

A new species of *Calamus* (*Palmae*) from Java

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Summary. The new species *Calamus occidentalis* J. R. Witono & J. Dransf. is described from Ujung Kulon, West Java.

Calamus is the largest genus of *Palmae* (*Areaceae*) with about 370 mostly climbing (rattan) species (Uhl & Dransfield 1987). In Java, there are about 16 species (Backer & Bakhuizen van den Brink 1968); one of them, represented by specimens collected in April 1971 by JD during an expedition to Ujung Kulon, West Java, is still undescribed. It seems important to describe and name this new species, particularly because it appears to have a cane of excellent quality for furniture manufacture and may have some silvicultural potential.

***Calamus occidentalis* J. R. Witono & J. Dransf. sp. nov.** inter species Javanicas habitu solitario, magnitudine grande, foliis cirratis foliolis late lanceolatis, rachillis sessilibus rectis distinctissima; ad sectionem *Phyllanthectum* Furtadonis (Gregem XV Beccari) pertinens, *C. manan* et speciebus propinquis affinis sed vaginis folii spinis parvis dispersis indumento badio dense tectis et fructo parvo semine irregulariter foveolato pustulatoque differt. Typus: Java, Ujung Kulon, *Dransfield* JD1483 (Holotypus BO; isotypi BH, K, L).

Calamus albus sensu Beccari, Ann. Roy. Bot. Gard. (Calcutta) 11 (1): 444 (1908) non Persoon (1805).

Solitary high-climbing rattan with stem reaching to 100 m in length, looping in lower part of stem. Stem without sheaths to 30 mm diam., with sheaths to 70 mm diam.; internodes 18 – 30 cm long. Leaf sheath green when fresh, drying brownish green, covered in caducous brown indumentum, and armed with short black irregularly arranged spines, to 15 × 2 mm with pale bases; knee conspicuous, unarmed; ocrea ill-defined. Leaves cirrate to 3 m long including cirrus; cirrus up to 1.5 m long with brown claws; petiole in adult plants absent or to 2 cm long; rachis green, flattened adaxially, convex abaxially, armed with irregularly arranged brown spines on adaxial side and black claws on abaxial side, adaxial side more densely armed than the abaxial side, spines; leaflets up to 20 on each side of rachis, regularly arranged, 4 – 9 cm apart, lanceolate, apex acuminate,

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base acute, middle longest, 15 – 31 × 3 – 5 cm, the surfaces concolorous, green when fresh, drying yellowish green, mid- and marginal veins on adaxial surface armed with black bristles, secondary parallel veins very thin. Staminate inflorescence eflagellate, branched to 3 orders, partial inflorescences up to 17, the longest to 62 cm long; rachis bracts tightly tubular, to 9 × 1.5 cm, armed rather densely with black tipped, reflexed spines distally; rachillae to 22 mm long, sessile, basally enclosed by the bract, with c. 12 – 15 flowers on each side; rachilla bracts and bracteoles explanate, with dentate margins and bearing sparse brown scales. Staminate flower (immature) globular, c. 2 mm diam.; calyx to 1.5 mm, split to 0.75 mm; petals c. 2 × 1 mm, shining; stamens very immature. Pistillate inflorescence to 1.5 m long, similar to the staminate but branching to two orders only and with longer, more robust rachillae, to 10 – 25 cm long, bearing 8 – 20 rather distant dyads on each side; rachilla bracts explanate, striate, bearing scattered brown scales; involucrophore very short, less than 1 mm high. Sterile staminate flower to 2.2 × 1.1 mm; calyx 3-lobed, to 1 × 1.5 mm, basal tube to 2 × 1 mm; petals to 2 × 1 mm; sterile stamens to 1 × 0.3 mm. Pistillate flower larger than the staminate; calyx to 2.5 mm, with glabrous, striate triangular lobes to 1 × 2 mm; petals to 3 × 1.5 mm; ovary 1 mm in diameter, ellipsoid, tipped with 3 stigmas. Flowers of both sexes at anthesis smelling of *Pandanus amaryllifolius* leaves. Fruit globose-ovoid, 18 – 19 × 12 – 14 mm, covered in 15 vertical rows of straw-coloured scales. Seed c. 10 mm diam., irregularly pitted and warted; endosperm deeply ruminant; embryo basal. Fig. 1.

JAVA. Jawa Barat, Ujung Kulon, April 1971, *Dransfield* JD1483 (Holotype BO; isotypes K, L, BH); *Dransfield* JD1437 (BO, K). CULTIVATED. Kebun Raya, Bogor, s.n. (five accessions) (BO, FI).

