

## 11. LICUALA Wurm, Verh. Batav. Genootsch. Kunst. 2: 473. 1780.

轴桐属 *zhou lü shu*

Stems solitary or clustered, usually rather small, sometimes short and subterranean. Leaves 5–28, palmate; leaf sheaths open and fibrous on margins; ocreas often present at sheath apex, rarely elongate and conspicuous; petioles normally spiny along margins, sometimes less so or unarmed; hastula present; blades usually strongly folded, circular in outline, split to base into several multi-fold, wedge-shaped segments or rarely undivided; apices of segments truncate, shallowly to deeply lobed, lobes longer on lateral segments; central segment occasionally bifid, central 1–3 segments sometimes borne on petiolules. Plants monoecious or rarely dioecious. Inflorescences borne among leaves and partly covered with swollen, tubular rachis bracts; first order branches 1 to several, each spicate or more often branched to 1 or 2 orders; flowers bisexual with 6 stamens and 3 carpels, stamens or carpels vestigial in dioecious species. Fruits variously colored, usually quite small, globose to ovoid, 1-seeded; endosperm homogeneous; germination remote; eophylls undivided, lanceolate.

About 150 species: from Bhutan and NE India through SE Asia to the W Pacific (Vanuatu); three species (two endemic) in China.

- 1a. Leaf blades split into 5–13 segments, mottled light and dark green ..... 1. *L. dasyantha*
- 1b. Leaf blades split into 12–22 segments, uniformly green on both surfaces.
  - 2a. Stems short and subterranean; partial inflorescences spicate or with 2 or 3 rachillae ..... 2. *L. fordiana*
  - 2b. Stems aerial; partial inflorescences branched with 9–16 rachillae ..... 3. *L. hainanensis*

**1. *Licuala dasyantha*** Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 334. 1941.

毛花轴桐 *mao hua zhou lü*

Stems solitary or clustered, to 1.5 m tall, to 6 cm in diam., sometimes short and subterranean. Leaf sheaths 12–20 cm, extended above petioles into 6–15 cm ocreas; petioles 15–100 cm, unarmed or proximal ca. half with widely spaced, recurved, brown spines to 0.5 cm; blades 30–107 cm wide, split into 5–8(–13) segments, mottled light and dark green, with straight sides; middle segment wider than others, deeply split into 2 lobes, these 16–58 cm, 13–30 cm wide at apices, costa terminating in a glandlike structure abaxially at base of split. Plants dioecious. Inflorescences 40–70 cm, erect at first, later pendulous below crown; rachis 0–12 cm, with 1 (rarely 2) partial inflorescences, these branched to 1 order; male rachillae 2–7, 9–14 cm; female rachillae 1–4, 8–24 cm; male flowers borne in clusters, female flowers solitary. Fruits ovoid-globose, slightly 3-sided, 0.9–1.5 × 0.7–1.1 cm, red at maturity, with reflexed perianth.

Lowland rain forests on steep mountain slopes of granite or quartzite rocks; 100–1000 m. Guangxi, Yunnan [Vietnam].

**2. *Licuala fordiana*** Beccari, Malesia 3: 198. 1889.

穗花轴桐 *sui hua zhou lü*

Stems clustered, short and subterranean. Leaf sheaths and ocreas not seen; petioles to 1 m, unarmed or proximal ca. half with widely spaced, recurved, brown spines to 1 cm; blades to 1 m wide, split into 15–22 segments, green on both surfaces, with slightly curved sides; middle segment slightly wider than others, not split, 25–52 cm, 2–6 cm wide at apex. Plants monoecious. Inflorescences shorter than leaves, to 1.5 m, erect among leaves; rachis to 75 cm, with 3–7 first order branches, these spicate, rarely with 2 or 3 rachillae; rachilla 1(–3), 15–20 cm, densely hairy; flowers borne in clusters. Fruits globose, 0.7–0.8 cm in diam., with clasping perianth, red at maturity, borne on short

stalks.

- Lowland rain forests; below 500 m. Guangdong, Hainan.

The leaves are used to make raincoats.

**3. *Licuala hainanensis*** A. J. Henderson, L. X. Guo & Barfod, Syst. Bot. 32: 718. 2007.

海南轴桐 *hai nan zhou lü*

Stems clustered, to 4 m tall, 2–3 cm in diam. Leaf sheaths ca. 40 cm, extended above petioles into short ocreas; petioles 50–160 cm, basal part with regularly spaced, recurved, brown spines to 0.5 cm; blades to 1.2 m wide, split into 12–17 segments, green on both surfaces; middle segment only slightly wider than others, split, 36–41 cm, 7–8 cm wide at apex, costa terminating in a glandlike structure abaxially at base of split. Plants dioecious. Inflorescences up to 1 m, erect among leaves; rachis ca. 50 cm, with 3–5 partial inflorescences, these branched to 2 orders; male and female rachillae 9–16 on each partial inflorescence, 8–17 cm; male flowers solitary or loosely grouped in 2–4, female flowers solitary. Fruits globose, 0.7–0.9 cm in diam., orange or red at maturity, with reflexed perianth.

- Lowland rain forests; below 600 m. Hainan.

Material of this species was treated as *Licuala spinosa* Wurm in FRPS (13(1): 30. 1991).

