

A New Species of *Licuala* from Royal Belum State Park, Perak, Malaysia

SAW LENG GUAN¹

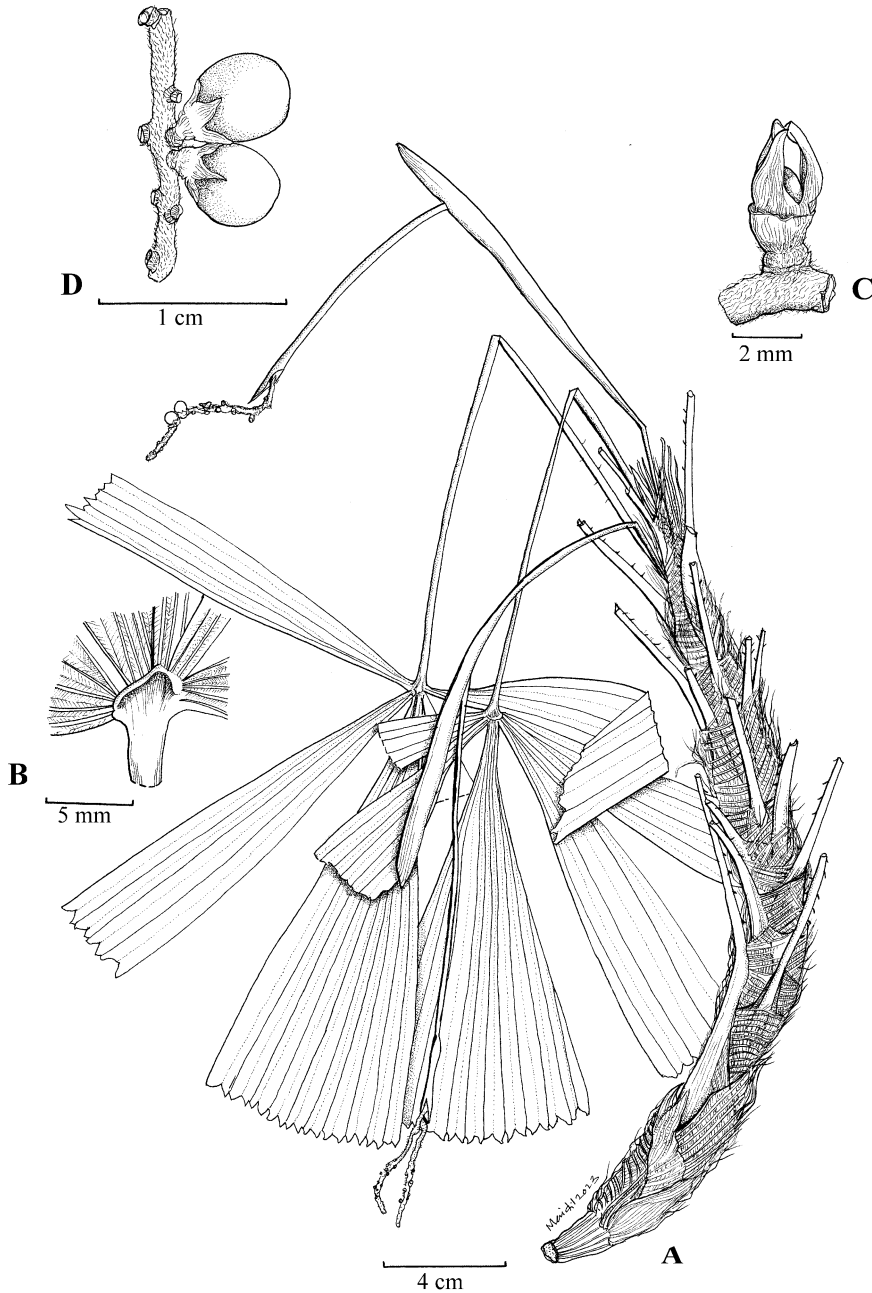
A new *Licuala* (Coryphoideae: Trachycarpeae: Livistoninae) is described and illustrated here. The species has a much-reduced inflorescence not common among *Licuala* species in Peninsular Malaysia and Thailand.

The genus *Licuala* Wurmbe has 174 species and is distributed in the tropical regions of Bhutan to Vanuatu (POWO 2023). The genus is most diverse in Malesia with two main centers of diversity, one on the Sunda Shelf in the Malay Peninsula and Borneo, and the other on the island of New Guinea on the Sahul Shelf (Saw 2012). *Licuala* in the Sunda Shelf is well documented by three recent accounts covering Thailand, Peninsular Malaysia, Singapore and Borneo (Barfod & Saw, 2002, Saw 1997, 2012).

In March 2022, an expedition was organized to explore the Gunung Ulu Temin area of the Royal Belum State Park, Perak, Peninsular Malaysia. The area has never been botanically

explored. During the expedition, a new species was discovered. The new species is easily recognizable by its very reduced inflorescence structure. Four major inflorescence types are recognized in *Licuala* (Saw et al. 2003). These range from the most generalized structure with a few superposed branched partial inflorescences (Type 1 in Saw et al. 2003), to inflorescences with multiple spicate superposed partial inflorescences (Type 2), to inflorescences with only one partial inflorescence with multiple rachillae (Type 3), and to inflorescences that are spicate (Type 4). In Peninsular Malaysia and Thailand, most species have only Types 1 and 2 inflorescences. Until the discovery of this species, the only species with a much-reduced inflorescence (Types 3 and 4) in Peninsular Malaysia and Thailand is *Licuala kingiana* Becc., this species has a spicate or bifurcate inflorescence. In Borneo, however, it is commoner with eleven species exhibiting Types 3 and 4 inflorescences (Saw 2012).

