

ovoid to subconical, c. 9 mm high; sepals c. 3 mm long; petals c. 9 mm long; stigma small. *Fruit* globose to ellipsoid, 40–60 mm long, 20–30 mm diam., orange to bright red; epicarp smooth; mesocarp densely fibrous, fibres aggregated toward the endocarp; endocarp fibrous to crustaceous. *Seed* globose to subglobose 20–30 mm diam.; endosperm ruminant.

Distribution — Indonesia: Moluccas: Ternate, Halmahera, Baru, Ceram, and Ambon.

Habitat & Ecology — In rain forest at 0–60 m.

Etymology — The specific epithet is from *spicate* – spike bearing, and refers to the morphology of the inflorescence.

Vernacular names — Hena hena (Moluccas, Ternate), and hoes alang (Moluccas, Hitoe) (Miquel, 1855).

Notes — 1. *Calyptrocalyx spicatus* is distinguished by a large solitary habit, regularly pinnate leaves, solitary or 2-spiked inflorescence, large globose to ellipsoid fruit and ruminant endosperm.

2. The seed is used as a betel nut substitute.

26. *Calyptrocalyx yamutumene* Dowe & M.D. Ferrero, *spec. nov.* — Fig. 4

Palma caespitosa, statura parva, folio simplici vel segmentato irregulariter, petiolo absenti vel brevissimo, nervis folii crassis, prominentibus in superficiebus ambabus folii, inflorescentia solitaria plus minus recta vel parum curvata, rhachilla pedunculo parum crassior, flore staminato cum corolla lutea vivida, fructibus ellipsoidalibus, fibris mesocarpii crasso, praesens plus minus uniformiter omnino mesocarpium, endospermio homoganeo. — *Typus*: Dowe & Ferrero 508 (holo BRI; iso K, LAE), Papua New Guinea, W Sepik Province, Bewani Mts, Niau Creek, 11 Feb. 1998.

Clustering, small palms. *Stems* 2–5, to 2.5 m tall, 10–30 mm diam.; internodes 2–3 cm long, green; crown with 11–14 leaves. *Leaves* entire, deeply bifid, 95–120 by 11.5–25 cm; leafbase 14–17 cm long, green, margin moderately lacerate-fibrous; petiole absent or to c. 1 cm long; lamina bifid, lobes elongate, ribs 7 or 8 per side, prominent, closely angled to the rachis; lamina coriaceous, dark green adaxially, lighter green abaxially. *Inflorescence* 55–96 cm long, 1-spiked; prophyll 6.5–12 cm by 10–12 mm; peduncular bract 13–27 cm by 1.5–4 mm; peduncle 40–62 cm by 1.5–2 mm, subterete, longitudinally striate with deciduous brown scales; rameal bracts 2–4, to 12 mm long, in the distal portion; rachilla 15–34 cm long, 2–3 mm diam., narrowing toward the apex, with deciduous brown scales; floral pits well spaced, shallow, lip with a sharp margin. *Staminate flower* bright yellow, c. 3.5 mm long in bud, opening widely at maturity; sepals c. 1 mm long, carinate, translucent, margins ciliate; petals obtuse, c. 3 mm long; stamens 8 or 9; filaments 3–4 mm long; anthers c. 1 mm long, shallowly sagittate, versatile, yellow; pistillode columnar, c. 1.5 mm long. *Pistillate flower* c. 3 mm high, globose, white; stigma large. *Fruit* broadly ellipsoid, 16–18 mm long, 10–12 mm diam., red; epicarp smooth, glossy; mesocarp fleshy to mealy, tan to yellow pulp; fibres thick, throughout the mesocarp but densely congested toward the endocarp. *Seed* ovoid, 9–11 mm long, 6–7 mm diam.; endosperm homogeneous.

Distribution — Indonesia: Papua: Jayapura Division, Cyclops Mts where it is known but without collections. Papua New Guinea: W Sepik Province, Bewani Mts.

Habitat & Ecology — In rain forest at 100–900 m.



