

3. MUSA Linnaeus, Sp. Pl. 2: 1043. 1753.

芭蕉属 ba jiao shu

Herbs perennial, tufted, rhizomatous, stoloniferous. Stems remaining short until flowering. Pseudostems composed of closely packed leaf sheaths, more than 60 cm, base slightly swollen. Leaves large; petiole long, base enlarged into a sheath; leaf blade oblong. Inflorescence terminal, erect, pendulous, or subpendulous, not conical, lax. Bracts green, brown, dull purple, or rarely yellow, flat or furrowed, convolute or imbricate in bud, usually deciduous. Flowers in 1 or 2 rows per bract, deciduous; flowers in proximal bracts female (with reduced stamens) or bisexual; flowers in distal bracts male (with reduced gynoecium); sometimes (in cultivated or semicultivated forms) all flowers functionally sterile. Compound tepal tubular, soon splitting to base on 1 side, apex 5-toothed; free tepal inserted within compound tepal and opposite to it. Stamens 5; filaments short; anthers linear, 2-loculed. Berries elongate, fleshy, with numerous seeds (except in parthenocarpic forms). Seeds irregularly globose to lenticular.

About 30 species: mainly in SE Asia; 11 species (two endemic, three introduced) in China.

- 1a. Inflorescence erect or ascending (pendulous in *M. sanguinea*); flowers 3 or 6 per bract, in 1 row; pseudostems often less than 3 m.
 - 2a. Free tepal much shorter than compound tepal 1. *M. rubra*
 - 2b. Free tepal nearly as long as compound tepal.
 - 3a. Inflorescence rachis glabrous; flowers 6 per bract 2. *M. coccinea*
 - 3b. Inflorescence rachis brown puberulent; flowers 3 per bract 3. *M. sanguinea*
- 1b. Inflorescence pendulous or subpendulous; flowers 8–20 per bract, in 2 rows; pseudostems often more than 3 m.
 - 4a. Leaf sheath distally and leaf blade abaxially pruinose (sometimes not pruinose in *M. balbisiana*); fruit of cultivated species usually edible, seedless.
 - 5a. Inflorescence rachis hairy; bracts usually acute at apex 4. *M. acuminata*
 - 5b. Inflorescence rachis glabrous (sometimes pubescent in *M. balbisiana*); bracts rounded at apex.
 - 6a. Tepals purplish 5. *M. balbisiana*
 - 6b. Tepals yellow or yellowish 6. *M. ×paradisica*
 - 4b. Leaf sheath distally and leaf blade abaxially not pruinose (leaf blade abaxially pruinose in *M. textilis*); fruit inedible, with numerous seeds.
 - 7a. Margin of petiole tightly closed; compound tepal cucullate and corniculate 7. *M. textilis*
 - 7b. Margin of petiole open or slightly closed; compound tepal neither cucullate nor corniculate.
 - 8a. Free tepal nearly as long as compound tepal 8. *M. basjoo*
 - 8b. Free tepal 1/3–1/2 as long as compound tepal.
 - 9a. Inflorescence rachis glabrous 9. *M. formosana*
 - 9b. Inflorescence rachis hairy.
 - 10a. Bracts dark reddish purple, often with yellow margin and often variegated with longitudinal, yellow stripes 10. *M. itinerans*
 - 10b. Bracts uniformly brownish red 11. *M. insularimontana*

1. *Musa rubra* Wallich ex Kurz, J. Agric. Soc. India 14: 301. 1867.

阿西蕉 a xi jiao

Rhizome tuberous. Pseudostems dark purple, 1.5–2.4 m. Petiole purple spotted, deep purple at base, purple-red at margin, to 1 m, slender, margin narrow, open ca. 1.5 cm wide; leaf blade adaxially deep green, abaxially yellow-green, ovate-oblong, ca. 2 m × 50 cm, midvein pink striped, base obliquely asymmetric, apex obtuse. Inflorescence erect, ca. 40 × 2.5–4 cm; rachis brown villous. Bracts pink, lanceolate. Flowers 5 or 6 per bract, in 1 row. Compound tepal golden yellow, apex of outer lobes with a hooklike appendage; free tepal yellow, much shorter than compound tepal, membranous. Infructescence erect, often with 6–9 fruit clusters. Berries 5 or 6 per cluster, reddish, cylindric, slightly curved, ca. 7 × 2.5–3 cm, base attenuate, apex truncate. Seeds numerous, brownish, depressed, ca. 5 mm in diam., irregularly angled, tuberculate. 2n = 22.

