
海枣 hai zao

Stems solitary or clustered, short and subterranean to large and aerial, usually rough with very close nodes, often covered with persistent leaf bases. Leaves 8–50, pinnate; leaf sheaths open; pinnae induplicate, regularly or irregularly arranged and then spreading in different planes, at base of leaf modified into short, stout, sharp spines (acanthophylls). Plants dioecious. Inflorescences usually branched to 1 order, borne among leaves; peduncle bearing a prophyll, other bracts much reduced; rachillae often borne in groups or spirals along inflorescence rachis; flowers small, simple, unisexual; male flowers with 6–9 stamens. Fruits variously colored black or brown, obvoid, oblong, or ellipsoid, usually 1-seeded; mesocarp fleshy, thick and sweet tasting in date palm but thin and bitter in other species; endosperm homogeneous, rarely ruminate; germination remote; eophylls undivided.

Fourteen species: from the Canary Islands across Africa, the Mediterranean, and SW Asia to just reaching the Philippines; three species (one introduced) in China.

In addition to species no. 1 below, Phoenix canariensis Chabaud (Prov. Agric. Hort. Ill. 19: 293. 1882; 加拿利海枣 jia na li hai zao) is cultivated in China. It is native to the Canary Islands.

Records of Phoenix sylvestris (Linnaeus) Roxburgh from China (e.g., FRPS 13(1): 8. 1991) were presumably based on misidentifications.

1a. Pinnae regularly arranged and spreading in same plane; pinnae with persistent scales on abaxial surface of midrib .......................................................... 3. P. roebelenii

1b. Pinnae irregularly arranged and spreading in different planes; pinnae without persistent scales on abaxial surface of midrib.

2a. Stems short and subterranean or to 5 m tall ........................................................................................................ 2. P. loureiroi

2b. Stems tall and aerial, to 30 m tall ........................................................................................................ 1. P. dactylifera


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Stems solitary or clustered and then with few shoots, to 30 m tall, to 50 cm in diam., rough with persistent, diamond-shaped leaf bases. Leaves 3–5 m; sheath and petiole to 1 m; rachis 1–2 m; acanthophylls many per side of rachis; pinnae to 200 per side of rachis, linear, irregularly arranged and spreading in different planes; middle pinnae to 40 × 2 cm. Male inflorescences erect, to 1 m, with many rachillae, these ca. 30 cm; female inflorescences erect, becoming pendulous, to 2 m, with to 150 rachillae, these to 40 cm. Fruits variable in shape, usually oblong, to 7 × 3 cm, brown or black; endosperm homogeneous.

Cultivated. Fujian, Guangdong, Guangxi, Yunnan [widely cultivated throughout N Africa, SW Asia, and parts of S Asia].

2. Phoenix loureiroi Kunth, Enum. Pl. 3: 257. 1841 ["loureiri"].

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Phoenix pusilla Loureiro, Fl. Cochinch. 2: 614. 1790, not Gaertner (1788); P. hanceana Naudin; P. hanceana var. formosana Beccari; P. hanceana var. philippinensis Beccari; P. humilis Royle ex Beccari (1890), not (Linnaeus) Cavanilles (1793); P. humilis var. hanceana (Naudin) Beccari; P. humilis var. loureiroi (Kunth) Beccari; P. humilis var. pedunculata (Griffith) Beccari; P. humilis var. robusta Beccari; P. loureiroi var. humilis S. Barrow; P. loureiroi var. pedunculata (Griffith) Goovaerts; P. ouseleyana Griffith; P. pedunculata Griffith; P. pygmaea Raeuschel; P. robusta (Beccari) J. D. Hooker.

Stems solitary, 1–6 m tall, 20–40 cm in diam., sometimes short and subterranean, rough with persistent, diamond-shaped leaf bases. Leaves to 2 m; sheath and petiole to 40 cm; rachis 1–2 m; acanthophylls ca. 15 per side of rachis; pinnae 40–130 per side of rachis, linear, irregularly arranged and spreading in different planes; middle pinnae 20–50 × 1–4 cm. Male inflorescences erect, to 65 cm, with to 30 rachillae, these ca. 10 cm; female inflorescences erect, becoming arched, to 2 m, with to 40 rachillae, these to 40 cm. Fruits black, blue-black, or dark purple, obvoid to obovoid, to 1.8 × 0.9 cm; endosperm homogeneous.

Open forests, Pinus forests, open grassy areas, dunes, often on steep slopes, persisting in disturbed areas and in places subject to burning; below 1700 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [Bangladesh, Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Pakistan, Philippines, Thailand, Vietnam].

The leaves are woven into various domestic items, especially mats and brooms, or used for thatching.

Two varieties are sometimes recognized. The one occurring in China, Phoenix loureiroi var. loureiroi, has pinnae with a thin brown line along the margins, which is lacking in P. loureiroi var. pedunculata, restricted to the Indian subcontinent. The FRPS record (13(1): 7. 1991) of Phoenix acaulis Roxburgh from China was probably based on a misidentification of P. loureiroi.


刺葵属 ci kui

Stems clustered (solitary in cultivated plants), 1–3 m tall, to 10 cm in diam., straight or twisted, rough with persistent, diamond-shaped leaf bases. Leaves to 2 m; sheath and petiole to 50 cm; rachis 1–2 m; acanthophylls ca. 12 per side of rachis;
pinnæ 25–50 per side of rachis, linear, regularly arranged and spreading in same plane, with persistent scales on abaxial surface of midrib; middle pinnæ 20–40 × ca. 1.5 cm. Male inflorescences pendulous, 30–60 cm, with to 20 rachillæ, these 7–20 cm; female inflorescences erect, to 35 cm, with to 50 rachillæ. Fruits orange-brown or purple-brown, obovoid, to 1.8 × 0.7 cm; endosperm homogeneous.

Scattered localities on rocky riverbanks or cliffs, sometimes with stems submerged, especially along the Lancang Jiang and Nu Jiang, at low elevations. Yunnan [Laos, Myanmar, Thailand, Vietnam].

This species is widely planted as an ornamental.