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A New Species of Areca from Peninsular Malaysia and Sumatra

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Besides the cultivated and sometimes naturalized betel palm, *Areca catechu* L., two species of the genus *Areca* were until recently known from Peninsular Malaysia. The diminutive *A. ridleyana*, originally identified as *A. furcata* Becc. by Ridley (1907), with its slender stems, irregularly divided leaf-blades and short sparsely branched inflorescences bearing multistaminate flowers is easily distinguished; it occurs sporadically from Terengganu south to Johor. The other species, *A. triandra* Roxb. ex Buch. Ham., is widespread, occurring elsewhere in Burma, Thailand, Indochina, Sumatra, Java and Borneo; it is highly polymorphic but easily separated from other species by the presence of three rather than six stamens in the staminate flowers. In Peninsular Malaysia it is convenient to recognize two main types within the complex; there is a robust clustering taxon, usually referred to as *A. triandra*, and a small single-stemmed taxon conveniently referred to as *A. latiloba* Ridley. *A. latiloba* is also present in Sumatra and Java and possibly in South Thailand. *A. montana* Ridley, based on a collection made by Burn-Murdoch from Semangkok Pass, is a synonym of *A. latiloba*, which deserves further research as broad and narrow leaflet forms have been observed.

In Sumatra, *A. ridleyana* is absent, but *A. triandra* is widespread, both robust clustering and small solitary forms occurring. The presence of another wild species of *Areca* in Sumatra was established when one of us (JD) collected a small solitary species of *Areca* at Bohorok, Langkat in North Sumatra, an area with strong floristic affinities with Peninsular Malaysia. This taxon was remarkable for its litter-trapping habit and tardily abscissing leaves with inflorescences bursting through the rotting leaf sheaths (Fig. 2). The inflorescences were also striking in their thick stiff purple rachillae. In 1977 JD collected what was apparently the same taxon growing in the coastal mountains of north Terengganu in Peninsular Malaysia, an area rich in palm novelties (see Dransfield 1978, 1982; Mogea 1984). A collection made by Cockburn, also in the Terengganu hills, was found among the undetermined palms at Kepong and collections made in Endau Rompin by Wong Khoon Meng, during the Malayan Nature Society's Endau-Rompin Expedition, also appear to fit this same taxon. Independently during 1990 Lim Chong-Keat and his colleagues from the Penang Botanical Gardens under the botanical project called Palm Search Malaysia located fine examples in Upper Perak, and repeatedly monitored a colony under predation by elephants. They collected extensive specimens now lodged at the Forest Research Institute Malaysia (KEP) and Kew (K).

Although there is variation between populations in Peninsular Malaysia and Sumatra, there is also great variation within populations and we thus consider them all to be conspecific. At the time of confirming the joint publication of the new species, the demise on 7 December 1990 of Tunku


A
G
D
F
E
H
C
B

Abdul Rahman Putra al-haj, the first Prime Minister of Malaysia, gave point to our spontaneous intent to honor him and the ideals he promoted; we have named the palm *Areca tunku*.

Areca tunku J. Dransf. & Lim Chong-Keat sp. nov. (Figs. 1–4).

Ad sectionem *Arecellam* H. A. Wendl. & Drude pertinens, a ceteris speciebus Sumatranis vel Malayanis *Arecae* petiolo carenti et rachillis crassis purpureis bene distincta; *A. jugahpunya* J. Dransf. et *A. ahmadii* J. Dransf. speciebus borneensibus affinis sed a *A. jugahpunya* inflorescentia rachillis paucioribus minoribus petalis floris masculi non connatis et a *A. ahmadii* habitu caulescenti et inflorescentia infrafoliacea pedunculo brevi distincta. Typus: Peninsular Malaysia, Terengganu, *J. Dransfield et al.* JD5178 (holotypus K; isotypus KEP).

Solitary, unarmed, monoecious palm to 2.5 m tall. Stem often stilt-rooted at the base, dull green when young, becoming pale brown, 2–6 cm diam., internodes 2–3 cm, nodal scars ca. 0.5 cm wide. Crown composed of ca. 8 leaves, these sometimes tardily abscissing, the whole crown tending to trap leaf litter. Crownshaft to 13–25 cm long, 3–7 cm diam., often partially obscured by the marcescent leaf sheaths. Leaf variably dissected; leaf sheaths 13–20 cm long, dull green to brown, often tinged purple, drying pale brown, striate, bearing thin pale brown scales; petiole absent to very short, not exceeding 5 cm long; rachis to 1 m long, adaxially channelled near the base, abaxially rounded or angled, pale brownish green, sometimes tinged purple; blade irregularly dissected, leaflets adaxially dark shiny green, slightly paler abaxially, usually borne close together, 5–24 on each side of the rachis, varying from narrow to broad, 22–65 × 0.7–10 cm, composed of 1–6 folds, acuminate and somewhat sigmoid except for the terminal shallowly-lobed pair, main veins bearing minute brown punctiform scales. Inflorescence sometimes bursting through marcescent sheaths, erect, 8.5–22 cm, almost always branching to 1 order only, very rarely the basalmost branch bearing a branch of the second order, all axes cream-colored, turning yellowish orange, greenish or deep purple; prophyll 8–22 × 2.5–4 cm, ancipitous, elliptic-lanceolate, winged throughout, creamy brown to pale green, tinged with carmine purple, becoming striate on drying, bearing bands of scattered pale brown scales;

2. *Areca tunku* in flower, Upper Perak. Photo by C.-K. Lim.