Shaded and moist ravine bottoms or semimarshlands; 1000–1300

m. SW Yunnan [Myanmar, Thailand].

2. *Musa coccinea* Andrews, Bot. Repos. 1: t. 47. 1799.

红蕉 hong jiao

Musa uranoscopos Loureiro.

Pseudostems 1–2 m. Petiole 30–50 cm, narrowly winged; leaf blade adaxially yellow-green, abaxially light yellow-green and not pruinose, oblong, 1.8–2.2 m × 70–80 cm, base rounded, noticeably asymmetric. Inflorescence erect; rachis glabrous. Bracts adaxially pink, abaxially scarlet and conspicuously wrinkled. Flowers 6 per bract, in 1 row. Tepals of female flowers yellow; outer lobes of compound tepal cornered; free tepal equaling compound tepal, apex acute, finely toothed. Berries obliquely pendulous on rachis, gray-white, straight, 10–12 × ca. 4 cm, not angled; stalk 3–3.5 cm. Seeds numerous. Fl. Sep–Nov. 2n = 20.

Ravines and slopes, also cultivated in gardens; near sea level to 600 m. Guangdong, Guangxi, SE Yunnan [Vietnam].

Cultivated as an ornamental.

3. *Musa sanguinea* J. D. Hooker, Bot. Mag. 98: t. 5975. 1872.

血红蕉 xue hong jiao

Pseudostems clumped, 1.5–2 m. Petiole ca. 30 cm, margin narrow and open; leaf blade deep green, ovate-oblong, not more than 1 m, base asymmetric, apex obtuse. Inflorescence erect or ascending, becoming pendulous, ca. 20 cm; rachis brown puberulent. Bracts reddish, ovate-lanceolate, 7.5–14 cm. Flowers borne on proximal bracts, 3 per bract, in 1 row. Compound tepal bright yellow, ca. 3.8 cm, apex of outer lobes with a hook-like appendage; free tepal yellow, equaling compound tepal, membranous. Berries grayish yellow-green with red blotches, trigonous oblong, 5–7.5 cm. Seeds numerous, black, ca. 5 mm in diam., irregularly multiangled, tuberculate. $2n = 22$.

Ravine bottoms or semimarshlands; ca. 1000 m. Xizang [India, Indonesia].

Cultivated as an ornamental.

4. *Musa acuminata* Colla, Mem. Gen. *Musa*, 66. 1820.

小果野蕉 xiao guo ye jiao

Pseudostems green with black blotches, ca. 4.8 m. Leaf sheath and petiole pruinose; petiole ca. 80 cm, margin erect or spreading and basally with scarios wings; leaf blade adaxially green and pruinose, abaxially yellow-green and pruinose or not, oblong, 1.9–2.3 m × 50–70 cm, base cordate, asymmetric, mid-vein adaxially green, abaxially white-yellow. Inflorescence subhorizontal or vertically reflexed; peduncle usually downy or hairy. Bracts bright red to dark violet, sometimes yellow at extreme apex, ovate, apex usually acute. Male flowers ca. 20 per bract, in 2 rows. Compound tepal white or cream, lemon yellow at apex, 3.5–4 cm, apex of outer lobes with a hooklike, hairy appendage; free tepal not more than 1/2 as long as compound tepal, apex emarginate, shortly apiculate. Infructescence ca. 1.2 m; peduncle to 70 × ca. 4 cm, white setose. Berries incurved, green to yellow-green, 5-angled when young, cylindrical at maturity, ca. 9 cm, white setose, base curved and attenuate into a stalk, apex contracted into a rostrum 6–10 mm. Seeds numerous in wild plants but absent in cultivated clones, brown, depressed, 5–6 mm in diam., irregularly angled. $2n = 22$, 33.

Shaded and moist ravines, marshlands, semimarshlands, slopes, also cultivated; near sea level to 1200 m. Native in W Guangxi and Yunnan; cultivated in Fujian, Guangdong, Guangxi, Taiwan, and Yunnan [India, Indonesia (Java), Malaysia, Myanmar, Philippines, Thailand, Vietnam].

Wild plants are diploid ($2n = 22$) and bear fruits containing numerous seeds making them inedible. Cultivated plants are triploid ($2n = 33$) and bear seedless, edible fruits; such plants have been called *M. acuminata* 'Dwarf Cavendish' (*M. cavendishii* Lambert ex Paxton; *M. chinensis* Sweet; *M. nana* Loureiro).

