

18. PINANGA Blume, Bull. Sci. Phys. Nat. Néerlande 1: 65. 1838.

山槟榔属 shan bin lang shu

Pseudopinanga Burret.

Stems clustered or less often solitary, ringed with prominent leaf scars, tall to short or subterranean. Leaves 5–11, pinnate or occasionally undivided; leaf sheaths closed, forming a prominent, yellowish to reddish green crownshaft (rarely open and not forming crownshafts), usually covered with variously colored scales; pinnae regularly arranged along rachis, spreading in same plane, linear to sigmoid, 1- to several veined, at leaf apex pinnae joined with only a short split at tip, giving pinnae a lobed appearance. Inflorescences branched to 1 order, with a few rachillae, sometimes spicate, borne below crownshaft, rarely among leaves, covered initially with prophyll; rachillae becoming pendulous, seldom remaining erect, usually smooth, sometimes hairy; flowers unisexual, borne throughout in triads of 1 female flower flanked by 2 male flowers, these arranged distichously along rachillae, or less often tristichously or spirally. Fruits red, orange, or black, small, ellipsoid to globose or spindle-shaped, commonly beaked, 1-seeded, ripening through a series of colors, commonly from green to pink to red to black; endosperm ruminant, rarely homogeneous; germination adjacent; eophylls bifid.

About 137 species: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Papua New Guinea, Thailand, Vietnam; five species (one endemic) in China.

The record in FRPS (13(1): 140. 1991) of *Pinanga hexasticha* (Kurz) Scheffer is probably based on a misidentification. *Pinanga hexasticha* is restricted to Myanmar.

- 1a. Inflorescences with 1 rachilla; flower triads and fruits spirally or tristichously arranged along rachilla.
 - 2a. Rachilla triangular in cross section; flowers and fruits tristichously arranged along rachilla 1. *P. gracilis*
 - 2b. Rachilla rounded in cross section; flowers and fruits spirally arranged along rachilla 2. *P. acuminata*
- 1b. Inflorescences with more than 1 rachilla, rarely with 1 rachilla; flower triads and fruits distichously arranged along rachillae.
 - 3a. Rachillae ca. 30 3. *P. tashiroi*
 - 3b. Rachillae 1–8.
 - 4a. Pinnae 10–28 per side of rachis; rachillae 3–8 4. *P. sylvestris*
 - 4b. Pinnae 3–6 per side of rachis, or rarely leaf undivided; rachillae 1–4 5. *P. baviensis*

1. *Pinanga gracilis* Blume, Rumphia 2: 77. 1839.

纤细山槟榔 xian xi shan bin lang

Areca gracilis Roxburgh, Fl. Ind., ed. 1832, 3: 619. 1832, not Buchanan-Hamilton (1826); *Nenga gracilis* (Blume) Beccari; *Pinanga patula* Blume var. *gracilis* (Blume) Scheff.; *Seaforthia gracilis* (Blume) Martius.

Stems clustered, to 4 m tall, ca. 1.5 cm in diam., reddish brown. Leaves pinnate, rarely undivided; sheaths closed and forming crownshafts, 21–34 cm, green with reddish brown scales; petioles 9–13 cm; rachis 40–60 cm; pinnae (1)–3–8 per side of rachis, green abaxially, sigmoid, regularly arranged, distantly spaced; middle pinnae to 55 × 3–10 cm. Inflorescences spicate, pendulous; peduncles 1.4–4 × 0.5–0.6 cm; rachis absent; rachilla 1, 12–17 cm, straight, triangular in cross section, glabrous; triads tristichously arranged, superficial on rachilla; male flowers to 8 mm, deciduous; sepals to 1 mm, connate at base into a 3-lobed cupule; petals to 8 mm, valvate; stamens ca. 35; female flowers to 2.5 mm; sepals to 2.5 mm, rounded at apex, ciliate; petals to 2.5 mm, ciliate. Fruits red, ellipsoid, to 1.8 × 1 cm.

Lowland to montane rain forests; below 1200 m. Xizang [Bangladesh, Bhutan, India, Myanmar, Nepal].

2. *Pinanga acuminata* A. J. Henderson, Makinoa, n.s., 6: 2. 2007.

滇缅山槟榔 dian mian shan bin lang

Stems clustered, to 5 m tall, 1.5–2 cm in diam., yellowish. Leaves pinnate; sheaths closed and forming crownshafts, to 25 cm, yellowish green with reddish brown scales; petioles to 30 cm; rachis 45–65 cm; pinnae 6–9 per side of rachis, green abaxially, sigmoid, multi-veined, regularly arranged, distantly spaced; middle pinnae 30–39 × 2.5–4 cm. Inflorescences spicate, pendulous or rarely erect; peduncles 1.5–2 × 0.4–0.5 cm; rachis absent; rachilla 1, 11–19 cm, straight, rounded in cross section, glabrous; triads spirally arranged, sunken in rachilla; male flowers to 6 mm, semipersistent; sepals to 1.5 mm, connate at base into a 3-lobed cupule; petals to 6 mm, triangular, valvate; stamens not seen; female flowers ca. 3 mm; sepals ca. 3 mm, acuminate, scarcely ciliate; petals ca. 3 mm, ciliate. Fruits red, ellipsoid, to 1.8 × 1 cm.

