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## THE FLABELLATE-LEAVED SPECIES OF SALACCA (PALMAE)

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### ABSTRACT

*Salacca dransfieldiana* Moge, *S. magnifica* Moge and *S. sarawakensis* Moge are proposed as new species of flabellate-leaved *Salacca*. A key to the four recognized species, descriptions and illustrations are presented.

### ABSTRAK

*Salacca dransfieldiana* Moge, *S. magnifica* Moge dan *S. Sarawakensis* Moge diusulkan sebagai jenis baru salak berdaun kipas. Kunci identifikasi untuk empat jenis yang diakui, pertelaan dan perbandingan di antara masing-masing jenis salak yang berdaun kipas disajikan.

### ACKNOWLEDGEMENT

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### INTRODUCTION

The genus *Salacca* has been long known as a dioecious genus of palms belonging to Lepidocaryeae; the fruits are covered in reflexed scales. There are some superficial similarities with the rattans which probably accounted for the earliest description of *Salacca* species as a species of *Calamus*. Most species of *Salacca* are stemless undergrowth

palms of lowland and upland tropical rain forest, distributed from lower Burma, Thailand, Malay Peninsula, Sumatra, Java, Borneo and the southern part of the Philippines.

Leaves in *Salacca* may be pinnate or flabellate; hitherto *S. flabellata* from Malaya was the only species known with flabellate leaves. *S. clemensiana*, however, has both pinnate and flabellate leaves as well as the intermediate state; this last is pinnate at the base, and from the middle to the apex is flabellate and bifid. Flabellate leaves in *Salacca* are bifid, as are the juvenile leaves in all seedlings examined (*S. edulis*, *S. affinis* and apparently all the species of this genus) and the leaves of the suckers from the apex of the staminate inflorescences of *S. flabellata* and *S. wallichiana*. In the juvenile state, the two halves of the leaves diverge more than those of the adult flabellate leaves. Recently collected specimens of flabellate-leaved *Salacca* spp. do not fit known species and represent three new taxa. *S. magnifica* from Sarawak has large blades to 4 m long, while *S. dransfieldiana* from Kalimantan Selatan, Borneo, like Malayan *S. flabellata* has a small blade of 70–100 cm long. *S. sarawakensis* from Western Sarawak has a leaf blade intermediate in size, about 2.4 m long. In all the flabellate-leaved species the upper leaf surface is smooth, glabrous and glossy; in *S. dransfieldiana* and *S. flabellata* the lower surface bears a greywhite indumentum. In *S. magnifica* and *S. sarawakensis*, however, both surfaces are glabrous. Like all known species of *Salacca*, the three new species bear inflorescences which emerge through a split in abaxial surface of the leafsheath.

Reproductive features of the flabellate-leaved species vary rather widely. *S. flabellata* has a long flagelliform staminate inflorescence; similar inflorescences may be found in *S. wallichiana* which bears pinnate leaves. *S. dransfieldiana*, superficially very similar to *S. flabellata* differs in having minute erect staminate inflorescence instead of flagelliform staminate inflorescences creeping along the ground. *S. magnifica* has a very different habit with its huge undivided leaves and erect, curved, highly branch but compact staminate inflorescences. The staminate inflorescence of *S. sarawakensis* is unknown, but this species has an erect pistillate inflorescence about 20 cm long, at its top curved with a few slightly tapering rachillae.

All these flabellate-leaved species are easy to recognize but they all have very restricted distributions. Only *S. flabellata* and *S. magnifica* have both staminate and pistillate inflorescence, whereas *S. sarawakensis* is known only from its pistillate inflorescence, and *S. dransfieldiana* only from its staminate inflorescence. In the last species, out of total popu-

lation of about 30 plants, only four fertile specimens have been collected. As normally all species of *Salacca* propagate vegetatively by suckers, it seems likely that such a small population as that of *S. dransfieldiana* may have developed by vegetative reproduction alone following the germination of the original seed. Unfortunately no field notes concerning population of *S. sarawakensis* and *S. magnifica* are available, but the populations may have an origin similar to that suggested for *S. dransfieldiana*. *S. flabellata* with its flagelliform staminate inflorescences rooting at the tip may develop populations similarly.

KEY TO THE FLABELLATE-LEAVED SPECIES OF SALACCA

1. Blades ca 4 m long.....3. *S. magnifica*
1. Blades less than 2.5 m long
  2. Blades on both surface glossy green.....4. *S. sarawakensis*
  2. Blades glossy green above, whitish below.
    3. Staminate inflorescences 1–2 m long, flagelliform lying on the ground, sometimes producing a new leafy shoot at the apex. . . . . 2. *S. flabellata*
    3. Staminate inflorescences erect, up to 20 cm long, not flagelliform  
.....1. *S. dransfieldiana*

1. *Salacca dransfieldiana* Moge, *sp. nov.* — Fig. 1 and 2

Ceteris speciebus flabellata *Salacca* combinatio foliorum parvorum discolorium, et inflorentiae masculae parvae erectae nonflagelliformis, differt.

TYPUS: *Dransfield* 2957 (L, holo!; BO!; K!).

Differs from other flabellate *Salacca* species in the combination of small discolorous leaves and small erect non flagellate staminate inflorescence.

