

This type form was described by Griffith as var. *B.* of the species. The syntypes were from Malacca. Beccari described the undersurface of the leaflets of this species as having bristles only on the midnerve, but in all the specimens examined by me the three nerves are bristly. The only way I have been able to separate these specimens from the var. *Griffithianus* is by the number of the longitudinal rows of the scales on the fruit, the specimens with fruit-scales in more than 24 series being cited here. I have not been able to separate the male specimens, and so they are all cited under the var. *Griffithianus*.

(b) *Calamus castaneus* Griff. var. **Griffithianus** (Mart.) Furtado stat. nov.—t. 1.

C. Griffithianus Mart., Hist. Nat. Palm. III (1850) 332 & I (1849) t. Z. XVII f. XXVII & Z. XXI f. XIV; Becc. in Hook., f., Fl. Brit. Ind. Vi (1892) 440; Becc. in Ann. Roy. Bot. Gard. Calc. XI (1908) 147 t. 17; Ridl., Fl. Mal. Pen. V (1925) 64—**basinum**.

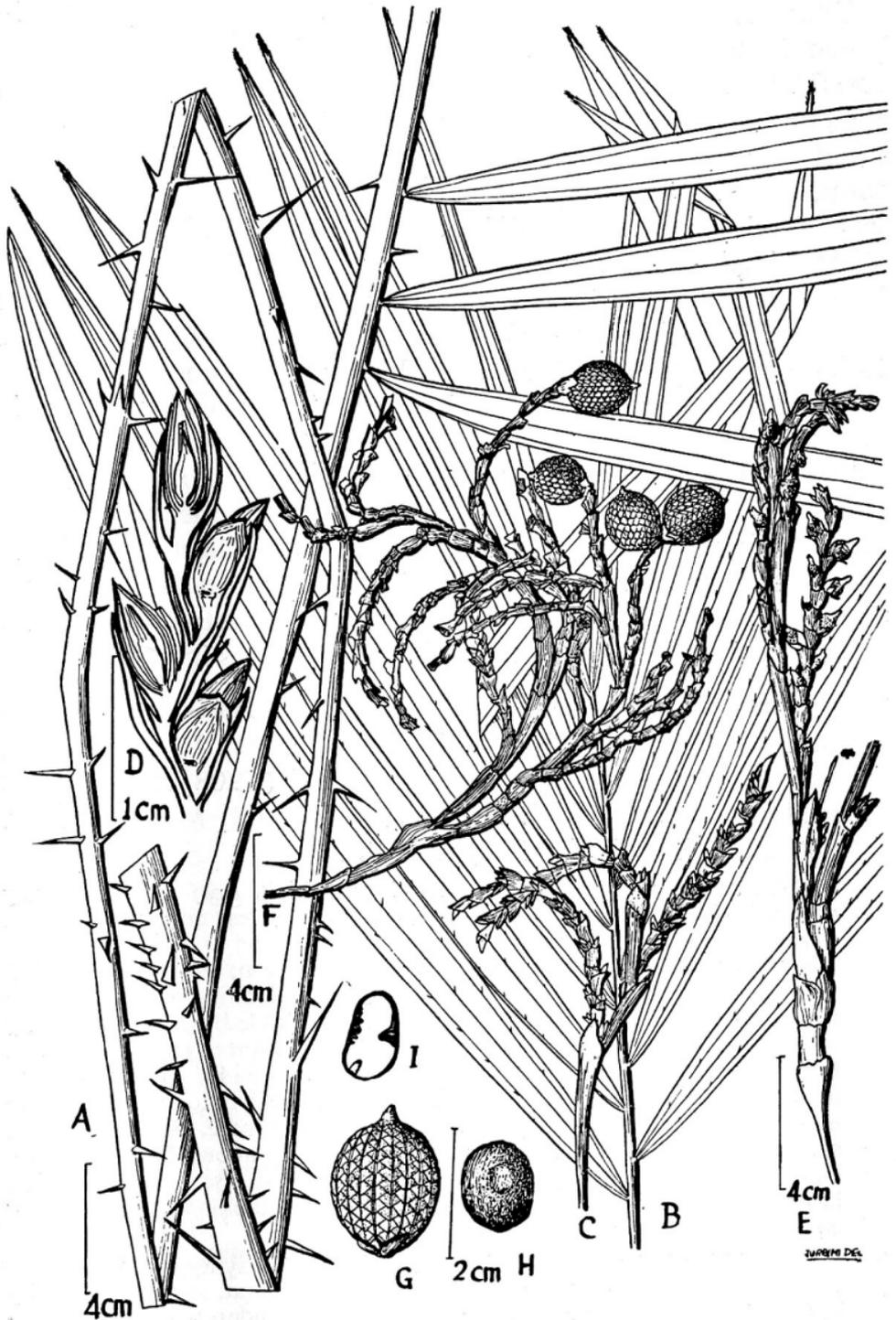
C. castaneus Griff. var. in Calc. Journ. Nat. Hist. IV (1845) 29 and Palms Brit. Ind. (1850) 38; Ridl., Mat. Fl. Mal. Pen. II (1907) 211 partly.

A forma typica differt squamis fructus per series 18–24 verticales dispositis.

