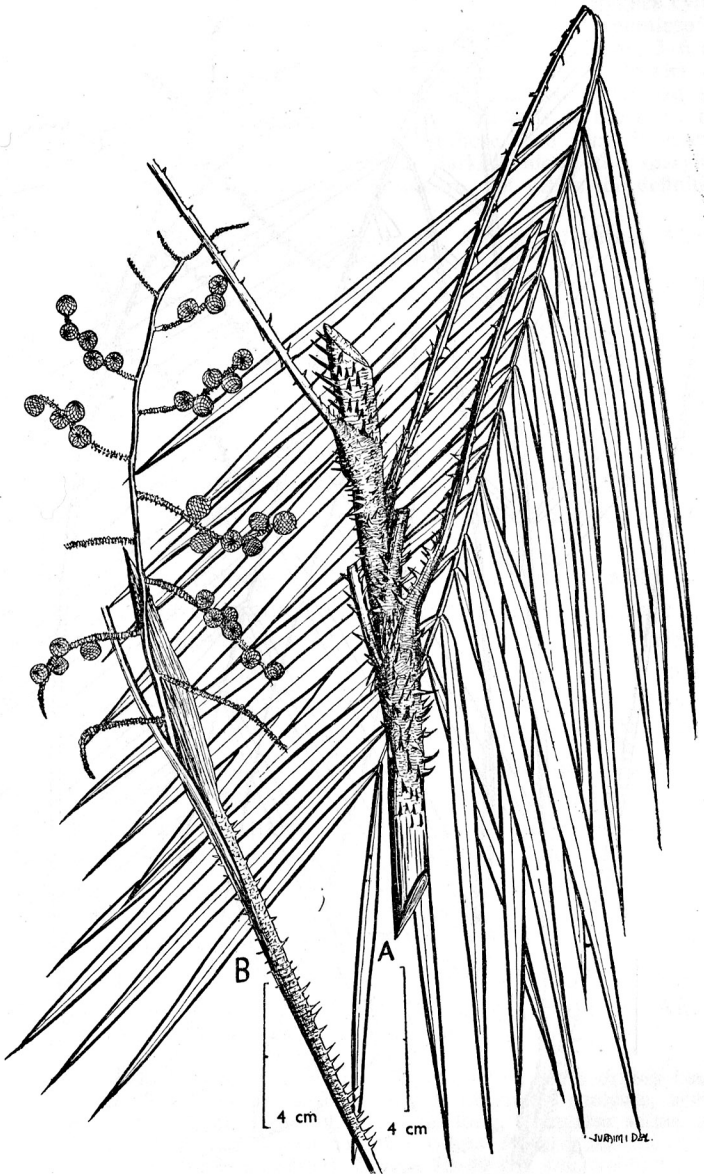


**61. Calamus Holttumii Furtado spec. nov.—t.t. 61 & 61a.**

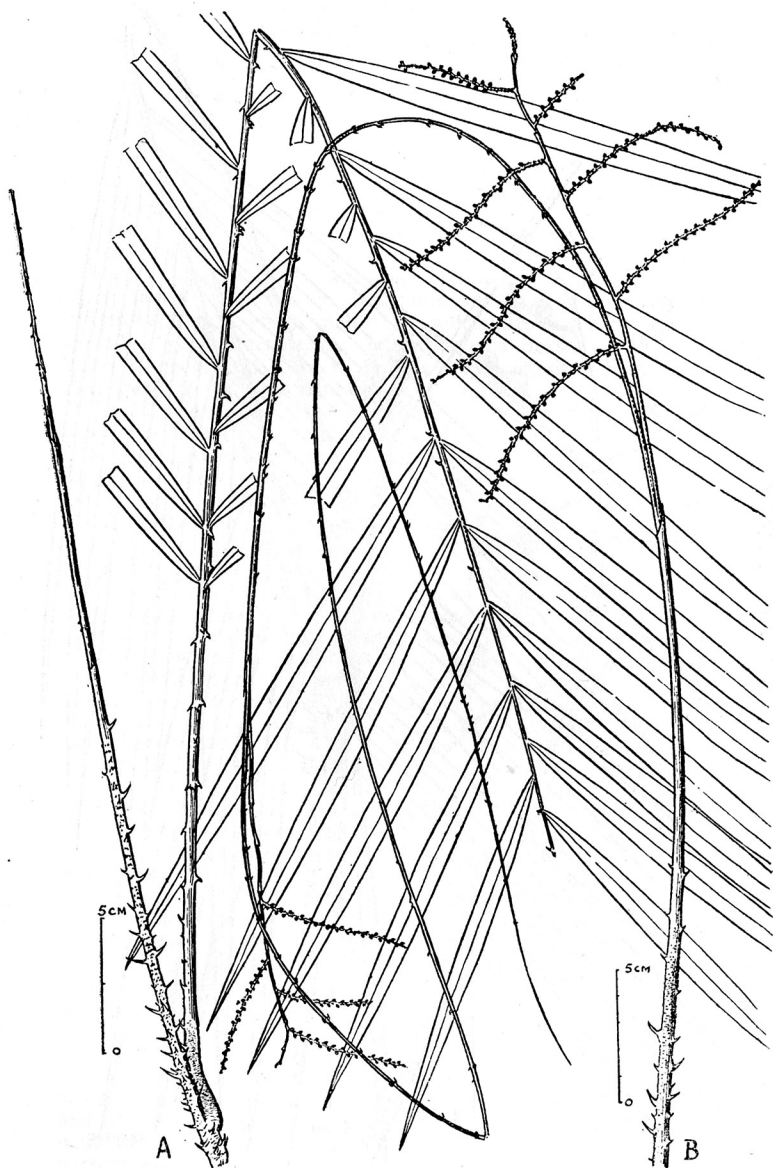
*A C. rugoso, cui affinissima, haec species foliolis longioribus latioribusque, petiolis et spathā basali basin versus rugosis, spiculis longioribus, spathis secundariis spathellisque vix scabridulis differt. A C. muricato foliolis angustioribus et inter se magis approximatis facile distinguitur.*

*Caudex* scandens, circa 2 cm., in diam., in sicco omnino nigrescens. *Vaginae* flagelliferae, superne gibbosae, rugis minutis apice spinulosis vel non, etiam aculeis ad 10 mm. usque longis ascendentibus basi infra concavisculis supra tumescentibus praeditae, deciduo furfuraceae. *Ocrea* coriacea, circa 1 cm. longa, decidua vel non. *Fronde*s metrales, non cirriferae; petiolus 17–20 cm. longus, 6–10 mm. latus, bifacialis, squamis brunneis remotis punctatus, basin versus utrinque minute rugosus et aculeis minutis etiam majoribus intermixtis usque ad 5 mm. longis armatus, secus margines et apicem versus dorso aculeis ad 5 mm. usque longis remotis ornatus; rachis dorso unguibus solitariis vel digitatis praedita. *Foliola* equidistantia, opposita vel alternantia, 2.5–4 cm. inter se remota, linearis-ensiformia, apicem versus attenuata, acuminata, 3-costata, in pagina superiore in 2 costis lateralibus spinulosa, in pagina inferiore inermia, secus margines setis minutis inconspicuis praedita; maxima