Plant ca 1.5 m tall, with very short stem, ca 3 cm in diameter. Leaves all flabellate, ca 1.3 m long; leafsheath estimated 20 cm long, above the base gradually channelled; basal part broadly triangular, in longitudinal section more or less-shaped, in cross section weakly crescent-shaped, ca 4 cm long, 5 cm in diameter, the very base attached all around the axis, the furrow near the base ca 3 cm deep, on the lower surface wrinkled, at the median line spiny, petiole estimated 0.4 m long, about the middle in cross section somewhat circular, ca 1 cm in diameter, gradually flattened on the lower side towards the top, below prominent and spiny, the lower surface often scurfy. Blade flabellate, obtriangular, deeply bifid, 68–75 cm long, widest at the top 24–28 cm broad, the base (obliquely) narrowly wedged-shaped; above glossy green, below whitish; lobes in the upper third part of the blade ca 13–15 on either side, each at the top corresponding to a main longitudinal vein, 7–25 mm long, 3–10 mm broad, acute, each main longitudinal vein ending in



FIG. 1. Habit of *Salaoca dransfieldiana*. — After Vran&field 2957.



FIG. 2. Staminate inflorescence of *Salaeca dransfieldiana*. — After Dransfield 2957.

one lobe, at an angle of ca 15–20° from the rachis or midrib, about the middle at distance of 0.5–2 cm, with ca 4 longitudinal thin veins in between; transverse veins 2–4 mm apart. Spines patent, flat, triangular, up to 3.5 cm long, at its base 0.5 mm broad, 0.3 mm thick, sparse on the leaf-sheath with one single spine often with two other ones together, on the rachis with the single spines, at distances of ca 7 cm. Staminate inflorescences erect, somewhat curved, 20 cm long, near the base including the bract, 1 cm broad; bract boat-shaped, split on the upper side, linear-lanceolate, ca 4–6 cm long, 0.5–1 cm broad, papery. Rachillae (before and at anthesis) one in an inflorescence, exerted, cylindrical, 7 cm long, ca 10 mm in diameter, curved, outside glabrous; peduncle 1 cm long, ca 2 mm in diameter, covered by a bract; bracteoles: primary one connate, 4 mm long, covering all pairs of flowers, ringlike along the rachis at distances of ca 2 mm; secondary bracteole between two flowers: flat, more or less elliptic, 3 mm long, ca 1 mm broad, membranous, primary prophyll divided in two, thin, threadlike, at the base broad, 3 mm long; hairs along the margin and on the outside of bracteoles and prophyll (but the primary bracteoles glabrous), very thin, up to 2 mm long, septate and at the top branched. Flowers many in each rachilla, exerted almost completely from their primary bracteoles, calyx bell-shaped, 3.5 mm long, split almost completely, lobes acute, papery, membranous; corolla pitcher-shaped, petals more or less spatulate, ca 4 mm long, 0.5 mm broad. Pistillode obscure. Pistillate inflorescences unknown.

DISTRIBUTION: Endemic to Borneo.

NOTE: Field notes: in one population, estimated to consist of 30 plants, clustering, very short-stemmed. Leaves to 1 m tall. Petiole to 50 cm with sparse yellow spines. Young leaves pinkish. Lamina dark green above, with white indumentum below, staminate inflorescence bursting through leafsheath, to 10 cm only by 5 mm through, staminate flowers cream tinged pink.

BORNEO. S. Kalimantan, Datar Alai, Meratus Mts., foot of G. Besar, valley bottom lowland dipterocarp forest on alluvial flat, 350 m alt., staminate fl., 25.X.1972, *Dransfield 2957* (BO!; K!; L!); ecotype, staminate fl. 5.VII.1976, *Mogea 7U9* (BO!).

## 2. SALACCA FLABELLATA Furtado

*Salacca flabellata* Furtado in Gard. Bull. 12: 387, fig. 2. 1949; Corner, Nat. Hist. Palms: 107, pi. 7 lower right. 1973 — Type: *SF 30525* Corner (SING, holo!; BH!; BO ! L!).

Plant acaulescent, erect, very small; stem including the leafsheath 5 cm in diameter. Leaves all flabellata, 1–2.3 m long; leafsheath channelled suddenly above the base 27.5–34 cm long, the basal part 2.5–4 cm long, the channelled part 25–50 cm long; basal part very broadly triangular, in longitudinal section more or less J-shaped, in

