

divergently bifid leaves. In the possession of only two broad leaflets it might be confused with some forms of *C. flabellatus* but the latter species has the terminal leaflet pair joined for much of their length, the leaf is not of the same coriaceous texture and the flagellate inflorescence is altogether different in branch arrangement. The new species belongs to Section *Coleospathus* in Furtado's sense (Furtado 1956) and is perhaps most closely related to Peninsular Malaysian *C. insignis* Griff. and its allies.

***Calamus psilocladus* J. Dransf. sp. nov.** ad sectionem *Coleospathum* pertinens *C. nematospadici* et *C. compto* verosimiliter affinis vaginis foliorum inermibus, foliis infra dense scabridis, prophylo inflorescentiae flagellique spinis lateralibus conspicuis regulariter dispositis distinguibilis. Typus: Borneo, Sarawak, *Dransfield et al.* JD 6137 (holotypus K; isotypi BH, BO, L, PNH, SAR).

Solitary, slender rattan climbing to c. 5 m tall; stem without leaf sheaths 6–8 mm diam., with sheaths 9–12 mm diam.; internodes to c. 10 cm long. Leaf sheaths dull green, unarmed, covered in thin grey indumentum; knee conspicuous; ocrea poorly developed. Flagellum to c. 1.5 m, regularly armed in the basal c. 15 cm (i.e. the flagellar prophyll) with robust spines to 10 mm long, c. 15 mm distant, in two lateral rows. Leaf ecirrate, to c. 55 cm including the petiole to 10 cm; petiole flattened adaxially, rounded abaxially, armed with very sparse short spines and bearing scattered grey tomentum; rachis bearing adaxially a caducous felt of red-brown hairs; leaflets 24–34 on each side of the rachis, close regular, rather stiff, tending to become plicate on drying, the longest near the leaf tip to 15 × 0.7 cm, near the base to 6 × 0.5 cm, sparsely bristly adaxially and along the margins, abaxially densely scabrid; transverse veinlets rather inconspicuous. Inflorescences slender, elongate, to 1 m with 2–4 partial inflorescences, the staminate and pistillate superficially similar; prophyll armed as in the flagellum; subsequent rachis bracts only sparsely armed but tending to be bearded at their tips; partial inflorescences pendulous, to 40 cm, bearing 6–8 rather distant rachillae, each subtended by a minutely flared bract; staminate rachilla 10–25 × 1.5 mm, very rarely branched at the base, bearing strictly distichous, brown striate bracts to 1 mm; involucre triangular, c. 0.75 mm; pistillate rachilla to 40 × 2 mm, bearing strictly distichous brown striate bracts to 2 mm; involucre and involucrophore c. 1 mm. Staminate flower c. 2 × 0.75 mm; calyx cupular, tubular in the basal 0.5 mm with narrow triangular striate lobes to 1 mm; petals to 2 × 0.75 mm, scarcely striate; stamens elongate, c. 1 × 0.1 mm; pistillode slender, trifid, c. 0.8 mm. Pistillate flower not available. Mature fruit rounded, c. 8 mm diam., with beak to c. 2 × 1 mm, and covered in 13–14 vertical rows of yellowish to ivory-coloured scales with brown tips. Seed rounded, slightly flattened on one face, c. 5 mm diam., the surface shallowly ridged and grooved; endosperm homogeneous; embryo basal. (Fig. 9).

BORNEO. Sarawak, 1st Division, Mile 74 Kuching to Simanggang Road, forest near Pundajaya Timber Camp, *Dransfield et al.* JD 6137 (holotype K; isotypes BH, BO, L, PNH, SAR), JD 6135 (BH, BO, K, L, SAR).