VERNACULAR NAME. “Rotan tunggal” (Indonesian — solitary rattan in reference to the single-stemmed habit).

ECOLOGY. Ujung Kulon, West Java (endemic?); occurring in rather disturbed primary and secondary lowland rain forest overlying recent coral limestone and volcanics at altitudes up to about 200 m.

Although “rotan tunggal” is a well-known rattan in the Ujung Kulon area of West Java, only a few collections have ever been made. During a visit to the area in 1971 JD at first overlooked the plant as a robust form of *Calamus unifarius* (“rotan buluh”) until park rangers insisted that the plant was different. On closer examination the differences between the two taxa became obvious. It differs from *C. unifarius* in being solitary, in having very narrow dark green juvenile leaflets, as opposed to broad bright green leaflets, in having a generally wider stem, the sheaths with larger triangular spines, and rust-coloured indumentum when young. The inflorescences are quite different. That of “rotan tunggal” has more approximate partial inflorescences that are not markedly arcuate in the manner of *C. unifarius* and the rachis bracts are tightly sheathing as opposed to somewhat inflated. The first of the two specimens of *Calamus occidentalis* collected by JD in April 1971 (JD 1437) was made on Mt Kendeng, slopes of Mt Payung, Ujung Kulon at 125 m alt. The second collection was made in the same area at the edge of a rhino wallow near the lighthouse at 20 m alt. during the same expedition.