Lowland rain forests; below 1000 m. Yunnan [Myanmar].

3. *Pinanga tashiroi* Hayata, Icon. Pl. Formosan. 3: 196. 1913.

兰屿山槟榔 lan yu shan bin lang

Pseudopinanga tashiroi (Hayata) Burret.

Stems clustered or solitary, to 5 m tall, to 5 cm or more in diam., swollen at bases. Leaves pinnate; sheaths closed and forming crownshafts, to 1 m, green with reddish brown scales; petioles to 60 cm; rachis to 1.5 m; pinnae many per side of rachis, green abaxially, linear, multi-veined, regularly arranged; middle pinnae to 60 × 2–2.5 cm. Inflorescences branched, pendulous; peduncles not seen; rachis not seen; rachillae ca. 30, to

21 cm, glabrous; triads distichously arranged, superficial on rachillae; male flowers 10–11 mm, deciduous; sepals connate into a 3-lobed calyx; petals to 10 mm; stamens 36–42; female flowers ca. 5 mm; sepals ca. 3 mm, rounded at apex, ciliate; petals ca. 3 mm, ciliate. Fruits red, ovoid to globose, to 1.8 × 1.2 cm.

- Lowland rain forests; below 500 m. Taiwan (Lan Yu).

The seeds are chewed as a substitute for betel nut.

4. *Pinanga sylvestris* (Loureiro) Hodel, Palm J. 139: 55. 1998.

华山竹 hua shan zhu

Areca sylvestris Loureiro, Fl. Cochinch. 2: 568. 1790; *Pinanga chinensis* Beccari; *P. macroclada* Burret; *Ptychosperma sylvestre* (Loureiro) Miquel; *Seaforthia sylvestris* (Loureiro) Blume ex Martius.

Stems clustered, to 6 m tall, 1.5–3.5 cm in diam., reddish brown. Leaves pinnate; sheaths closed and forming crownshafts, 17–45 cm, green or yellowish with reddish scales; petioles 10–25 cm; rachis 1–1.3 m; pinnae 10–28 per side of rachis, green abaxially, linear, distantly spaced, regularly arranged; middle pinnae 39–60 × 2–5 cm. Inflorescences branched, pendulous, occasionally erect; peduncles 2.5–6 × ca. 0.7 cm; rachis 0.5–2.5 cm; rachillae 3–8, 9–26 cm, zigzag, triangular in cross section, glabrous; triads distichously arranged, superficial on rachillae; male flowers not seen; female flowers to 3 mm; sepals to 3 mm, rounded at apex, ciliate; petals to 3 mm, ciliate. Fruits red, ellipsoid, 1.4–1.8 × 0.5–0.7 cm.

Archontophoenix H. Wendland & Drude (假槟榔属 jia bin lang shu). One species is cultivated in tropical and subtropical areas of Fujian, Guangdong, Guangxi, Hainan, Taiwan, and Yunnan: *A. alexandrae* (F. Mueller) H. Wendland & Drude (Linnaea 39: 212. 1875; *Ptychosperma alexandrae* F. Mueller, Fragm. 5(33): 47. 1865; 假槟榔 jia bin lang), native to Australia.

Borassus Linnaeus (糖棕属 tang zong shu). One species is cultivated in S Yunnan (Xishuangbanna): *B. flabellifer* Linnaeus (Sp. Pl. 2: 1187. 1753; 糖棕 tang zong), native to Bangladesh, Cambodia, India, Indonesia, Laos, Myanmar, Sri Lanka, Thailand, and Vietnam.

Butia (Beccari) Beccari (布迪椰子属 bu di ye zi shu). One species is cultivated as an ornamental: *B. capitata* (Martius) Beccari (Agric. Colon. 10: 507. 1916; *Cocos capitata* Martius, Hist. Nat. Palm. 2: 114. 1826; 布迪椰子 bu di ye zi), native to Brazil and Uruguay.

Corypha Linnaeus (贝叶棕属 bei ye zong shu). One species is cultivated in S Yunnan (Xishuangbanna): *C. umbraculifera* Linnaeus (Sp. Pl. 2: 1187. 1753; 贝叶棕 bei ye zong), native to India and Sri Lanka.

Dypsis Noronha ex Martius (散尾葵属 san wei kui shu). One species is cultivated in S China: *D. lutescens* (H. Wendland) Beentje & J. Dransfield (Palms Madagascar, 212. 1995; *Chrysalidocarpus lutescens* H. Wendland, Bot. Zeitung 36: 117. 1878; 散尾葵 san wei kui), native to Madagascar.

