

9. RHAPIS Linnaeus f. ex Aiton, Hortus Kew. 3: 473. 1789.

棕竹属 zong zhu shu

Stems slender, clustered, spreading by rhizomes to form small to large clumps, covered, especially in upper part, with fibrous, persistent leaf bases, otherwise green. Leaves 12–22, palmate; leaf sheaths fibrous, consisting of 2 layers of fibers, forming a square or diagonal mesh, with fibrous ligules at apices; hastula present; segments few to many, split to 1/2 or more their length, with minute spines along margins. Plants dioecious. Inflorescences branched to 3 orders, borne among leaves, covered with persistent bracts, these closely or loosely sheathing, bearing either all male or all female flowers, occasionally bisexual; flowers simple in structure, borne singly, male flowers with 6 stamens. Fruits variously colored, small, globose to ellipsoid or ovoid, usually 1-seeded, sometimes borne on short stalks; endosperm homogeneous; germination remote; eophylls undivided.

Eleven species: China, Indonesia (Sumatra), Laos, Thailand, Vietnam; five species (two endemic) in China.

- 1a. Leaf blade segments with ± straight sides and jagged apices 1. *R. excelsa*
- 1b. Leaf blade segments with curved sides and ± pointed apices.
 - 2a. Leaf blades split to base, or at least some segments split to base 2. *R. gracilis*
 - 2b. Leaf blades not split to base.
 - 3a. Leaf blades divided into 3–6 segments 3. *R. robusta*
 - 3b. Leaf blades divided into 5–23 segments.
 - 4a. Leaf sheaths with coarse, black or brown fibers producing a diagonal mesh; fruits borne on short (ca. 5 mm) stalks 4. *R. multifida*
 - 4b. Leaf sheaths with narrow, brown fibers producing a square mesh; fruits not borne on short stalks 5. *R. humilis*

1. *Rhapis excelsa* (Thunberg) A. Henry in Rehder, J. Arnold Arbor. 11: 153. 1930.

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Chamaerops excelsa Thunberg in Murray, Syst. Veg., ed. 14, 984. 1784; *Rhapis aspera* W. H. Baxter; *R. cordata* W. H. Baxter; *R. divaricata* Gagnepain; *R. flabelliformis* L'Héritier; *R. kwamwonzick* Siebold ex Rodigas; *R. major* Blume; *Trachycarpus excelsus* (Thunberg) H. Wendland.

Stems clustered, rhizomatous, forming large, loose colonies, to 3 m tall, to 1.5 cm in diam., covered with persistent, fibrous leaf sheaths. Leaf sheaths with coarse, black fibers producing a square mesh; ligules not persistent; blades not split to base, divided into 2–13 segments, these with ± straight sides and jagged apices, to 40 × 7 cm, outermost narrowest. Inflorescences borne among leaves, branched to 2 or 3 orders; bracts tubular, sheathing; rachis to 26 cm; rachillae to 11 cm, glabrous; male flowers to 6 mm; sepals united into a tubular, 3-lobed calyx; petals united into a tubular corolla with a 3-lobed, valvate apex; stamens 6, borne in 2 series; filaments keeled adaxially; female flowers similar to but shorter than male. Fruits developing from 1 carpel, yellow, globose to ellipsoid, to 1 × 0.8 cm.

Scattered localities in lowland forests or dry forests, on slopes; below 1000 m. Fujian, Guangdong, Guizhou, Hainan, Yunnan [Thailand (?introduced), Vietnam].

The stems are used for chopsticks and walking sticks. This species is widely planted as an ornamental and has been introduced in Japan.

2. *Rhapis gracilis* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 10: 883. 1930.

