

14. Staminate flower with 3 stamens **16. triandra var. bancana**
 Staminate flower with 6 stamens 15
15. Massive acaulescent palm; staminate flowers unusually large, c.18 mm long, with petals connate in the basal c. $\frac{1}{4}$ **10. jugahpunya**
 Palms with erect stems and elongate internodes; staminate flowers with petals free almost to the base 16
16. Staminate flowers borne in strictly distichous pairs; palm of upland and montane forests **11. kinabaluensis**
 Staminate flowers borne in uniseriate pairs 17
17. Rheophytic palm with strictly uncostate leaflets, restricted to the banks of fast flowing streams on ultrabasic rock **14. rheophytica**
 Palm of lowland forest on old coral limestone, with uni- to broad multicostate leaflets **17. vidualiana**

1. *Areca abdulrahmanii* J. Dransf. in Bot. J. Linn. Soc. 81: 33 (1980). Type: Borneo, Sarawak, 4th Division, G. Mulu National Park, W of Sg. Berar, A C. Jermy 13702 (holotype SAR; isotype K).

This species is still known only from the type.

2. *Areca ahmadii* J. Dransf. sp. nov. ad sectionem *Arecellam* pertinens, haec species mirabilis habitu acaulescenti, inflorescentia interfoliari, pedunculo longissimo distinctissima; superficialiter *A. subacauli* (Becc.) J. Dransf. et *A. brachypodae* J. Dransf. sectionis *Microarecae* similis sed folio pinnato et floribus staminatis uniseriatis distinguibilis. Typus: Borneo, Sarawak, 1st Division, Semongoh Forest Reserve, *Lai Shak Teck* S 38946 (holotypus K; isotypi BH, BO, KEP, L, SAR).

Acaulescent, solitary, undergrowth palmlet; stem very short, subterranean or somewhat decumbent c. 8×2.5 cm, bearing very close leaf scars and short stilt roots c. 3 mm diam. Leaf sheaths c. 13 cm long, c. 7 cm in basal circumference, apparently tardily abscising, scarcely forming a crownshaft, splitting along \pm the entire length opposite the petiole, tinged dull purplish brown, longitudinally striate, and bearing scattered brown scales; ligule present but soon disintegrating. Leaf excluding sheath to c. 1 m, often less, with petiole c. 42×0.5 cm; leaflets narrow to broad-lanceolate, in the holotype 6 on each side of the rachis, fewer in some plants noted in the field, (1-) 2-4-ribbed, acuminate except for the apical 5-6-ribbed pair with short apical lobing; basal and mid leaf leaflets to 45×1.5 cm, apical pair to 30×6 cm, somewhat sigmoid, the apical lobing to 5 mm deep; lamina glabrous, adaxial surface rich dark green, shining when fresh, abaxial surface paler. Inflorescence interfoliar; prophyll to 35×1.3 cm, flattened, tinged purplish, bearing scattered brown scales; peduncle becoming arcuate, c. 200×2 mm, oval in cross section, somewhat increasing in width with age to 3 mm, purplish with scattered brown scales; rachillae 5-8, purplish, crowded at the end of the peduncle, at staminate anthesis c. 60×1 mm, increasing as fruit develops to c. 110×2.5 mm. Flowers borne in triads only at the very base of the rachilla, usually no more than 1 triad per rachilla, sometimes no triad present, distally the flattened rachillae bearing a single row of pairs or solitary staminate flowers. Staminate flower sessile, greenish in bud, narrow-clavate, to 4×1 mm; calyx 1.5 mm, tubular at the base, tipped with 3 triangular lobes, the central line of each lobe somewhat thickened; petals 3, striate, free almost to

the base, 3.5×1 mm; stamens 6, with anthers to 2 mm, filaments to 1 mm; pistillode absent; pollen white. Pistillate flower in bud 7×3.5 mm; sepals 3, imbricate, cucullate, to 7×3 mm; petals 3, imbricate to 6×2 mm; staminodes absent; ovary strongly trigonous to 4.5×1.5 mm. Mature fruit purplish black, fusiform, 4.3×1.4 cm, tipped with conspicuous trifid stigmatic remains; mesocarp thin, fleshy; endocarp thin, fibrous. Seed basally attached, narrow obclavate, 22×7 mm; endosperm deeply ruminate; embryo basal (Fig. 1).

DISTRIBUTION. Borneo, Sarawak, 1st Division, known only from the type population (see above).

HABITAT. In lowland Dipterocarp Forest on gentle slopes by sluggish stream at about 20 m altitude. In April 1981 I counted about 30 plants of this curious palm. Were it not in flower, it would perhaps be passed over as a seedling of a species of *Pinanga*.

Ahmad bin Drahan, the supervisor of the Biological Centre at Semonoh, was the discoverer of this palm and is commemorated in the specific epithet. The interfoliar inflorescence with long peduncle is superficially very like that of *A. brachypoda* (see below) and *A. subacaulis* but the uniseriate staminate flowers indicate this species belongs to section *Arecella* rather than to section *Microareca* to which *A. brachypoda* and *A. subacaulis* belong. It is unlike any other species in the section because of the inflorescence position, but in details of flowers and fruit it conforms to the pattern common in the section.

3. *Areca andersonii* *J. Dransf.* sp. nov. ad sectionem *Microarecam* pertinens, floribus staminatis stipitatisque *A. abdulrahmanii* *J. Dransf.* et *A. klingkangensi* *J. Dransf.* affinis, sed calcicola et staminibus tantum 6 distincta. Typus: Borneo, Sarawak, 4th Division, Niah, G. Subis, Sg. Sekaloh, *J. A. R. Anderson* S 31937 (holotypus K; isotypus SAR).

Apparently solitary, short-stemmed, undergrowth palmlet. Stem to c. 2.5 m, 1.3 cm diam.; internodes to 1.5 cm, nodes marked by conspicuous leaf scars, c. 3 mm high; surface of internode dull green with sparse brown scales. Leaf sheaths forming a distinct crownshaft to 23×2 cm; sheaths 7–13 cm long with basal circumference 2–3 cm, striate, with sparse brown scales; ligule poorly developed. Leaf without sheath 65–80 cm including petiole to 30×0.3 cm; leaflets 2–3 on each side of the rachis, diverging at an angle of c. 30° ; leaflets subequal, with up to 5 main ribs, acuminate except for the lobed apical pair, to c. 35×3 cm; lamina surfaces concolorous, \pm glabrous on adaxial surface, with scattered brown scales on abaxial surface. Inflorescence infrafoliar; peduncle short, c. 10×3 mm; rachillae 3–4, divaricate, \pm zigzag, to 100×2 mm, covered in brown scales, each bearing 1–3 triads near the base, and spirally arranged pairs of staminate flowers distally. Staminate flower conspicuously stipitate, the stalk formed from the calyx base, glabrous, to 1.5 mm, the calyx tubular above the solid base, lobes 3, strongly keeled, narrow triangular, to 1 mm; corolla with 3 ovate apiculate petals to 3.5×1.75 mm; stamens 6, to 1.5×0.3 mm, anthers borne on short filaments; pistillode absent. Pistillate flower sessile with 3 imbricate, cucullate, apiculate free sepals to 4.5×3 mm, and 3 free imbricate apiculate petals to 4.5×2.5 mm; ovary to 7×2.5 mm, tipped with a beak and 3