion of leaf  $\times \frac{2}{3}$ ; **C** leaf apex  $\times \frac{2}{3}$ ; **D** portion of pistillate inflorescence with one partial inflorescence  $\times \frac{2}{3}$ . From Dransfield JD5789. Drawn by Mary Millar Watt.

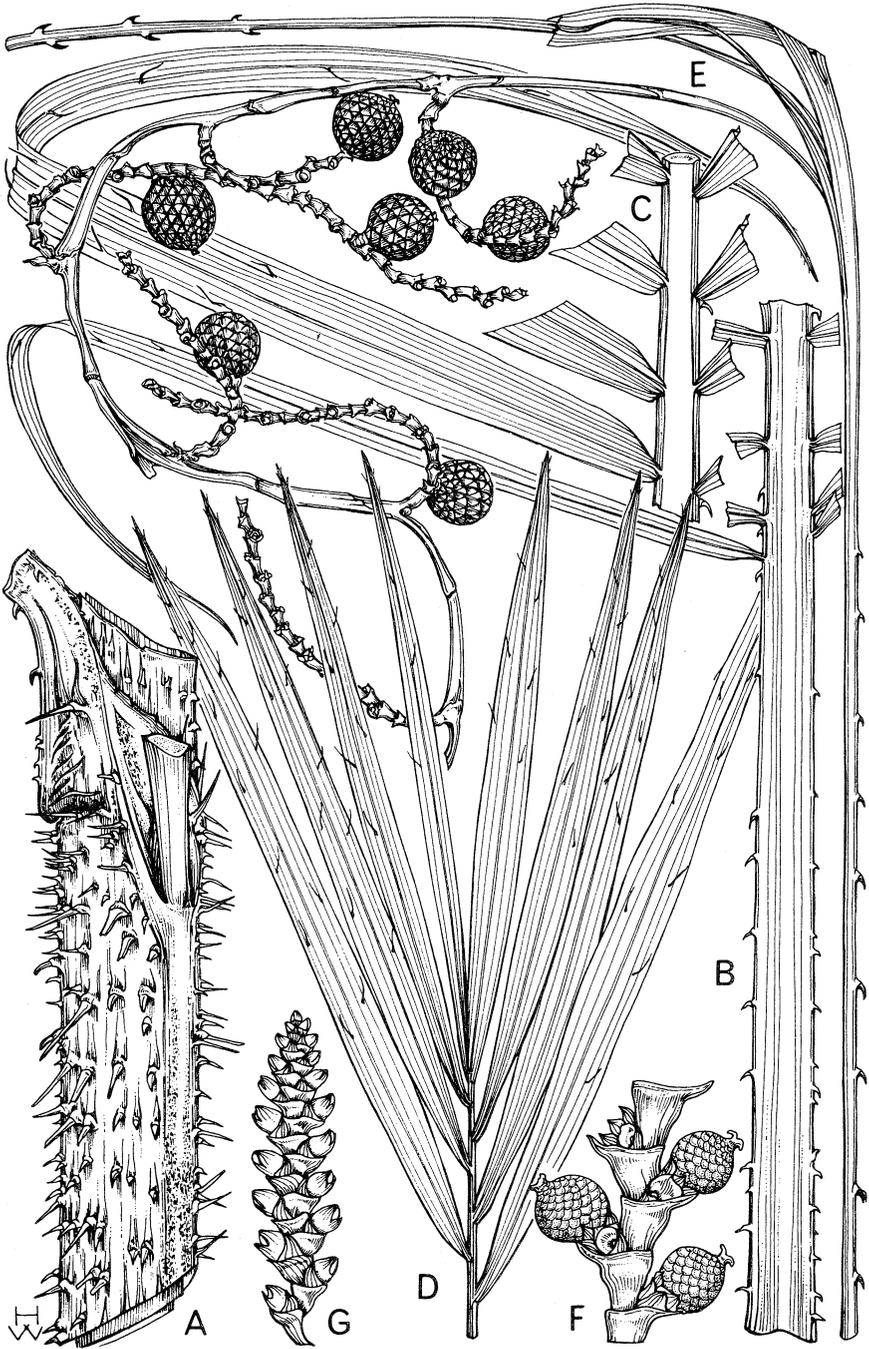


FIG. 9. *Calamus diepenhorstii* var. *major*. A leaf sheath with base of flagellum  $\times \frac{1}{2}$ ; B petiole  $\times \frac{1}{2}$ ; C mid-portion of leaf  $\times \frac{1}{2}$ ; D leaf apex  $\times \frac{1}{2}$ ; E part of infructescence  $\times \frac{1}{2}$ ; F portion of rachilla with young fruit  $\times 5$ ; G portion of staminate rachilla  $\times 2$ . A, B, E, F from Dransfield JD5830, C, D, G from Dransfield JD5828. Drawn by Heather Wood.

pallescentibus non brunnescentibus, spinis non fragilibus et fructibus purpurascensibus non viridibus differt. Typus: Borneo, Sabah, *Dransfield* JD5830 (holotypus K; isotypi L, SAN, SAR). Fig. 9.

