

tal portion; rachilla 18–22 cm long, 3–4 mm diam., sparsely lepidote; floral pits shallow, widely spaced. *Staminate flower* 2–4 mm long in bud, ovoid; sepals 1.5–2 mm long, ovate, ciliate, minutely toothed on the keel; petals 3.5–4 mm long, triangular, acute, cream; stamens 8–15, equal in length; filaments c. 5 mm long, narrowing from a broad base; anthers linear, deeply sagittate, versatile. *Pistillate flower* 2–4 mm high, globose; sepals ovate, obtuse, margins ciliate; stigmas broad. *Fruit* ellipsoid to globose, 11–12 mm long, 6–8 mm diam., red; epicarp smooth, finely granular when dry; mesocarp fibrous, fibres aggregated into a layer close to the endocarp, fibres frayed at the apices. *Seed* globose, c. 7 mm diam.; endosperm homogeneous.

Distribution — Indonesia: Papua: Fakfak Division in the Timika area; Paniai Division, Snow Mts; Jayapura Division, Kaimana area.

Habitat & Ecology — In rain forest at 300–800 m.

Etymology — The species was named for Wilhelm Micholitz (1854–1932), German plant collector employed by Sander's Nursery, England.

Vernacular name — Sawat net (Kroi language – Kaimana, Papua).

Notes — 1. The origin of the type of *C. micholitzii* is not known with certainty. Ridley (1895) described the species from a specimen given to him by Micholitz who had visited New Guinea in 1891 and who had ascended mountains in the SW of the island. Ridley subsequently sent seeds to Sander's Nursery, England, from where a plant was eventually sent to Kew in 1896, flowered in 1905 and illustrated in Botanical Magazine (Wright, 1906). The specimen from which the plate was drawn, *Anon. s.n.*, is conserved in K. The species is distinguished by a solitary or clustering habit, bifid or once-segmented leaves, small staminate flowers, ellipsoid to globose fruit and homogeneous endosperm. Specimens of *Paralinospadix pauciflorus*, described from the Snow Mts, are attributable to *C. micholitzii*.

2. Seedling leaves have a metallic lustre, and are strongly blotched.

## 19. *Calyptrocalyx multifidus* (Becc.) Dowe & M.D. Ferrero, *comb. nov.*

*Linospadix multifidus* Becc., Malesia 1 (1877) 64. — *Paralinospadix multifidus* (Becc.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 12 (1935) 334, syn. nov. — Type: *Beccari 906* (holo FI; iso K), Indonesia, Papua, Manokwari Division, Mt Arfak, Putatat, 400–500 m, Oct. 1872.

Clustering, small palms. *Stems* 2–5, 1–2 m tall, 8–40 mm diam.; internodes 2–4 cm long, dark green. *Leaves* irregularly segmented or regularly pinnate, 70–125 cm long, new leaf emerges bronze red; leafbase 8–35 cm long, dark green, glabrous, swollen at the base, margins densely lacerate-fibrous; petiole 0.5–19 cm by 3–10 mm, adaxially channelled, glabrous; pinnae of regularly pinnate leaf 4–18 per side, alternate, opposite or subopposite, placed up to 20 cm apart, lanceolate, widest above the middle, narrowing toward the base, apically acuminate, caudate, dark green adaxially, slightly lighter abaxially, reddish brown ramenta on ribs abaxially; lower pinnae shortest, apical pinnae longest; midleaf pinnae 20–60 by 10–25 cm, chartaceous; midrib prominent, but strong secondary veins present, marginal veins thicker than secondary veins; lower pinnae to 16 cm long, 12 mm wide; irregularly segmented leaf with pinnae united, one side of leaf all united or with irregular intervals between groups of united pinnae. *Inflorescence* 40–105 cm long, 1-spiked, erect, rigid; prophyll 15–28 cm by 14–25 mm, glabrous, apices acute; peduncular bract 30–40 cm by 13 mm, glabrous to densely tomentose; peduncle 20–85 cm by 2–6 mm, subterete, densely scaly; rameal bracts present