cross section crescent-shaped, with the furrow near the very base 0.3 cm deep; on the lower surface smoothly wrinkled and on the median spiny; the channelled part when young with papery brown thin wings along the margin, about halfway up 1 cm broad, on the lower side spiny. Petiole 20–100 cm long, at the base on cross section broadly ovate, often rather narrow on the upper side, 3–7 mm in diameter, the lower side spiny. Rachis 40–75 cm long, at the base 6–7 mm in diameter, on cross section like the petiole, below prominents, spiny or not, glabrous. Blade flabellate, obovate, deeply bifid, 80–100 cm long, widest at the top 40–45 cm broad, at the top of the rachis 20–40 cm broad, the base obliquely cuneate; lobes 5–8 on either side, at the top corresponding to each longitudinal vein, (7) 15–23 (31) mm long, (2) 4–10 mm broad, weedly sigmoid acute, along the margin setose, surface above green, below whitish. Veins: main longitudinal ones 10–15 on either side, at an angle ca 15–30° from the midrib, parallel, about the middle ca. 1–1.5 cm apart closer towards the top with 1–2 thin ones in between; transverse veins 2–3 mm apart. Spines ascending or patent, flat, narrow-triangular, usually fewer high up and larger up the middle then smaller again towards the top, yellowish pale brown; on the basal part the leafsheath arranged in one length wise row, in pairs, 4–10 mm apart, 0.5–1.5 cm long, at the base 0.4 cm broad and 0.1 cm thick; on the channelled part, in three longitudinal row, one on the lower side and the other two near the upper side, 0.5 cm distant, patent, more or less regular but towards the top at increasing distances of 2.5–5 cm, with sometimes the two small ones together in a small comb along the lower side; on petiole and rachis like in the channelled part, or only one row single spines, mostly towards the top at increasing distances of 3.5–8.5 cm. Staminate inflorescences lying on the ground whiplike, slender, unbranched, 1–2 m long, sometimes producing a new plant leafy shoot at the apex; rachis 3–4 mm in diameter, internodes 5–10 cm long, bracts boat-shaped, linear-lanceolate (3) 6–10 (–12) mm wide enveloping the rachilla, acute, (3) 4–5 (6) mm in diameter, when old lacerated, papery and fibrous; rachilla 2–4 (see Note 3) in one inflorescence, cylindrical 1.5–3 cm long, 10–12 mm in diameter, outside glabrous, peduncle 4–5 cm long, 1 mm in diameter. Pistillate inflorescences like the staminate one, except not producing a new leafy shoot. length unknown. Rachilla cylindrical 2 cm long, 10–12 mm in diameter, outside glabrous, the peduncle covered by the tubular part of bracts. Bracteoles, prophylls and hairs as in the staminate. Pistillate flowers: 15–20 on each rachilla, accompanied by the neuter one, the pair covered partly by the bracteoles and prophylls, size unknown. Neuter flowers, size unknown. Fruit: (only known young), globose, ± 0.7 cm in diameter, covered by upturned brown scales up to 0.3 cm long.

DISTRIBUTION: Endemic to Malaya.

ECOLOGY: In swamp by stream, also rocky valley bottoms in dense lowland forest.

VERNACULAR NAME: Salak cabang (Malaya).

NOTE: 1. Compilation of field notes. "Stemless", young fronds grey-pink. Leaves grey or silvery below. Spreading by stolons which develop special leafy shoots and bear lateral (old dead) flower heads, to 90 cm long running through litter, leaf stalk 1.05 m.

2. Furtado, Corner, and Whitmore all mentioned the production of young plants at the ends of the inflorescences (*S. ivallichiana* is the other species doing so). Furtado was dealing with a male plant; it is not recorded how the female plants behave.

3. Although Furtado (1949) said, rachilla ('spike') one in the axil of each bract ('spathe'), this is not so; I have seen at least 5—15 bracts in one inflorescence but many of them, especially near the base and the top do not subtend rachillae.

4. SF 40457 Sinclair & Kiah and Heaslett s.n. both from Malaya, (which might belong here) are dealt with under 'Incomplete specimens' below.

MALAYA. Trengganu: Kemaman, Sungai Nipah, low alt., staminate 21.XI. 1935, SF 30525 Corner (BH!; BO!; L!; SING!); FRI 8917 Whitmore (KEP!); FRI 20193 Whitmore (KEP!).

3. *Salacca magnifica* Moge, *sp. nov.* — Fig. 3, 4 and 5.

Ceteris speciebus flabellatis *Salacca* foliis concoloribus maximis inflorescentia mascula 2—3 ordinibus ramorum et 4—9 rachillis differt. TYPUS: *S. 19777 Ashton* (L, holo!; K!; SAR!).

Differs from the other flabellate *Salacca* species in the very large concolorous leaves and the staminate inflorescence with 2—3 orders of branching and 4—9 rachillae.

Plant acaulescent, erect, ca 6.3 m tall. Leaves all flabellate ca 6 m long; leaf sheath estimated ca 1.3 m long, gradually channelled above the base. Basal part very broadly triangular, in longitudinal section more or less J-shaped, in cross section crescent-shaped or V-shaped, ca 7.5 cm long, 12—14 cm in diameter with the very base attached all around the axis, the furrow near the base ca 6 cm deep, on the lower surface scurfy wrinkled, on the median line spiny; channelled part below the middle in cross section crescent-shaped, 3 cm in diameter, spiny. Petiole estimated 0.7 m long, about the middle in cross section somewhat circular, 2.5 cm in diameter, the lower side rather flat spiny. Rachis ca 3.5 m long, the base 1.2—1.7 cm in diameter, in cross section somewhat circular, gradually flattened on the lower side toward the top, the lower surface at the very top scurfy. Blade flabellate, obtriangular, deeply bifid, ca. 4 cm long, widest at the top 70 cm broad, at the top of the rachis 38 cm broad, the base (obliquely) narrow wedge-shaped; lobes ca 10—16 (from habit photo) on either side, each at the top corresponding to a longitudinal vein, 33—65 mm long, 15—30 mm broad, acute, along the