mediana 24–28 cm. longa, 15–23 mm. lata, minima apicalia. *Spadix* femineus, flagelliformis, unguiculatus, cum appendice 1.5 m. longus, in ramos spiculiferentes 2–3 divisus, pedunculo 25–30 cm. longo suffultus. *Spathae primariae*; basalis bicarinata, 10–30 cm. longa, basin versus rugosa et minute spinulosa, secus carinas aculeis usque ad 8 mm. longis praedita, apicem versus oblique truncata, ligulata; alterae spathae cylindricae, apice oblique truncatae, ligulatae, inermes vel unguiculatae, interdum basi rugosae. *Rami primarii* 12–22 cm. longi, utrinsecus 3–6 spiculas gerentes; spathae secundariae elongato-infundibuliformes, inermes, deciduo furfuraceae, oblique truncatae, ligulatae. *Spiculae* simplices, alternantes, 3–4 cm. inter se remotae, 4–8 cm. longae, supra spathae apicem orientes, floribus femineis utrinsecus 12–20 praeditae; spathellae late infundibuliformes, striatae, inermes vel obscure scabridiusculae. *Involucrophorum* fere omnino exsertum, pateriforme; involucrem conforme, triangulare; areola conforme; flores omnes juveniles, sepalis valde striatis. *Perianthium fructiferum* basi callosum, subpedicellatum, in limbo explanatum, calyx quam corolla paulo minor. *Fructus* immaturus, globosus vel elliptico globosus, 7–8 mm. in diam., apice subito rostratus; squamis luteo-brunnescentibus, secus margines atrescentibus, per series verticales 15 dispositis; semen juvenile nondum definibile, cum albumine aequabili ut videtur.