This species is clearly a member of Furtado's section *Coleospathus* and is perhaps most similar to *C. comptus* and *C. nematospadix* in the slender stems, crowded regularly arranged linear leaflets and very slender filiform

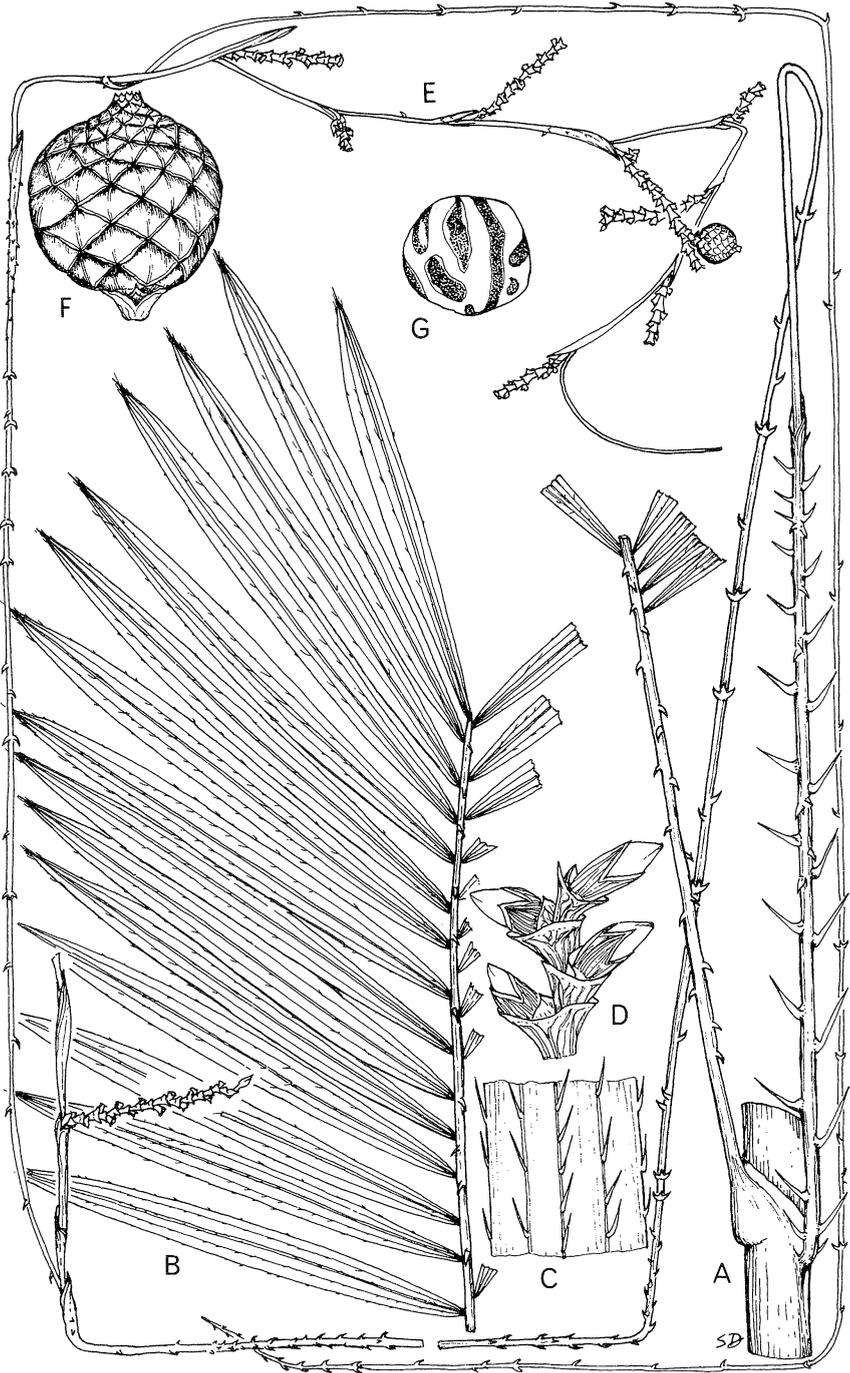


FIG. 9. *Calamus psilocladus*. **A** portion of sheathed stem with petiole and base of infructescence $\times \frac{1}{2}$; **B** leaf tip viewed from below $\times \frac{1}{2}$; **C** detail of undersurface of leaflet $\times 3$; **D** portion of staminate rachilla $\times 3$; **E** part of infructescence $\times \frac{1}{2}$; **F** fruit $\times 3$; **G** seed $\times 3$. **A-C, E-G** from *Dransfield et al.* JD 6137, **D** from *Dransfield et al.* JD 6135. Drawn by Soejatmi Dransfield.

inflorescences. It is distinctive in the quite unarmed leaf sheaths, the scabrid undersurface of the leaflets and the unusual armature of the inflorescence and flagellar prophyll. It is an elegant species, known only from the two collections cited above.