Fig. 4. *Calyptrocalyx yamutumene*. Dowe & M.D. Ferrero. a. Habit, with dominant stem and basal sucker; b. leaf; c. portion of rachilla with floral bracts; d. staminate flower; e. fruit; f. fruit in longitudinal section; g. fruit with epicarp removed to reveal mesocarp fibres. — Scale bars: a = 40 cm; b = 5 cm; c = 4 mm; d = 1 mm; e–g = 8 mm (from Dowe & Ferrero 508). Drawing by Lucy T. Smith.

Etymology — The specific epithet is a name derived from the Bewani language coined by Mr Moses Meiwa of Apambo village, Bewani, to facilitate practical field recognition of this species: *yamu* – stem or stick as well as the name for *Linospadix albertisiana*, and *tumene* – large.

Notes — 1. *Calyptracalyx yamutumene* is distinguished by a clustering habit, bifid petiolate leaves, solitary-spiked inflorescence, broadly ellipsoid fruit, and homogeneous endosperm.

2. The crushed endosperm has a salty flavour that is used to enhance the taste of food.

LINOSPADIX

Linospadix H. Wendl. in H. Wendl. & Drude, *Linnaea* 39 (1875) 177, 198. — Type: *Areca monostachya* Mart. [= *Linospadix monostachya* (Mart.) H. Wendl. 'as *L. monostachyos*'].

Bacularia F. Muell., *Fragm.* 7 (1870) 103, nomen in obs.; 11 (1878) 58; Hook.f., *Bot. Mag.* 108 (1882) t. 6644; in Benth. & Hook., *Gen. Pl.* 3 (1883) 903. — Type: *Bacularia monostachya* (Mart.) F. Muell. [= *Linospadix monostachya* (Mart.) H. Wendl.].

Linospadix subg. *Bacularia* (F. Muell.) Drude in Engl. & Prantl, *Nat. Pflanzenfam.* 2, 3 (1887) 67. — Type: not designated.

Bacularia sect. *Linospadix* (H. Wendl.) Kuntze, *Lex. Gen. Phan.* (1903) 57. — Type: not designated.

Bacularia sect. *Bacularia* Kuntze, *Lex. Gen. Phan.* (1903) 57. — Type: not designated.

Bacularia sect. *Eubacularia* Kuntze, *Lex. Gen. Phan.* (1903) 57. — Type: not designated.

Solitary or clustering, small to moderate, pleoanthic, monoecious palms. *Stems* slender, leaf scars conspicuous; internodes elongate. *Leaves* bifid, or irregularly segmented or regularly pinnate; leafbase clasping, margins smooth or fibrous, not forming a cylindrical crownshaft but vertically split opposite the petiole; petiole elongate or absent (Australian species only), adaxially channelled, abaxially rounded; pinnae single or united, apices praemorse when united, acuminate when not united. *Inflorescence* pro-tandrous, interfoliar, solitary, spicate; prophyll dorsi-ventrally compressed, bicarinate, attached at the base of the peduncle, enclosing inflorescence in bud, persistent; peduncular bract tubular, attached at the apex of the peduncle, apically closed, deciduous; peduncle elongate, erect; rachilla c. the same length of the peduncle to much less. *Flowers* spirally arranged in shallow floral pits, pit margins lipped and smooth; in triads of a single pistillate flower with two lateral staminate flowers in proximal portion of the rachilla, paired or solitary staminate flowers in distal portion. *Staminate flower* symmetric in bud; sepals broadly imbricate; petals 2 or 3 times longer than sepals, apically valvate; stamens 4–20, erect, filaments shorter than the petals; anthers sagittate, subbasal- to approaching basifixed, non-versatile, dehiscence latrorse; pollen circular to elliptical in polar view, monosulcate, exine tectate, finely to coarsely reticulate; pistillode absent or small. *Pistillate flower* globular, smaller than, c. the same size or larger than the staminate flower; sepals broadly imbricate; petals with thickened valvate tips, longer than the sepals; staminodes 3–6, toothlike; stigmas recurved, 3-lobed, smooth. *Fruit* ellipsoid, cylindrical, globose or pyriform, yellow (Australian species only) or red at maturity; stigmatic remains apical; epicarp longitudinally striate, or smooth or rugose (Australian species only), dries smooth; mesocarp thin, fleshy, longitudinal fibres appressed to endocarp; endocarp adhering to the seed. *Seed* globose to ellipsoid, subbasally attached, raphe attached for less than 1/2 length of seed;