*Stem* scandent, about 2 cm. in diam., all parts drying dark-brown. *Leaf-sheaths* flagelliferous, gibbous above, provided with spinulous ridged wrinkles and also with ascendent spines up to 10 mm. long, deciduously furfuraceous. *Leaves* non-cirriferous, about a metre long; petiole 17–20 cm. long, 6–10 mm. broad, punctate with brownish scales, rugose on both surfaces towards the base and in the geniculum, armed at the base on the ventral side, on the dorsum towards the apex and along the margins with spines up to 5 mm. long; rachis armed with solitary or digitate claws. *Leaflets* equidistant, 2.5–4 cm. apart, narrow ensiform, 3-costate, unarmed beneath, setose along the two lateral costae above and minutely so along the margins; the largest mesial, 24–28 cm. long, 10–15 mm. wide. *Female spadix* flagelliform, about a metre and a half long, divided into 2–3 spiculiferous branches, each about 12–20 cm. long. *Spathes*: the basal primary about 10–30 cm. long, bicarinate, rugose and densely armed in the basal portion



Tab. 61. *Calamus Holttumii* (Holttum 37,395—holotypus).  
A, Caudicis pars cum folio. B, Spadicis fragmentum feminei basale.



Tab. 61a. *Calamus Holttumii* (Holttum 17,696—paratypus).  
A, Caudicis pars cum folio et flagello. B, Spadix masculus.

with small or minute spines, and along the carinae with longer, up to 8 mm. spines, unarmed towards the apex; other primary spathes cylindrical, unarmed or clawed, sometimes also rugose and spinulose at the base; secondary spathes unarmed. *Spikelets* 4–8 cm. long, 3–6 on each side, alternate, 3–4 cm. apart, each bearing 12–20 flowers on each side; spathels broadly infundibuliform, unarmed or almost so; flowers very young. *Fruiting perianth* shortly callous at the base, explanate. *Fruit* young, globose or ovate-globose, 7–8 mm. in diam., abruptly beaked; scales straw-coloured, darkish along the margins, arranged in 15 vertical series; seed immature, not yet in the definitive stage.

**MALAYA:** *Johore*, Gunong Panti, alt. 500 m. (Holttum 37,395 holotypus, femineus, & 17,696 masculus).

The species is very closely allied to *C. rugosus*, from which it is distinguished by the petioles and the basal primary spathe (sometimes upper ones also) being rugose at the base, the slightly longer and broader leaflets, and the secondary spathes and the spathels being unarmed or nearly so.

The armature on the leaf-sheath and the spadices is very like that of *C. Tanakadatei* which, however, has much broader leaflets that are placed generally at a greater distance on the leaves than those of *C. Holttumii*.

Perhaps here also belongs Shelford's collection made in Sarawak in March 1901 and distributed as *Tankei Maran*. It is a male specimen having its spikelets borne, as in the female, on the primary branches; but such variations in male spadices occur in many species of *Calamus*, depending upon the age and other factors. Teysmann identified as *C. muricatus* by Beccari in Ann. Roy. Bot. Gard. Calc. XI Appendix (1913) 9 may be this species; but I have not seen the specimen. *C. muricatus* was described from a sterile specimen having narrow leaflets as in *C. Holttumii*, but very much more distantly disposed on the leaf-rachis; the species requires further study.

**62. *Calamus rugosus* Becc. in Hook. f., Fl. Brit. Ind. VI (1892) 443; Ridl., Mat. Fl. Malayan Pen. II (1907) 198; Becc. in Ann. Roy. Bot. Gard. Calc. XI (1908) 175 t. 36; Ridl., Fl. Malay Pen. V (1925) 58.—t.t. 62 & 62a.**

*Stem* scandent, slender, 8–15 mm. in diam., all parts drying black. *Leaf-sheaths* flagelliferous, gibbous above, obliquely truncate, armed with subhorizontal, not deflexed, 4–5 mm. long, triangular spines and with many small, interrupted annular ridges fringed on the crests with very small, confluent spines. *Leaves* 70–80 cm. long including the petiole; the latter 14–20 cm. long, 4–6 mm. broad at base, armed on the margins and on the dorsum, and occasionally on the upper surface towards the base, with short, scattered spines; rachis closely armed beneath with uniseriate, solitary claws. *Leaflets* many, linear-lanceolate, acuminate, bristly on both surfaces and in the margins, or occasionally more or less naked in the lower surface; the largest mesial,