Elaeis Jacquin (油棕属 you zong shu). One species is cultivated in Hainan, Taiwan, and Yunnan: *E. guineensis* Jacquin (Select. Stirp. Amer. Hist. 280. 1763; 油棕 you zong), native to W Africa but now very widely grown for its oil-rich fruits.

Lowland and montane rain forests; 100–1700 m. Yunnan [Cambodia, Laos, Myanmar, Thailand].

5. *Pinanga baviensis* Beccari, Webbia 3: 193. 1910.

变色山槟榔 bian se shan bin lang

Pinanga discolor Burret; *P. sinii* Burret; *P. viridis* Burret.

Stems clustered, to 5 m tall, 0.8–2.5 cm in diam., reddish brown. Leaves pinnate, rarely undivided; sheaths closed and forming crownshafts, 18–34 cm, green or yellowish green, with brown scales; petioles 7–33 cm; rachis 32–100 cm; pinnae (1–)3–12 per side of rachis, gray-green abaxially, falcate, not contracted at bases, multi-veined, regularly arranged, closely spaced; middle pinnae 30–39 × 3–7 cm. Inflorescences branched, pendulous; peduncles 2–3 cm, ca. 0.4 cm wide; rachis 0–0.5 cm; rachillae (1 or)2–5, 10–15 cm, zigzag, rectangular in cross section, glabrous; triads distichously arranged, superficial on rachillae; male flowers to 13 mm, deciduous; sepals to 3.5 mm, connate into a 3-lobed, flat, membranous calyx; petals to 12 mm, unequal, triangular, fleshy, acute; stamens 20 or 21; female flowers to 3 mm; sepals to 3 mm, imbricate, rounded at apices or briefly acuminate, smooth or ciliate; petals to 3 mm, smooth or ciliate. Fruits red, ellipsoid, to 2.5 × 0.8–1 cm.

Lowland rain forests. Fujian, Guangdong, Guangxi, Hainan, Yunnan [Vietnam].

Cultivated taxa

Hyophorbe Gaertner (酒瓶椰子属 jiu ping ye zi shu). One species is becoming a common street tree in Hainan: *H. lagenicaulis* (L. H. Bailey) H. E. Moore (Principes 20: 119. 1976; *Mascarena lagenicaulis* L. H. Bailey, Gentes Herb. 6: 74. 1942; 酒瓶椰子 jiu ping ye zi), native to Round Island, Mauritius.

Raphia P. Beauvois (酒椰属 jiu ye shu). One species is recorded as cultivated in China: *R. vinifera* P. Beauvois (Fl. Oware 1: 77. 1806; 酒椰 jiu ye), native to W Africa.

Roystonea O. F. Cook (王棕属 wang zong shu). Two species are recorded as cultivated in China: *R. oleracea* (Jacquin) O. F. Cook (Bull. Torrey Bot. Club 28: 554. 1901; *Areca oleracea* Jacquin, Select. Stirp. Amer. Hist. 278. 1763; 菜王棕 cai wang zong) and *R. regia* (Kunth) O. F. Cook (Science, n.s., 12: 479. 1900; *Oreodoxa regia* Kunth in Humboldt et al., Nov. Gen. Sp. 1, ed. 4^o: 305. 1816; 大王椰子 da wang ye zi), both native to the Caribbean region.

Sabal Adanson (箬棕属 ruo zong shu). Two species are recorded as cultivated in China: *S. minor* (Jacquin) Persoon (Syn. Pl. 1: 399. 1805; *Corypha minor* Jacquin, Hort. Bot. Vindob. 3: 8. 1776; *Chamaerops acaulis* Michaux; 小箬棕 xiao ruo zong) and *S. palmetto* (Walter) Loddiges ex Schultes & J. H. Schultes (Syst. Veg. 7: 1487. 1830; *Corypha palmetto* Walter, Fl. Carol. 119. 1788; 箬棕 ruo zong), both native to SE United States.

Syagrus Martius (金山葵属 jin shan kui shu). One species is cultivated in S China: *S. romanzoffiana* (Chamisso) Glassman (Fieldiana, Bot. 31: 382. 1968; *Cocos romanzoffiana* Chamisso, Chor. Voy. Pittor. 5. 1822; 皇后葵 huang hou kui), native to Brazil.

Washingtonia Rafinesque (华盛顿棕属 hua sheng dun zong shu).

One species is cultivated in Fujian, Guangdong, Taiwan, and Yunnan: *W. filifera* (Linden ex André) H. Wendland (Bot. Zeitung (Berlin) 37: lxi, 68. 1880; *Pritchardia filifera* Linden ex André, Ill. Hort. 24: 32. 1877; 毛华盛顿棕 mao hua sheng dun zong), native to Mexico (Baja California) and the United States (Arizona, California); and one species is cultivated in S China: *W. robusta* H. Wendland (Gart.-Zeitung (Berlin) 2: 198. 1883; 华盛顿棕 hua sheng dun zong), native to Mexico (Baja California, Sonora).

There are many newly introduced palm species cultivated in China as ornamental and indoor plants.