¹Forest Research Institute Malaysia
Kepong
52109 Kuala Lumpur
Malaysia
sawlg55@gmail.com



1. *Licuala hairulii*. A. habit; B. hastula of leaf; C. flower with immature fruit; D. fruits on rachilla. A–C drawn from FRI 80075; D from FRI 80099. Drawn by Mohamad Aidil Nordin.

***Licuala hairulii* Saw, sp. nov.** (Figs. 1–4) Type: Peninsular Malaysia, Perak, Hulu Perak, Royal Belum State Park, Gunung Ulu Temin. 3 March 2022. Saw & Mohd. Hairul FRI 80075 (holotype: KEP [in 3 sheets KEP297437, KEP297438, KEP297439]).

Diagnosis: A distinct species with much-reduced inflorescence, with only one partial inflorescence with spicate or bifurcating rachillae. This species superficially is similar to *Licuala collina* Saw, and can be easily distinguished by its usually stemmed habit,

entire middle leaflets, striated calyx and corolla; *L. collina* has acaulescent habit, a bifid middle leaflets and non-striated calyx and corolla.

Solitary to clustering, pleonanthic, stems to 1.5 m tall, diameter 1.4 cm. Crown with 10–15 leaves. Petiole 12–27 cm, ca. 3 mm wide

near base, ca. 1.5 mm towards apex, drying pale greenish gray; spines towards the base, irregularly spaced, largest near petiole base, ca. 3 mm long; lamina palmate, orbicular, ca. 25–28 cm across; leaflets 5, central leaflets largest, lateral leaflets smaller; central leaflets wedge-shaped, entire, sessile, 9–12 costulate, 13–15.5

2. *Licuala hairulii*, with acaulescent habit.





3. *Licuala hairulii*, with stemmed habit.

× 6–8.5 cm; lateral leaflets narrowly elliptic with truncated apex, progressively smaller towards base, 2–4 costulate, 13–16 × 1–3 cm. Inflorescence interfoliar, spreading to patent, ca. 17–36 cm long, spicate or bifurcating with only 1 partial inflorescence; prophyll 14–21 ×

0.5–0.8, papery, laterally flattened, lanceolate-tubular, mouth spitting widely to one side with a pointed apex, covered with caducous indumentum; peduncle 10–27 cm long; peduncular bract absent; rachis bract similar in shape as prophyll, much reduced to scale



4. *Licuala hairulii*, inflorescence with immature fruits.

like to $2\text{--}3.5 \times 0.2$ cm, covered with caducous indumentum subtending a spicate or bifurcating rachillae; rachillae 2–5 cm long, ca. 1 mm diameter, densely covered with fine translucent white and brown simple hairs. Flowers (based on young fruiting specimen) solitary, loosely arranged around the rachillae, on floral stalk, floral stalks subtended by small scale-like triangular bracts; calyx membranous, striate, cyathiform with pedicelliform base and truncated apex, covered with simple hairs at pedicelliform base and apically glabrous, $1.3\text{--}1.5 \times 2$ mm; corolla tubular at base breaking into 3 lobes, drying black, fleshy, glabrous, striate, lobes 3×2 mm; androecium and gynoecium not seen. Immature fruits globose, glabrous, smooth epicarp, green, 6 mm across.

Distribution: Currently the species is known only from the type location. It is a rare palm, only five plants were seen during the field visit, all within the type location. The location is very close to the Thai border, the species could possibly be recorded in Thailand.

Additional examined specimen: Malaysia, Perak, Hulu Perak, Royal Belum State Park, Gunung Ulu Temin. 3 March 2022. Saw &

Mohd. Hairul, FRI 80099 (KEP [in 2 sheets KEP297440, KEP297441]).

Habitat: Upper hill dipterocarp forest on ridges and upper slopes of ridges, at 725–792 m altitude.

Notes: Superficially, it resembles *Licuala collina* Saw from Sarawak in Borneo. *Licuala hairulii* differs from *L. collina* by its stemmed habit, entire central leaflets, truncated calyx, and striated calyx and corolla. The latter species has acaulescent habit, bifid central leaflets, calyx breaking into 3 lobes, and non-striated calyx and corolla. In Peninsular Malaysia, it differs from *Licuala kingiana* by its smaller leaves, lamina ca. 25–28 cm across, its spreading to patent inflorescences, thin rachillae ca. 1 mm wide, flowers arranged solitary along the rachilla, cyathiform calyx with pedicelliform base, and a glabrous corolla drying black; *L. kingiana* has larger leaves, lamina ca. 35–50 cm across, erect inflorescences, thick rachillae ca. 3 mm wide, flowers in groups of 2 or 3 near base, cylindrical to cyathiform calyx without pedicelliform base, and a densely hairy corolla drying brown.

Etymology: The species is named after Mohd. Hairul Mohd. Amin who jointly collected the type specimen.

Acknowledgments

I wish to thank the Flora of Peninsular Malaysia project for organizing the expedition. I am grateful to the Ministry of Water, Land and Natural Resources for providing financial support (SPPIII No. P23085100010021 & P23085100018003) under the Flora of Peninsular Malaysia project. Mohamad Aidil Nordin prepared the drawings for the species.

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