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1. *Areca tunku*. A, leaf tip ×⅔; B, leaf sheath ×⅔; C, basal portion of leaf ×⅔; D, inflorescence ×⅔; E, staminate flower in vertical section ×2; F, pistillate flower in vertical section ×2; G, infructescence ×⅔; H, fruit in vertical section ×⅔. Drawn by M. M. Watt from *Dransfield* JD5178.

3. Inflorescence of *Areca tunku*, Upper Perak.

4. Fruit of *Areca tunku*, Upper Perak. Photos by C.-K. Lim.

peduncle 20–30 × 7–10 × 5 mm glabrous, bearing an inconspicuous, incomplete, low ridge-like peduncular bract ca. 1 mm high, just above the prophyll scar; rachis to 7 cm long; rachillae 6–12, very stiff and stout, borne in two neat rows on either side of the rachis, congested at first, later often widely spreading, 5–12 × 0.2–0.4 cm, sometimes slightly curved, bearing flowers only along one side (the distal side); triads borne only at the very base of the rachillae, 1–6 per rachilla, rarely absent, distally the rachillae bearing paired or solitary staminate flowers, the flowers cream-colored or greenish tinged, often markedly contrasting with the purplish rachillae. Staminate flowers terete, ca. 4–10 × 1.5–2 mm; calyx cup-shaped, sometimes strongly explanate, to 0.75 mm high, three-lobed, the lobes triangular to 1 × 1 mm; petals 3, distinct, 4.5–10 × 1.5–2.5, abaxially slightly striate; stamens 6, filaments 0.75–1.5 mm, anthers 2.5–5.5 × 1 mm, apically and basally sagittate; pollen monosulcate with finely punctate tectate exine; pistillode minute. Pistillate flowers at anthesis cream-colored, borne on enlarged rachillae; buds varying greatly in size depending on stage of development, just before anthesis to 19 × 9 mm; sepals 3, strongly imbricate, irregularly ovate 10 × 9 mm; petals 3, basally strongly imbricate 10 × 9 mm, with triangular valvate tips to 5 × 5 mm; staminodes 3, irregularly dentiform to strap-shaped; ovary ovoid 14 × 4 mm, stigmas 3, strongly adpressed in bud, expanding and becoming reflexed at anthesis, white, fleshy, triangular ca. 5 × 5 mm. Fruit borne on the enlarged, dark brown or blackened rachillae, up to about 12 fruits developing on a single inflorescence; mature fruit 3–4.5 × 1.5–3 cm, dull purplish green to brown, with blackened stigmatic remains borne on a white-

ringed beak to 12 × 6 mm; epicarp smooth, becoming striate on drying; mesocarp thin, pale, inner fibers of mesocarp broad, black, conspicuous, closely adhering to the endocarp; endocarp thin, closely adhering to the seed. Seed to 25 × 15 mm; endosperm deeply ruminate, embryo basal. Seedling leaf bifid (Fig. 1).

Distribution: Sumatra (Sumatera Utara) and Peninsular Malaysia.

Specimens Examined: PENINSULAR MALAYSIA. Terengganu: Besut, Ulu Sungei Kemia, alt. 530 m, *Cockburn* FRI 8212 (KEP); Besut, Ulu Setiu Forest Reserve, alt. 500 m, *Dransfield et al.* JD5178 (holotype K; isotype KEP), alt. 50 m, *Dransfield et al.* JD5169 (K, KEP); Ulu Nerus Forest Reserve, alt. 200 m, *Dransfield et al.* JD6511 (K, KEP). Johor: Labis Forest Reserve, *Wong Khoon Meng* FRI 32485 (KEP). Perak: Upper Perak, Belum Forest Reserve, alt. 800 m, *Lim Chong-Keat et al.* 90/069, 90/524, 90/542 (K, KEP).

SUMATRA. Sumatera Utara: Langkat, Bohorok, Bukit Lawang, alt. 500 m, *Dransfield et al.* JD3144 (BO), JD3145 (BO), JD3170 (BO), JD3263 (BO, K).

In Peninsular Malaysia *Areca tunku* is a palm of hill dipterocarp forest; in Sumatra it occurs in similar habitats. The North Sumatran population seems to consist of plants at the small end of the range of variation. Within populations in Terengganu, the range of variation is considerable, making suspect any separation of the Sumatran plants on the basis of size alone.

The uniseriate staminate flowers (Fig. 1) suggest that *Areca tunku* is a member of Wendland and Drude's section *Arecella* in Furtado's sense (Furtado 1933). The swollen frequently purplish rachillae (Figs. 1,4) seem to suggest a relationship with *Areca jugahpunya* J. Dransf. and *A. ahmadii* J. Dransf. (Dransfield 1984), two Bornean species. However, these two species are immediately distinguishable by their acaulescent habit; furthermore *A. ahmadii* has interfoliar inflorescences with very long peduncles and slender, less strongly beaked fruit, while *A. jugahpunya* is a much more massive palm, with a short peduncle as in *A. tunku*, but with much larger inflorescences with many (20) rachillae and large staminate flowers with petals connate for half their length. The peduncle form and colors of the inflorescence make *A. tunku* especially distinctive and striking.

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