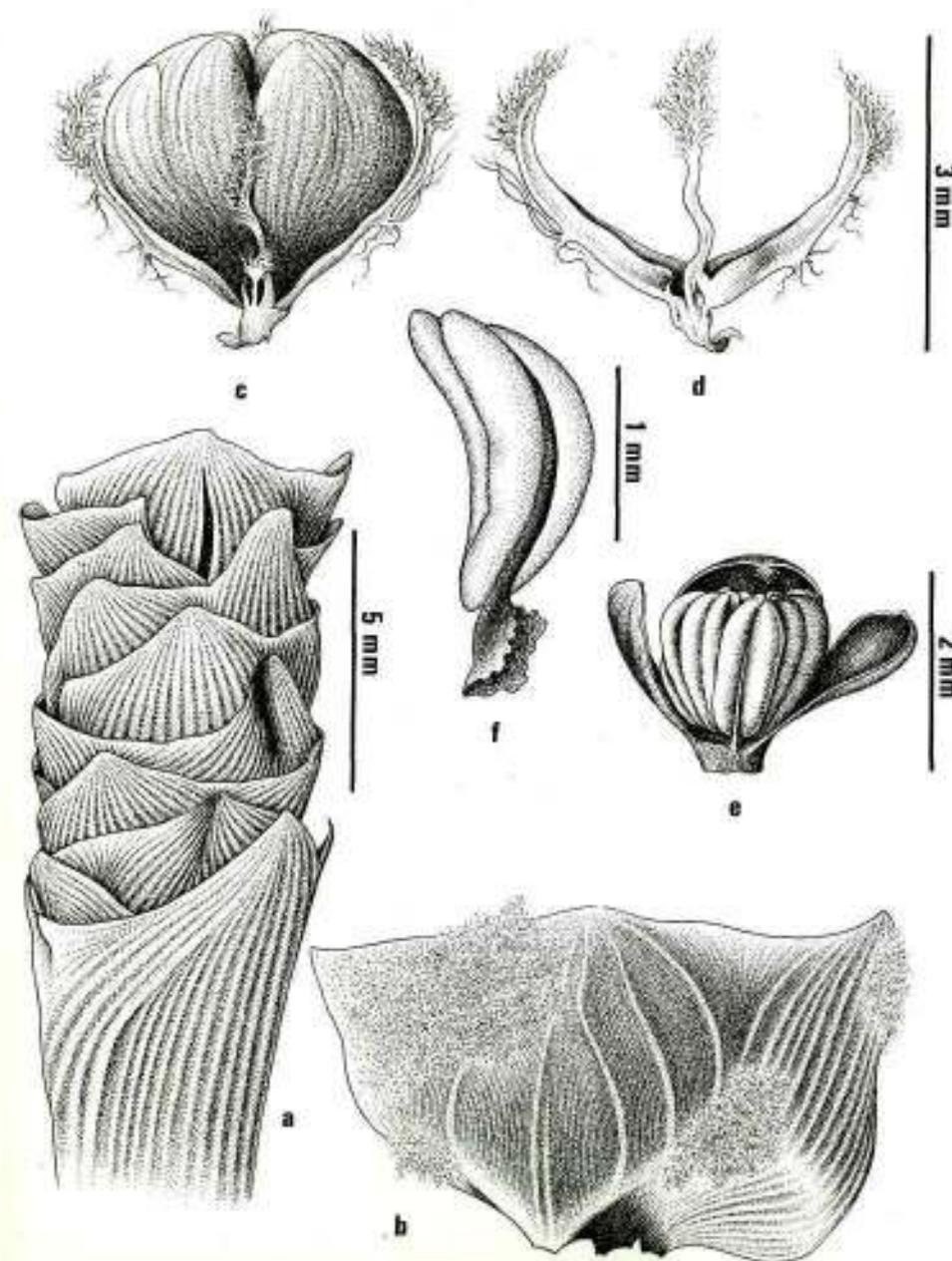


FIG. 3. Staminate inflorescence of *Salacca dransfieldiana*: part of rachilla near the base (a), primary bracteole (b), pair of flowers with its secondary bracteole and primary prophyll, after its primary bracteole has been removed (c), primary prophyll with secondary bracteole inserted (d), staminate flower (e), anthera (f). (b), (c) and (d) are of the same scale. — After Moge 7A0.



FIG. 4. Type specimen of *Salacca magnifica*: leaf sheath, petiole and part of blade.