5. *Musa balbisiana* Colla, Mem. Gen. *Musa*, 56. 1820.

野蕉 ye jiao

Musa dechangensis J. L. Liu & M. G. Liu; *M. lushanensis* J. L. Liu; *M. luteola* J. L. Liu; *M. ×paradisiaca* Linnaeus subsp. *seminifera* (Loureiro) Baker; *M. seminifera* Loureiro.

Pseudostems clumped, yellow-green, often with large, black markings, ca. 6 m. Petiole 60–75 cm, margin open, ca. 2 cm wide, often closed when young; leaf blade adaxially green and slightly pruinose or not, ovate-oblong, ca. 2.9 m × 90 cm, base auriculate, asymmetric. Inflorescence pendulous, ca. 2.5 m; peduncle and rachis glabrous. Bracts of bisexual and male flowers adaxially purple-red, abaxially brownish purple to yellow-green and pruinose, ovate to lanceolate, persistent, apex obtuse, reflexed after flowering; bracts of female flowers deciduous. Male flowers up to 20 per bract, in 2 rows. Compound tepal adaxially pale purple, abaxially pale purple-white, 4–5 cm, striate, teeth yellow to orange; free tepal milky white, translucent, obovate, ca. 1/2 as long as compound tepal, apex emarginate, shortly mucronate-apiculate. Infructescence pendulous, with ca. 8 clusters ("hands") each of 15 or 16 berries in 2 rows. Berries gray-green, obovoid, ca. 13 × 4 cm, distinctly angled at maturity, base narrowed into a stalk ca. 2.5 cm, apex contracted or not into a short, angled column ca. 2 cm. Seeds numerous, brown, oblate, 5–10 mm in diam., minutely warty. $2n = 22$.

Ravines in evergreen forests; ca. 1100 m. Guangdong, Guangxi, Hainan, Xizang, W Yunnan [India, Indonesia (Java), Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sikkim, Sri Lanka, Thailand].

The Chinese cultivars "Fen Ba Jiao" and "Da Jiao" are triploid forms of this species recognized by Li (Acta Phytotax. Sin. 16(3): 54–56. 1978) and Wang (J. Trop. Subtrop. Bot 3: 49–53. 1995).

The species is used to feed pigs.

6. *Musa ×paradisiaca* Linnaeus, Sp. Pl. 2: 1043. 1753.

大蕉 da jiao

Musa ×paradisiaca subsp. *sapientum* (Linnaeus) Kuntze; *M. sapientum* Linnaeus.

Pseudostems clumped, pruinose, 3–7 m. Leaves erect or ascending; petiole pruinose, more than 30 cm, margin closed; leaf blade adaxially deep green, abaxially light green and distinctly pruinose, oblong, 1.5–3 m × 40–60 cm, base subcordate to auriculate, subsymmetric, apex acute. Inflorescence pendulous; rachis glabrous. Bracts adaxially deep red, abaxially purple, ovate to ovate-lanceolate, 15–30 cm or more, deciduous. Flowers in 2 rows in each bract; male flowers with tepals yellow to pale yellow. Compound tepal 4–6.5 cm; free tepal suborbicular to oblong, ca. 1/2 as long as compound tepal, waxy, apex acuminate or rolling into a sac. Infructescence with 7 or 8 clusters of berries. Berries erect or slightly curved, oblong, 10–20 cm, angled; pulp sweet or sweet and acidic, not very fragrant; stalk elongate. Seeds absent or few. $2n = 33$.

Cultivated. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [native to tropical Asia, widely cultivated in the tropics].

Musa ×paradisiaca is a hybrid between *M. acuminata* and *M. balbisiana*.

The species is grown for its edible fruit.

7. *Musa textilis* Néé, Anales Ci. Nat. 4: 123. 1801.

蕉麻 jiao ma

Pseudostems clumped, 3–8 m × 12–30 cm. Petiole 60–70 cm, margin tightly closed, submembranous, densely and finely wrinkled; leaf blade adaxially bright green, abaxially pruinose

and often with large, brown spots, oblong, 1.2–2.4 m × 20–40 cm, adaxially glabrous, midvein stout, secondary veins conspicuous, pinnate, parallel, base cordate, asymmetric. Inflorescence pendulous, long. Bracts closely imbricate, reddish brown to green, ovate, ca. 10 × 6 cm, deciduous. Flowers 10–12 per bract, in 2 rows; flowers in basal 3–6 bracts female, those in distal bracts male. Compound tepal ca. 4 cm, outer lobes cucullate, corniculate. Berries green, slightly trigonous, curved, 5–9 × 2–3 cm, inedible. Seeds black, turbinate, ca. 7 mm in diam., multi-angled. $2n = 20$.