*C. diepenhorstii* in Sabah has been collected on Timbun Mata Island (*Puasa* 7406) and at Silam (JD5830, JD5828). The Sabah material is very similar to Philippine *C. diepenhorstii* var. *exulans*. This latter was described as differing only in the leaflets being without bristles on the mid-costa above—yet all our Kew material seems to be bristly above. The collections I made in Palawan (JD5480, JD5496) are indistinguishable from Malayan and Sumatran material except for the leaf-sheath spines which are much less laminar, smaller and are attached by more consistently swollen bases. The Sabah material is very large, has spines rather larger than those of the Philippine material but are firmly attached as in Philippine material. The leaf sheaths however dry pale green with scattered brown scales (as opposed to the dull red-brown of Malayan material); the fruit is purplish as opposed to green. If *C. diepenhorstii* var. *exulans* is maintained then the Sabah material deserves some recognition.

SABAH. Lahad Datu, coastal hills near Bt. Silam, *Dransfield et al.* JD5830 (holotype K; isotypes L, SAN, SAR) (♀); also JD5828 (L, KEP, L, SAN, SAR); Timbun Mata Island, *Puasa* 7406 (K, SAN); near Sabahan River, 20 miles S W of Lahad Datu, *G. H. S. Wood* SAN15466.

14. ***Daemonorops longipes*** (*Griff.*) *Mart.*, *Hist. Nat. Palm.* 3(2nd Edit.): 205 (1845) and 329 (1853); *Miq.*, *Fl. Ind. Bat.* 3: 93 (1855); *Becc.* in *Hook.f.*, *Fl. Br. Ind.* 6: 471 (1893), in *Rec. Bot. Surv. Ind.* 2: 229 (1902); *Ridl.*, *Mat. Fl. Mal. Pen.* 2: 184 (1907); *Becc.* in *Ann. Roy. Bot. Gard. Calcutta* 12(1): 202 (1911); *Ridl.*, *Fl. Mal. Pen.* 5: 44 (1925); *Furtado* in *Gard. Bull. Singapore* 14: 127 (1953); *Dransf.*, *Man. Ratt. Mal. Pen.* 117 (1979). Type: Malacca, *Griffith* s.n. (holotype BR).

*Calamus longipes* *Griff.* in *Calc. J. Nat. Hist.* 5: 68 (1844), and *Palms Br. India* 78 (1850); *H. Wendl.* in *Kerch.*, *Palm.* 236 (excl. synonym.) (1878).

*Rotang longipes* (*Griff.*) *Baill.*, *Hist. Pl.* 13: 300 (1895).

*Calamus ramosissimus* *Griff.* in *Calc. J. Nat. Hist.* 5: 78 (1844), and *Palms Br. India* 87 (1850). (See *Dransfield* in *Kew Bull.* 33: 528 (1979)). Type: Malacca, *Griffith* s.n. (holotype BR).

*Daemonorops stricta* *Bl.*, *Rumphia* 3: 19 (1847); *Miq.*, *Fl. Ind. Bat.* 3: 86 (1855), in *J. Bot. Neerl.* 1: 18 (1861), and *Prodr. Fl. Sum.* 255 (1861). Type: Sumatra, *Praetorius* s.n. (L).

*Calamus strictus* (*Bl.*) *Miq.*, *De Palm. Arc. Ind.* 28 (1868); *H. Wendl.* in *Kerch.*, *Plam.* 238 (1878).

*Daemonorops sabensis* *Becc.* ex *Gibbs* in *J. Linn. Soc. Bot.* 42: 169 (1914); *Merr.*, *Bibl. Enum. Born. Pl.* 81 (1921). Type: Sabah, *Gibbs* 2913 (holotype BM; isotypes FI, K); **synon. nov.**

*Daemonorops calothyrsa* *Furtado* in *Gard. Bull. Singapore* 13: 345 (1935). Type: Sabah, *Furtado* sub *Clemens* 29194 (holotype SING; isotype K); **synon. nov.**

*Daemonorops longipedunculata* *Furtado* in *Gard. Bull. Singapore* 13: 353 (1935). Type: Sabah, *Clemens* 31280 (holotype SING; isotype K); **synon. nov.**

*Beccari* (1911) did not record *D. longipes* for Borneo despite recording it for Sumatra, the Malay Peninsula and Billiton. He described *D. virescens* from Palawan but differentiated it from *D. longipes* on the basis of fruit scale