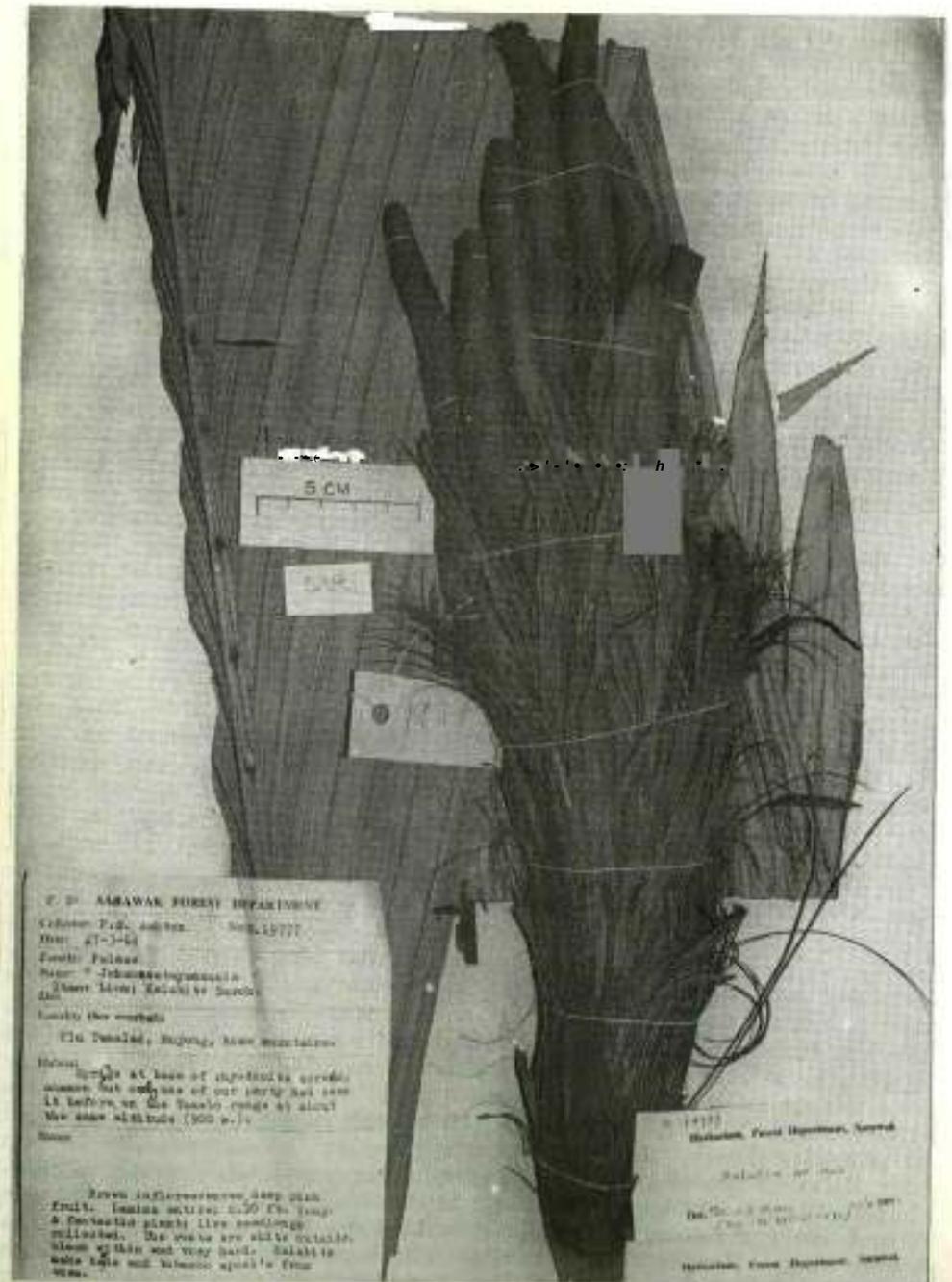


FIG. 5. Type specimen of *Salacca magnifica*: staminate inflorescence and part of blade.

margin and its midrib above setose with blackish small spines; glossy green on both surfaces, the underneath with pale brownish dots. Main longitudinal veins numerous (material not complete), near the top 10 on either side, at an angle of ca 15° from the rachis or midrib, parallel, near the top at (0.9—) 1.2—2.5 cm distant with (2—) 4—6 (—7) thin ones in between, transverse veins, 3—5.5 mm apart. Spines upwards-pointing of patent, very rarely downward-pointing dull blackish brown; spines on the leaf sheath along the lower side partly arranged in small combs of 3—7, at distances of 1.5—6 cm, the others scattered, in pairs or solitary, up to 6.7 cm long, at the base 1 cm broad and 0.2 cm thick; on the petiole spines as on the leaf sheath, but fewer; at distances of ca (0.4—) 0.5—6.5 cm, on the rachis some spines often with two small ones in between, size and colour as on the petiole and leaf sheath. Staminate inflorescences erect or somewhat curved, compact, branching of first to third orders, 45 cm long, 9.5 cm broad, rachis and internodes covered by bracts; bracts boat-shaped, linear-lanceolate, ca 15 cm long by 2 cm broad, part of them lacerated ca 15—25 cm long, papery and fibrous. Rachillae 4—9 in an inflorescence, exserted, cylindrical, 11—15 cm long, (11—) 12—13 (—18) mm in diameter, outside glabrous, peduncle 7—10 cm long, 0.4 cm in diameter, sometimes covered by bracts; primary bracteoles when young connate, 6 mm long, covering all pairs of flowers, ring-shaped along the rachis, at distances of ca 2 mm; secondary bracteole between two flowers, keeled, ca 4 mm long, 0.5 mm broad, papery, primary prophyll divided in two, keeled, ca 4 mm long, 2 mm broad, papery; hairs along the margin and on the outside of bracteoles and prophylls (but the primary bracteoles glabrous), very thin, 2—4 mm long, septate and branched at the tips. Flowers many in each rachilla, 6 mm long, 3 mm broad; calyx bell-shaped 4 mm long, often splitting completely; between two of the lobes; lobes acute; corolla bulging, 5 mm long, 1.5 mm broad. Pistillate inflorescences erect, more or less cylindrical, 30 cm long, 7 cm broad; bract slightly boat-shaped, 27 cm long, 7 cm broad at the base tubular, above lacerated, papery, fibrous. Rachillae one in each inflorescence, 11.5 cm long, 35 mm in diameter, outside glabrous; peduncle 8 cm long, 1.5 cm in diameter, enclosed within the bracts; primary bracteoles young connate and ring-shaped, at maturity split and covering partly the pairs of flowers, 15—17 mm long, 20—24 mm broad, at distances of ca 1 cm; secondary bracteole between two flowers, 11—12 mm long, 3 mm broad, hairy; primary prophyll divided in two, keeled, 11—12 mm long, 3 mm broad, either one at the very base adnate to secondary bracteole, hairy. Hairs as in the staminate inflorescence. Pistillate flowers ca 100 in each rachilla, each accompanied by a neuter flower, pistillate flower with calyx bell-shaped, 13—15 mm long, between two of the lobes often splitting completely; corolla pitcher-shaped, 16—18 mm long, 8—12 mm broad, with petals ovate staminodes 6, and ovary strigose, 15 mm long, with very thin scales, upcurved ca 5 mm long. Neuter flower swollen (in bud): calyx swollen, 14 mm long, lobe either one often splitting completely, corolla swollen 16 mm long by 6 mm broad. Fruit: unknown.