Cultivated. Guangdong, Guangxi, Yunnan [native to Indonesia, Philippines].

Grown for the fiber obtained from the leaf sheaths.

8. *Musa basjoo* Siebold & Zuccarini, Verh. Batav. Genootsch. Kunsten 12: 18. 1831.

芭蕉 ba jiao

Pseudostems 2.5–4 m. Petiole to 30 cm, robust; leaf blade adaxially bright green, oblong, 2–3 m × ca. 30 cm, base rounded, asymmetric. Inflorescence pendulous. Bracts red-brown to purple. Male flowers 10–16 per bract, in 2 rows. Compound tepal 4–4.5 cm; free tepal equaling compound tepal, apex apiculate. Berries sessile, trigonous oblong to sometimes 5-angled, 5–7 cm. Seeds numerous, black, irregularly angled, 6–8 mm wide, tuberculate. $2n = 22$.

Cultivated. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang [native to Japan, Korea].

Medicinal and ornamental.

9. *Musa formosana* (Warburg ex Schumann) Hayata, Icon. Pl. Formos. 6(Suppl): 83. 1917.

台湾芭蕉 tai wan ba jiao

Musa ×paradisica Linnaeus var. *formosana* Warburg ex Schumann in Engler, Pflanzenz. 1(IV. 45): 21. 1900.

Pseudostems ca. 6 m. Petiole ca. 35 cm; leaf blade ca. 1.2 m × 45 cm. Inflorescence pendulous; rachis 40–50 m × 3–4 cm, glabrous. Bracts bronze yellow, ovate, 15–20 × 6–10 cm, concave. Flowers ca. 8 cm, with pale yellow tepals. Compound tepal 5-lobed at apex; free tepal oblong, ca. 1/2 as long as compound tepal, strongly vaulted, apex cuspidate. Berries bronze, fusiform, 8–10 cm. $2n = 20^*$.

• Slopes in mountains; near sea level to 1000 m. Taiwan.

10. *Musa itinerans* Cheesman, Kew Bull. 4: 23. 1949.

阿宽蕉 a kuan jiao

Rhizomes markedly elongating. Pseudostems dull yellow-green, purple when old, 5–7 m, often with withered leaves. Petiole 50–60 cm, margin closed at middle of petiole but gradually opening basally and apically, submembranous; leaf blade adaxially green, abaxially pale green and not pruinose, ovate-oblong, 2.4–3.1 m × 70–90 cm, base rounded, subsymmetric, apex truncate. Inflorescence subpendulous, velvety. Bracts of male flowers adaxially yellow but basally nearly white, abaxially dark reddish purple and often variegated with longitudinal,

yellow stripes and with yellow margin. Flowers 12–16 per bract, in 2 rows. Outer 2 lobes of compound tepal with hooklike appendages; free tepal ca. 1/3 as long as compound tepal, apex minutely apiculate. Infructescence with 5–10 clusters of berries. Berries 15–18 per cluster, ovoid-cylindric, 12–14 × 3–3.5 cm, white velvety, base gradually narrowed into a stalk ca. 3 cm, apex rostrate. Seeds numerous, depressed, ca. 3 × 5–7 mm, irregularly angled, tuberculate. $2n = 22$.

Evergreen forests, ravine bottoms; 1000–1300 m. Yunnan [India, Myanmar, Thailand].

11. *Musa insularimontana* Hayata, Icon. Pl. Formos. 3: 194. 1913.

兰屿芭蕉 lan yu ba jiao

Pseudostems subcylindric. Leaf blade narrow. Inflorescence pendulous, curved, slender; rachis terete, ca. 3 cm thick, densely pubescent. Bracts wholly brownish red, ovate-lanceolate, ca. 7 × 3 cm, strongly concave. Flowers sessile, ca. 8 per bract, in 2 rows. Male flowers: compound tepal cylindric, ca. 3.5 cm, outer lobes oblong-triangular, ca. 5 mm, apex corniculate; free tepal elliptic-obovate, ca. 1.5 cm, apex truncate or emarginate and shortly cuspidate. Berries cylindric, 10–12 cm; stalk ca. 4 cm, unequally 4-angled, densely pubescent.

• Near sea level to 100 m. Taiwan (Lan Yu opposite SE coast).

No specimens were seen by the present authors. The description is taken from the protologue.

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