in proximal portion of the peduncle; rachilla 10–28 cm by 4–9 mm, fusiform, densely scaly; floral pits very deep, bracts not prominent, margins not raised. *Flowers* cream, congested, becoming more wider spaced proximally. *Staminate flower* 4–4.5 mm long; sepals c. 2 mm long, acutely ridged, margins smooth, broadly triangular, acute; petals c. 4 mm long, lanceolate to obtuse, triangular, with many nerves; stamens 8–10, unequal in length; filaments c. 4 mm long; anthers short, shallowly sagittate-cordate, versatile, cream; pistillode c. 4 mm long, filiform. *Pistillate flower* 4 mm long, ovoid; stigma large, papillose. *Fruit* ellipsoid, 10–16 mm long, 10–12 mm diam., red; epicarp smooth, finely granular when dry; stigmatic remains apical; mesocarp moderately fibrous, mealy, orange, fibres congested toward the endocarp, fibres anastomosing; endocarp membranous, separated from the seed. *Seed* globose to ellipsoid, c. 11 mm long, c. 7 mm diam.; raphe longitudinal, briefly attached; endosperm homogeneous.

Distribution — Indonesia: Papua: Sorong and Manokwari Divisions.

Habitat & Ecology — In rain forest at 0–500 m altitude.

Etymology — The specific epithet is from *multi* – many, and *fidus* – cleft, and refers to the numerous pinnae of the leaf.

Vernacular name — Puah (Bahasa Maibrat – Sorong Division).

Notes — 1. *Calyptrocalyx multifidus* is distinguished by a clustering habit, irregularly segmented or regularly pinnate leaves, robust solitary-spiked inflorescence, ellipsoid fruit and homogeneous endosperm.

2. Staminate flowers have a citrus odour.

3. Variation in leaf segmentation is not truly reflected in the specific epithet *multifidus*. Leaves can be irregularly segmented or regularly pinnate. The ‘multifida’ forms but one extreme within the range of variation.

#### 40. *Calyptrocalyx pachystachys* Becc.

*Calyptrocalyx pachystachys* Becc., Webbia 1 (1905) 308. — Type: *Schlechter 13780* (holo B†), Papua New Guinea, Madang Province, Bismarck Mts, 1500 m, Jan. 1902. Neotype: *Dowe & Ferrero 506* (neoholo BRI, here designated; neoiso K, LAE), Papua New Guinea, W Sepik Province, Vanimo Dist., Wasimei area, c. 30 km E of Vanimo, inland side of road to Pual River, 20 m, 10 Feb. 1998.

*Calyptrocalyx schlechterianus* Becc., Bot. Jahrb. Syst. 52 (1914) 33, syn. nov. — Type: *Schlechter 16951* (holo B†; photo SING), Papua New Guinea, Madang Province, Mt Bolobo, 1000 m, 1908.

Solitary or clustering, small to moderate palms. *Stems* 1–5, erect, 1–5 m tall, 2.2–4 m diam.; internodes 3–4.5 cm long, dark green; crown with 8–10 leaves. *Leaves* regularly pinnate, 80–140 cm long, new leaf emerges brown-red; leafbase to 26 cm long, light green, glabrous, margin moderately lacerate-fibrous; petiole 8–25 cm by 5–15 mm, shallowly channelled adaxially, glabrous to tomentose; rachis glabrous, frequently with a filamentous apical extension to 16 cm long; pinnae 9–17 per side, ternate, subopposite to irregularly placed, 2–11 cm apart, sometimes clustered, broadly lanceolate, basally constricted, cupped, acuminate, abruptly caudate to a 1–11 cm long filamentous drip tip; lamina glossy dark green adaxially, dull lighter green abaxially, pinnae shortening toward the base and the apex, 13–44 by 1.2–12 cm, midrib prominent, secondary veins almost as strong, all veins raised adaxially,