DISTRIBUTION: Endemic to Borneo, Sarawak.

ECOLOGY: Springs at the base of rhyodocite screes, altitude: 900 m.  
VERNACULAR NAME: Lium (Iban); Baroh (Kelabit).

NOTE: 1. Compilation of field notes. Lamina entire, ca 6 mm long (in this case probably means the leaves) — see Fig. 4. Inflorescences brown. Fruit deep pink. Roots outside white, inside black and very hard. Locally common but only one of the party had seen it before, on the Tan Abo range at about the same altitude.

2. From a photograph by Dr. P.S. Ashton in Sarawak, Hose mountains, Tan Abo Range, we have the impression that the leaf-sheath plus petioles is up to ca 1.60 m long, the blade 4 m long, 1 m wide.

BORNEO. Sarawak, House Mountains, Ulu Temalad, Mujong, ca 900 m. Pistillate fl. (L, holo!; K!; SAR!) and staminate fl., 27.111.1964, S. 19777 Ashton (K!; L!; SAR!).

4. *Salacca sarawakensis* Mogeia, *sp. nov.* — Fig. 6 and 7.

*Ceteris speciebus flabellatis Salacca magnitudine mediocre, foliis concoloribus, curvus brevis inflorescentiae femineus et 1—2 brevis rachillae differt.*

TYPUS: S. 27306 *Anderson & Whitmore* (SAR, holo!).

Differs from all other flabellate-leaved *Salacca* species in the moderate size and the concolorous leaves, pistillate inflorescences curved and short, having 1—2 short rachillae.

Leaves flabellate; basal part of leaf sheath unknown; the channelled part with length estimated at 40 cm, about the middle part in cross section elliptic crescent-shaped, 20 mm by 12 mm in diameter, the hollow 1.3 cm deep, deep brown; the lower surface very faintly ribbed dull brownish, spiny. Petiole about 87 cm long, near the base in cross section circular, 22 mm in diameter, the lower side spiny. Rachis 72.5 cm long, the base 10 mm in diameter, below prominent, not spiny; in cross section circular, above narrower towards the tip, glabrous. Blade flabellate, obovate, deeply bifid, 120 cm long, widest at the tip, 66 cm broad, at the top of the rachis 49 cm broad; base obliquely cuneate; lobes along the upper third part, ca 40 on either side, each at the top corresponding to a longitudinal vein, estimated 32—57 mm long, 9—18 mm broad, weakly sigmoid. along the margin glabrous, surfaces on both sides green. Main longitudinal veins ca 15 on either side, at an angle of 15° from the midrib, more or less parallel, about the middle at 1.4—2.7 cm distance, closer towards the top with (1—) 3—5 (—6) thin ones in between; transverse veins 4—6 mm apart. Spines patent, rather stout, not flattened, pale yellowish; in the channelled part placed in three longitudinal rows, one on the lower side and the other two



FIG. 6. *Salacca magnificata*: pistillate inflorescence and part of blade. — After S. 1977 Ashton.