Calamus comptus *J. Dransf.* sp. nov. elegans gracilisque ad sectionem *Col-eospathum* pertinens foliolis linearibus confertis et rachidi ferrugineo-lanuginosa *C. rugosum* speciem Malayanam aemulans sed vaginis foliorum vix muricatis et spinis late triangularibus praeditis distincta. Typus: Borneo, Sabah, *Dransfield et al.* JD 5643 (holotypus K; isotypi L, SAN, SAR).

C. nematospadix sensu *J. Dransf.* non *Becc.* in *Jermy, Stud. Fl. G. Mulu Nat. Park* 59 (1984) and *Rattans of Sabah* 159, fig. 79 (1984).

Solitary or rarely clustered slender to moderate rattan with stems climbing to 10 m tall; stems without leaf sheaths 10–18 mm diam., with sheaths to 27 mm, usually much less; internodes c. 7–10 cm long. Leaf sheaths bright green, armed with scattered short broad triangular \pm reflexed black spines to 6×6 mm with swollen yellow bases and black hairy fringes along the margins, usually with incipient horizontal swellings or ridges between the spines and abundant brown indumentum; knee conspicuous, armed as the leaf sheath; ocrea membranous, to 5 mm, soon tattering, reddish when young. Flagellum to 2 m, armed with scattered reflexed spines. Leaf ecirrate, to 90 cm including the petiole to 30 cm, often much less; petiole \pm elliptical in cross section armed with scattered reflexed spines and caducous brown scales; rachis usually \pm curved, densely covered adaxially with caducous shaggy red-brown hairs; leaflets 20–40 on each side of the rachis, very close and regularly arranged, rather limp, to 30×1.3 cm, linear, conspicuously bristly on 3 nerves adaxially, along margins, and along main vein abaxially; transverse veinlets inconspicuous. Inflorescence elongate, to 2 m long, rarely to 6 m, slender, the staminate and pistillate superficially similar, with 3–4 partial inflorescences; peduncle 1–3 m long, to c. 1 cm diam. at the base, the prophyll and primary bracts rather densely armed with scattered or partially whorled short spines to 4 mm; partial inflorescences up to 1 m long, pendulous with numerous distichous rather distant rachillae, each subtended by a minutely thorny bract, the bract tip scarcely expanded; staminate rachilla to 35×2 mm, bearing strictly distichous striate bracts to 2.5 mm long, usually bearded at the tip, the basal bracts sometimes subtending branches, the distal each subtending a staminate flower; pistillate rachilla c. 90×3 mm, bearing strictly distichous striate bracts, tubular in the basal 3 mm, the tip narrow-apiculate, c. 2 mm long, reflexed at anthesis, \pm bearded, involucre explanate in fruit, involucrophore cushion-like, c. 1 mm diam. Staminate and pistillate flowers not available. Mature fruit rounded, c. 7 mm diam., tipped with a beak c. 1.5×0.8 mm, and covered in 13–14 vertical rows of pale cream-coloured scales with darker margins. Seed \pm rounded, c. 5 mm diam., irregularly shallowly pitted; endosperm homogeneous; embryo basal.

BORNEO. Sabah: Interior Residency, Nabawan, Mile 50, Keningau–Pensiangan Road, *Dransfield et al.* JD 5643 (holotype K; isotypes L, SAN, SAR), JD 5127 (K, KEP), JD 5639 (K, SAN, SAR); Keningau, Mile 41, Rashna Road, *Nordin Abas* SAN 85881 (K, SAN); Kota Kinabalu, Sinsuron Road, *Dransfield et al.* JD 5532 (K, L, SAN, SAR), JD 5545 (K, KEP, SAN, SAR);