MALAYA: **Kedah**, Baling at Ayer Turjang Valley (Furtado 33,051 & 33,052). **Kelantan**, Sungai Lebir, end of Bukit Batu Papan (Henderson 29,636 & 29,583). **Pahang**, Tahan (Ridley "A"); Gunong Senyum (Henderson 22,221); Sungai Tekal Besar in Temerloh (Henderson F.M.S. Mus. No. 10,732); Kuala Lipis (Machado in 1898). **Perak**, Temango (Ridley 14,707); Lumut (Ridley 7,903 & 9,467; Curtis 3,454); Tapah (Ridley 14,114); Bujong Malacca (Ridley 9,810); Kroh in Pahang Chong Forest Reserve (Furtado 33,011^a & 33,010^b vern. nom. *Rotan Udang*); Temengor (Schebesta 9, et s.n. vern. nom. *Chucho* in Malay and *Kuku* in Sakai). **Selangor**, Semenyih (Hume 8,199); Bukit Kudah (Ridley 3,478); Kuala Lumpur (Ridley's collector 3,477; Ridley on 27–VI–1889); Langat (Ridley on 1–VII–1889); Kwang (Ridley 13,450). **Negri Sembilan**, Tampin (Nur 1,307). **Johore**, Serom (Ridley in 1900). **Malacca**, Selandan (Holmberg 842); loc. incert. (Alvins 583, vern nom. *Kayu Magajar*, & 287, vern nom. *Pokok Chuchoo*); Ayer Panas (Goodenough 1,397; Hervey in 1890); Nyalas (Goodenough 1,721).

This plant is just like the type, but is distinguishable from it only by its fruits which have the scales arranged in 18–24 vertical series. The fruiting specimens included here bear the scales in 18, 19–20, 20, 20–22, 21–23, 22, 22–23, or 24 series.

Judging from the specimens cited here, this variety seems to be more common in Malaya than the type form, but Ridley (op. cit. 1907 & 1925) notes that the type form is the commoner of the two. Ridley also notes that this variety is a larger plant of the two, but according to Beccari (1908) this is smaller of the two.



Tab. 1. *Calamus castaneus* var. *Griffithianus* (Furtado 33,051).

- A, Frondis pars cum petiolo. B, Ejusdem pars apicalis. C, Spadicis fragmentum cum floribus. D, Spicula verticaliter discissa. E, Spadicis ramus cum fructibus juvenilibus. F, Ejusdem ramus cum fructibus maturis. G, Fructus. H, Semen. I, Idem verticaliter discissum ut ruminatio superficialis et dispositio embryonis appareant.

Beccari notes that the leaflets in this variety are "distinctly disposed in large groups and probably in *C. castaneus* [the type form] are equidistant," observing at the same time that he had not the opportunity of seeing an entire leaf of the type form. However in all the specimens quoted under this variety and under the type form, the leaflets are equidistant, and Martius described the leaflets of this variety as equidistant. All my collections that were studied in the field have also leaves with equidistant leaflets, not in groups. However in Henderson 29,583 (Kelantan) there are leaf-bases which show a slight grouping of leaflets, but this appears to be only at the base; the leaflets higher up do not show such a grouping. It is possible that such a grouping of leaflets occurs in the young stages.

Father Schebesta reports that terminal young part of the stem (*umbot* in Malay) is eaten by Sakais and that the leaves are used for thatching. The vernacular names given by collectors as *Rotan Atap Chuchur* or *Rotan Chuchur* also suggest that the leaves are used for thatching, a use also noted by some collectors in Malacca.

Beccari notes that the stem of this variety creeps in young stages.

2. *Calamus aquatilis* Ridl., in Journ. Roy. Asiat. Soc. Straits Branch XLI (1903) 43, and Mat. Fl. Mal. Pen. II (1907) 210; Becc. in Ann. Roy. Bot. Gard. Calc. XI (1908) 393 tt. 168 and 169; Ridl., Fl. Mal. Pen. V. (1925) 63; Merr. in Univ. Calif. Publ. Bot. XV (1929) 22.—**t. 2.**

Stem scandent, 5–10 m. long, 2.5–3 cm. thick. *Leaf-sheaths* densely covered with criniform, reflexed bristles more or less confluent at base. *Leaves* large, about 2 m. long, with a long cirrus at the end; petiole 15–20 cm. long. *Leaflets* many, linear, ensiform, equidistant, 3.5–5 cm. apart, largest about 30–35 cm. long, 2.5–4 cm. broad; setose on the lower surface along the nerves and sprinkled with small rusty scales. *Male spadix* large and diffuse; partial inflorescence 40–60 cm. long; ultimate spikelets 10–15 cm. long, with 8–10 closely-disposed male flowers. *Female spadix* paniced with partial inflorescences up to about 50 cm. long, each with about 20–25 alternate, 5–10 cm. long, spikelets; each of the longer spikelets bearing about 20 flowers on each side. *Fruit* globose, about 8–10 mm. in diam.; scales in 12 series, having dark brown margins, channelled in the middle; albumen equable.

MALAYA: Pahang, Kuala Brawas (Ridley 577, syntype ?). Selangor, Port Swettenham (Burkill 1,511). Johore, Batu Pahat, swampy place by sea (Ridley 11,216, syntype, male and female under this No.). Singapore, Pongol Road (Fox. comm. Ridley's No. 11,304, syntype ?); Gardens' Jungle (Furtado on 10–XI–1932); Holland Road (Burkill 2,037); Changi (Ridley 6,275, syntype, vern. nom. *Rotan Bakau*); loc. incert (Ridley 11,220).

BORNEO: British North Borneo, Tawao (Elmer 20,612; Cuadra A2,435, vern. nom. *Rotan Bakau*); Sandakan at Kabili-Sepilok (Enggoh 7,433, vern. nom. *Rotan Bakau*).