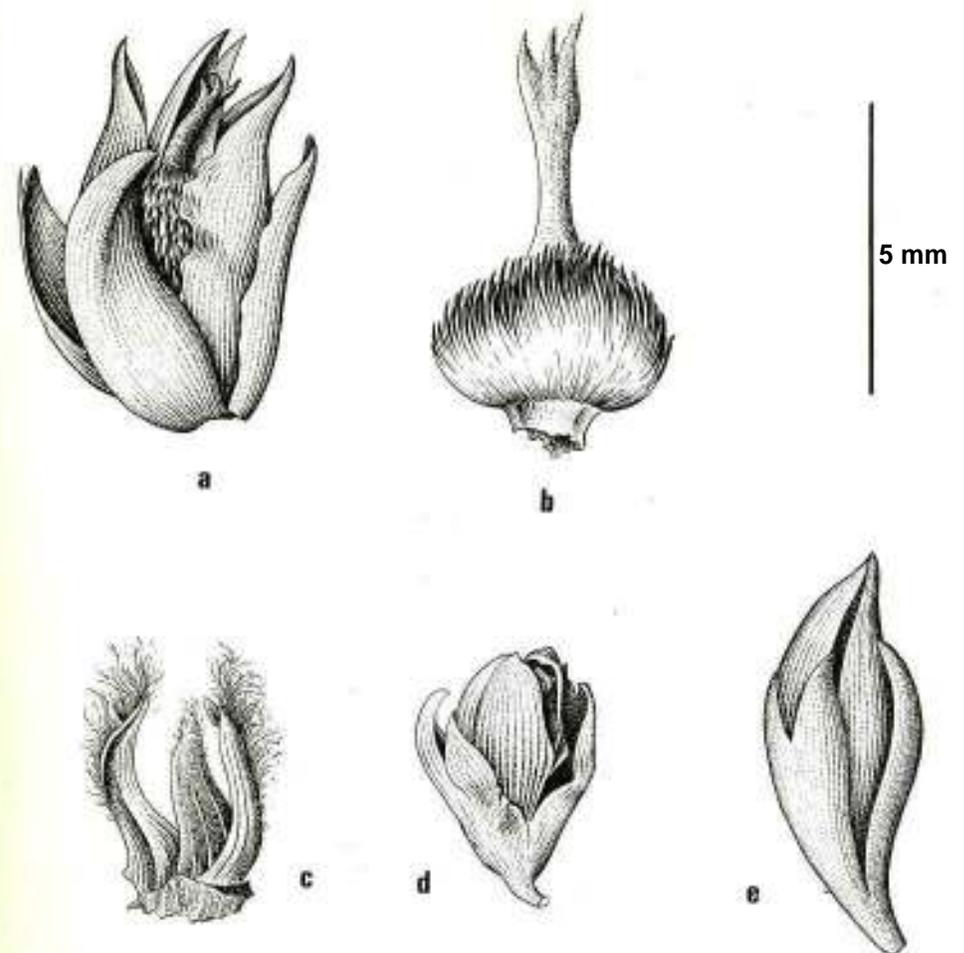


FIG. 7. *Salacca magnificata*: pistillate flower (a), ovary (b), primary prophyll and secondary bracteole inserted from a pistillate rachilla (c), staminate flower (d), neuter flower (e). — After Ashton S. 1977.

near the upper side, more or less regular but towards the tip increasing distances of 2.5—4.5 cm, the lower side bearing the bigger ones 0.6—1.8 cm long, its base 0.4—0.5 cm broad, 0.2—0.3 cm thick; on the petiole only on the lower side, length unknown, at the base 0.5 cm broad, 0.3 cm thick, more or less regular but towards the top at decreasing distance of 7—9.5 cm, not spiny near the top. Rachis not spiny. Staminate inflorescences unknown. Pistillate inflorescence curved in first order branching pattern, 17—20 cm long, about the middle the rachis with bracts 0.8 cm in diameter; bracts 2.5—6.5 cm long, empty bracts 2—3, covering the internodes, papery, the tubular ones near the rachilla; the other ones tubular in the basal part and keeled to halfway up; the keeled part one