细棕竹 xi zong zhu

Stems clustered, rhizomatous, forming colonies, to 2 m

tall, to 0.5 cm in diam., covered with persistent, fibrous leaf sheaths. Leaf sheaths with fine, black or brown fibers producing a square mesh; ligules persistent; blades split to base, divided into 2–4 segments, these with curved sides and ± pointed apices, to 20 × 3.5 cm. Inflorescences borne among leaves, branched to 2 orders; bracts tubular, sheathing; rachis to 20 cm; rachillae 2–3 cm, ± glabrous; male flowers to 4 mm; sepals united into a tubular, 3-lobed calyx; petals united into a tubular corolla with a 3-lobed, valvate apex; stamens 6, borne in 2 series; filaments not keeled adaxially; female flowers similar to but shorter than male. Fruits developing from 1 carpel, blue-green, globose, to 0.8 cm in diam., borne on a short stalk.

Lowland forests on limestone slopes; below 900 m. Guangdong, Guangxi, Hainan [Vietnam].

3. *Rhapis robusta* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 13: 587. 1937.

粗棕竹 cu zong zhu

Stems clustered, rhizomatous, forming colonies, to 1.5 m tall, to 0.6 cm in diam., covered with persistent, fibrous leaf sheaths. Leaf sheaths with coarse, black or brown fibers producing a diagonal mesh; ligules persistent; blades not split to base, divided into 3–6 segments, these with curved sides and ± pointed apices, to 22 × 2–3 cm. Inflorescences borne among leaves, branched to 2 orders; bracts tubular, sheathing, not or scarcely overlapping; rachis to 22 cm; rachillae 2.5–5 cm, ± glabrous; male flowers not known; female flowers ca. 2 mm. Fruits developing from 1 carpel, color not known, ellipsoid, to 0.5 cm in diam., borne on short stalks.

Lowland forests on slopes of limestone mountains; 300–1000 m. Guangxi [Vietnam].

4. *Rhapis multifida* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 13: 588. 1937.

多裂棕竹 duo lie zong zhu

Stems clustered, rhizomatous, forming colonies, to 2.5 m tall, to 2.5 cm in diam., covered with persistent, fibrous leaf sheaths. Leaf sheaths with coarse, black or brown fibers producing a diagonal mesh; ligules persistent; blades not split to base, divided into 14–23 linear segments, these with curved sides and \pm pointed apices, to 45×2 cm. Inflorescences borne among leaves, branched to 3 orders; bracts tubular, sheathing; rachis to 56 cm; rachillae 3.5–10 cm, hairy; male flowers not seen; female flowers to 4.5 mm. Fruits developing from 1 carpel, yellow, globose, to 0.8 cm in diam., borne on ca. 5 mm stalks.

• Lowland and montane forests on rocky slopes; below 1500 m. Guangxi, E Yunnan [?Vietnam].

This species is planted as an ornamental.

5. *Rhapis humilis* Blume, Rumphia 2: 54. 1838–1839.

矮棕竹 ai zong zhu

Chamaerops excelsa Thunberg var. *humilior* Thunberg; *C. sirotsik* H. Wendland; *Licuala waraguh* Blume; *L. wixu* Blume; *Rhapis javanica* Blume; *R. sirotsik* H. Wendland.

Stems clustered, rhizomatous, forming large, loose colonies, to 6 m tall, to 3 cm in diam., covered with persistent, fibrous leaf sheaths. Leaf sheaths with narrow, brown fibers producing a square mesh; ligules persistent; blades not split to base, divided into 7–20 segments, these with curved sides and \pm pointed apices, to 45×2 cm, outermost narrowest. Inflorescences borne among leaves, branched to 3 orders; bracts tubular, sheathing; rachis to 40 cm; rachillae to 17 cm, brown tomentose; male flowers to 7 mm; sepals united into a tubular, 3-lobed calyx; petals united into a tubular corolla with a 3-lobed, valvate apex; stamens 6, borne in 2 series; filaments not keeled adaxially; female flowers similar to but shorter than male. Fruits ovoid, to 0.7 cm in diam. Seeds ovoid, to 4.5 mm.

• Lowland dry forests on slopes; below 1000 m. Guangxi, Guizhou.

This species is widely planted as an ornamental and has been introduced in Indonesia (Java) and Japan. One of us (Henderson) suggests that *Rhapis humilis* might prove to be just a cultivar of *R. excelsa*.