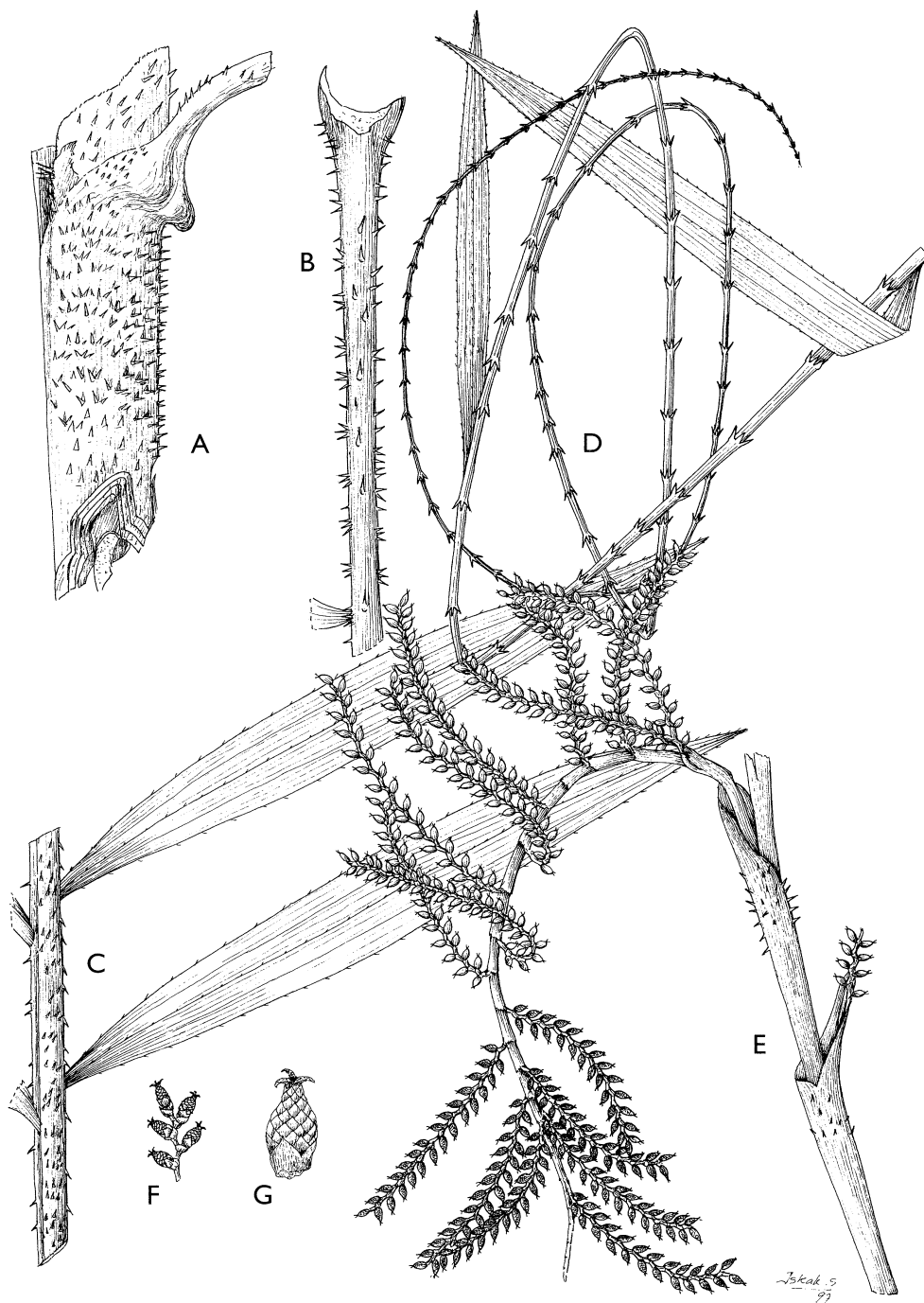


FIG. 1. *Calamus occidentalis*. **A** sheathed stem $\times \frac{1}{4}$; **B** petiole $\times \frac{1}{4}$; **C** mid section of leaf $\times \frac{1}{4}$; **D** cirrus $\times \frac{1}{4}$; **E** mid section of infructescence $\times \frac{1}{8}$; **F** detail of part of a fruiting rachilla $\times \frac{1}{4}$; **G** immature fruit $\times \frac{3}{4}$. Drawn from *Dransfield 1483* by Iskak Samsudin.

Calamus occidentalis appears to be identical to the rattan described and illustrated by Beccari and named *Calamus albus* Pers. (Beccari 1908). He wrote his description of so-called *C. albus* based on very complete material comprising five collections from The Botanic Garden of Buitenzorg (Kebun Raya, Bogor). During the early 1970s there were still individuals of apparently this same rattan in Kebun Raya in the area devoted to the growing of rattans. However, it was impossible to link up the collections with any precise accession numbers. It seems likely that the individuals present in the 1970s were self-sown progeny from the original accessions. At the present day, there seems to be no trace of these individuals in the collection.

C. albus was named and described by Persoon (1805) based on *Palmijuncus albus* of Rumphius in Herbarium Amboinense (1750), described and illustrated from a rattan from the northern part of the Gulf of Ambon. Persoon included in synonymy with *C. albus* Loureiro's previously published name, *Calamus rudentum*, thereby effectively invalidating further use of the name *C. albus*, as pointed out by Merrill in his *An Interpretation of Rumphius' Herbarium Amboinense* (1917). There is no doubt in our minds that the plant described by Rumphius bears no resemblance to the Indochinese rattan named *C. rudentum* by Loureiro (Loureiro 1790), this being a massive clustering rattan with ecirrate leaves and long, well developed flagella. Furthermore, the illustration of *Palmijuncus albus* in Herbarium Amboinense bears a much greater resemblance to the rattan currently known as *Calamus warburgii* rather than the rattan from Ujung Kulon. Nevertheless, we do not need to worry at this point about the identity of the rattans described by Rumphius in this context. The plant described by Beccari and known to us in the field as "rotan tunggal" has, until now, lacked a validly published name, which we now provide.

Calamus occidentalis, in possessing cirrate leaves, grouped spines on the cirrus, eflagellate sheaths, elongate tubular primary inflorescence bracts, sessile rachillae and sessile involucrophores (the first prophyllar bracteole in the pistillate flower cluster), is a member of Beccari's Group XV, the group that includes most of the finest and commercially most valuable canes such as *C. caesius* and *C. manan*. The cane of *C. occidentalis* seems to be of really excellent quality and we suggest that this overlooked species may have considerable potential. Fortunately it is legally well protected, occurring in the Ujung Kulon National Park, where it can remain as a potential source of seed for experimentation in plantations.

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REFERENCES

- Backer, C. A. & Bakhuizen van den Brink, R. C. (1968). Flora of Java Vol. III. Wolters-Noordhoff N.V., Groningen.
- Beccari, O. (1908). Asiatic Palms — *Lepidocaryeae*. Part 1. The species of *Calamus*. Ann. Roy. Bot. Gard. (Calcutta) 11 (1): 1 – 518.

- Loureiro, J. de (1790). *Flora Cochinchinensis* I. Lisbon.
- Merrill, E. D. (1917). *An Interpretation of Rumphius's Herbarium Amboinense*. Bureau of Printing, Manila.
- Persoon, H. C. (1805). *Synopsis Plantarum*. Vol. 1. C.F. Cramer, Paris.
- Rumphius, G. E. (1750). *Herbarium Amboinense*. Vol. 5. J. Burmann, Meinard Uytwerf, Amsterdam.
- Uhl, N. W. & Dransfield, J. (1987). *Genera Palmarum*. A classification of palms based on the work of H. E. Moore Jr. L. H. Bailey Hortorium and the International Palm Society, Allen Press, Kansas.