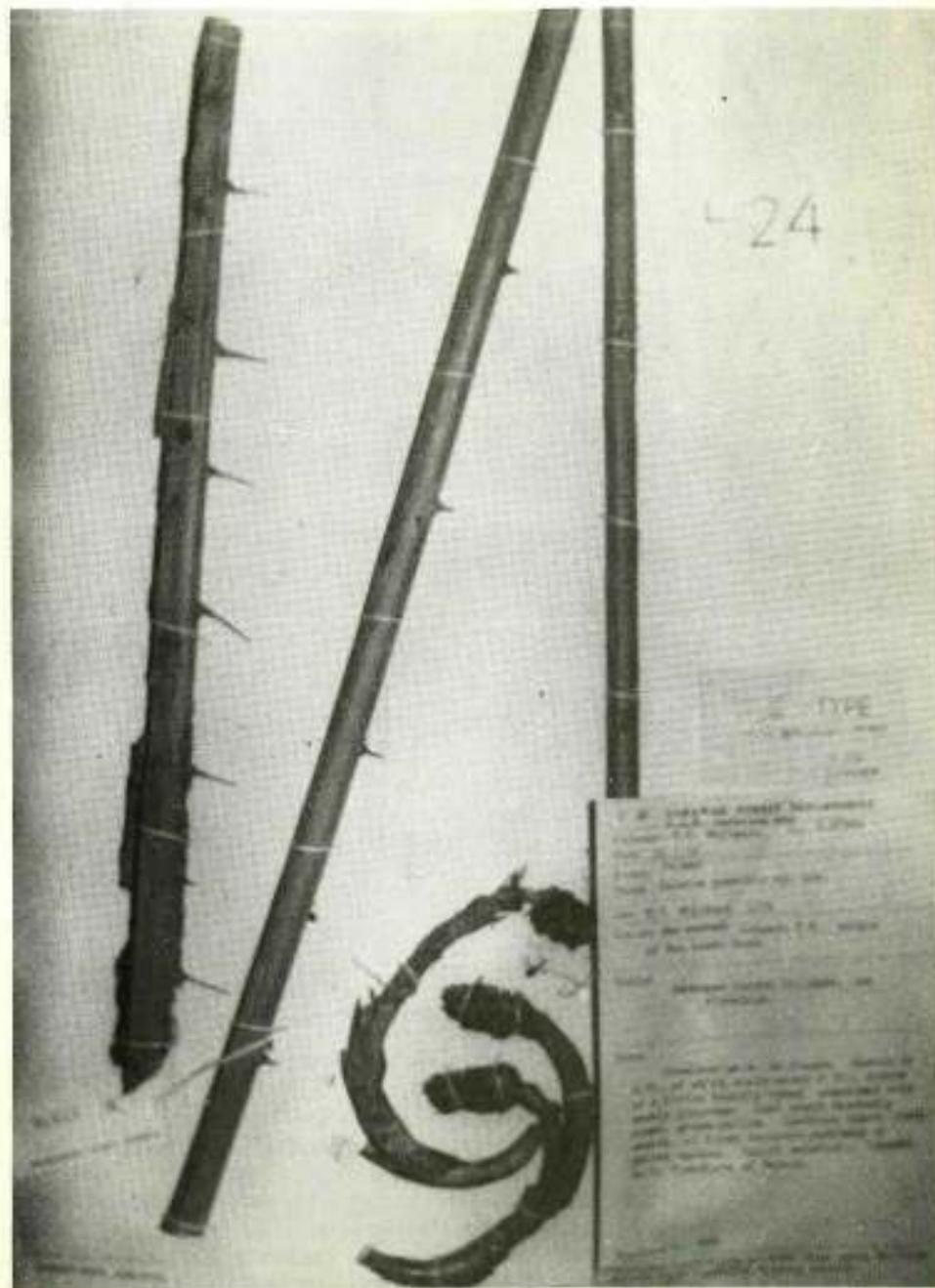


FIG. 8. Type specimen of *Salacca sarawakensis*: pistillate inflorescence and part of leaf.



FIG. 9. Type specimen of *Salacca sarawakensis*: blade.

ovate ca 3.5 cm long by 1.5 cm broad, entire. Rachillae 1–2 in an inflorescence, cylindrical slightly tapering to the top ca 2.5 cm long by ca 12 mm in diameter, outside, glabrous, peduncle 13–24 mm long, covered entirely by the bracts; primary bracteoles partly covering every pair of flowers, concave, broadly rhomboid, adnate, ca 5 mm long, ring-shaped; the secondary bracteole between two flowers, keeled, 3.5 mm long by 1–1.5 mm broad; primary prophyll covering half part of the pair flowers, two keeled, 3.5 mm long, at the base 6 mm broad. Hairs along the margin and near the top on the outside of the bracteoles and prophyll, (but primary bracteoles glabrous), very thin ca 2 mm long, septate and at the top irregularly branched. Flowers ca 40 in each rachilla, in pairs, each pistillate flower accompanied by a neuter flowers; pistillate flower with calyx split halfway, bell-shaped, 5.5 mm long, membranous; lobes obtuse; corolla swollen or pitcher-shaped, petals ovate, 8 mm by 4 mm with tip keeled, acute; staminodes 6; ovary (past anthesis) 5.5 mm long, 4 mm in diameter, covered with scales 0.6–1.6 mm long, their margin in the upper half serrate, style including stigma 1.5–2 mm long. Neuter flower somewhat crescent-shaped; calyx split halfway up, membranous; lobes obtuse, 4–5 mm long; corolla swollen or pitcher-shaped, with petals ovate, 6.5 mm by 3 mm, lobes acute, staminodes 6. Fruit unknown.

DISTRIBUTION: Endemic to Borneo.

NOTE: Field notes: Stemless palm, leaves 2.4 m long, leaf sheath including petiole 1.2 m long ('leaf stalk') distantly spiny, yellowish green, simple or a little broadly lobed, sometimes very weakly glaucous.

BORNEO: Sarawak, Sempadi F.R., margin of Bau-Lundu Road, kerangas forest on hill side, pistillate fl. 16.1.1972, *S. 27306 Anderson & Whitmore (SAR!)*.

#### INCOMPLETE SPECIMENS

Some specimens though clearly belonging to the genus *Salacca* are problematic because of their being incomplete and I have hesitated to assign specific names to these specimens. They are:

1. *Heaslett s.n.* (SING!) st. 14.11.1966 from Malaya, Johore, upper reaches, S. Selai, was distributed as *S. flabellata*. This specimen differs slightly from *S. flabellata* as follows: Leaf (probably young) with a very narrow blade (19 cm broad) compared with *S. flabellata*. The surface underneath is densely covered with minute scales which on the nerves are brown and in between whitish. The transverse veins are (3.5) 4–5 (—11) mm apart.

2. *SFN A0A57 Sinclair & Kiah* (SING!) st. 13. XI. 1954 from Malaya, Kuala Trengganu, Besut Road, path leading to Kampung Bukit. This specimen differs slightly from *S. flabellata* as follows: the blade is flabellate but obtriangular, deeply bifid, 106–123 cm long, at the top 14.5–20.5 cm broad, at the top of the rachis 13.5–17 cm broad.

It is hoped that these two populations can be revisited and fertile material found so that specific identities can be assigned.

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