

14. ABELMOSCHUS Medikus, Malvenfam. 45. 1787.

秋葵属 qiu kui shu

Herbs annual, biennial, or perennial, often hispid or tomentose, hairs often mostly simple. Leaves entire or palmately lobed. Flowers solitary, axillary, yellow or red. Epicalyx lobes 5–15, filiform, very rarely lanceolate, persistent. Calyx spathaceous, splitting along 1 side at anthesis, apex 5-toothed, caducous with corolla. Corolla with a dark red center, funnel-shaped; petals 5. Staminal column shorter than corolla, 5-toothed at apex, with anthers at base. Ovary 5-loculed; ovule many per locule; style single with 5 sessile capitate stigmas. Capsule elongate, loculicidal, pubescent or hispid. Seeds reniform or globose, many, glabrous, smooth.

About 15 species: tropical and subtropical regions in E Hemisphere; six species (one endemic, one introduced) in China.

- 1a. Epicalyx lobes 4 or 5, oblong-lanceolate, 4–5 mm wide 1. *A. manihot*
- 1b. Epicalyx lobes 6–20, filiform to linear, 1–3 mm wide.
 - 2a. Epicalyx lobes 10–20; leaf blade cordate or palmately lobed.
 - 3a. Epicalyx lobes 10–20, 1–2 mm wide; petiole 4–12 cm; capsule subglobose, 3–4 cm 2. *A. crinitus*
 - 3b. Epicalyx lobes 12, 2–3 mm wide; petiole 1–4 cm; capsule ovoid-ellipsoid, 4.5–5.5 cm 3. *A. muliensis*
 - 2b. Epicalyx lobes 6–12; leaf blade ovate-hastate, sagittate, or palmately lobed.
 - 4a. Pedicel 1–2 cm; capsule 10–25 cm, cylindrical 4. *A. esculentus*
 - 4b. Pedicel 2–7 cm; capsule 2–6 cm, subglobose or ellipsoid.
 - 5a. Herbs annual or biennial, 1–2 m, indumentum mostly hispid, often without pubescence, root not swollen; epicalyx lobes incurved, enclosing fruit; corolla yellow with dark purple center, 7–12 cm wide; capsule 5–6 cm 5. *A. moschatus*
 - 5b. Herbs perennial, 0.4–1 m, indumentum mostly pubescent, setae sometimes restricted to epicalyx, root swollen, radish-shaped; epicalyx lobes spreading or reflexed; corolla uniformly red, yellow, white, or pink, 4–5 cm wide; capsule ca. 3 cm 6. *A. sagittifolius*

1. *Abelmoschus manihot* (Linnaeus) Medikus, Malvenfam. 46. 1787.

黄蜀葵 huang shu kui

Herbs annual or perennial, 1–2 m tall, most parts long simple-hispid and minutely simple- or few-rayed pubescent. Stipules linear-lanceolate, sometimes 2 on each side of petiole, 1–1.5 cm; petiole 6–18 cm; leaf blade palmately 5–9-lobed, 15–30 cm in diam., lobes oblong-lanceolate, sometimes ± pinnately lobed, 8–18 × 1–6 cm, sparsely long hispid on both surfaces, margin robustly, obtusely serrate. Flowers solitary, subapical and forming terminal raceme; pedicel 1.5–4 cm. Epicalyx lobes 4 or 5, ovate-lanceolate, 15–25 × 4–5 mm, sparsely long hispid. Calyx spathaceous, minutely 5-lobed, nearly entire, longer than epicalyx, puberulent only, not hispid, caducous at fruiting. Corolla yellow with purple center, ca. 12 cm in diam. Staminal column 1.5–2.5 cm; anthers nearly sessile. Stigma purple-black, spatulate-disk-shaped. Capsule ovoid-ellipsoid, 4–5 × 2.5–3 cm, densely hirsute. Seeds many, reniform, with several lines of hairs. Fl. Aug–Oct.

Grasslands, streamsides, margins of farms; 1000–2100 m. Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan [India, Nepal, Philippines, N Thailand].

Borssum Waalkes (Blumea 14: 96–100. 1966) recognized two subspecies: subsp. *manihot* and subsp. *tetraphyllus* (Roxburgh) Borssum Waalkes. The latter further divided into var. *pungens*, with prickly hairs on the epicalyx, and var. *tetraphyllus*, which is found in Indonesia and Philippines, without such hairs on the epicalyx.

- 1a. Stems without prickly hairs; pedicels sometimes with prickly hairs 1a. var. *manihot*

- 1b. Plants with conspicuous yellow prickly hairs throughout including margins of epicalyx lobes 1b. var. *pungens*

1a. *Abelmoschus manihot* var. *manihot*

黄蜀葵(原变种) huang shu kui (yuan bian zhong)

Hibiscus manihot Linnaeus, Sp. Pl. 2: 696. 1753; *H. japonicus* Miquel.

Stems without prickly hairs. Pedicels sometimes with prickly hairs.

Grasslands, streamsides, margins of farms. Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Shandong, Sichuan, Yunnan [India, Nepal].

Plants with few prickly hairs have been selected for cultivation and sometimes are found as escapes.

1b. *Abelmoschus manihot* var. *pungens* (Roxburgh) Hochreuter, Candollea 2: 87. 1924.

刚毛黄蜀葵 gang mao huang shu kui

Hibiscus pungens Roxburgh, Fl. Ind., ed. 1832, 3: 213. 1832.

Plants with conspicuous yellow prickly hairs throughout including margins of epicalyx lobes.

1000–2100 m. Guangdong, Guangxi, Guizhou, Hubei, Sichuan, Taiwan, Yunnan [India, Nepal, Philippines, N Thailand].

Borssum Waalkes placed this variety in subsp. *tetraphylla* (Roxburgh) Borssum Waalkes.

2. *Abelmoschus crinitus* Wallich, Pl. Asiat. Rar. 1: 39. 1830.

长毛黄葵 chang mao huang kui

Abelmoschus cancellatus Voigt; *A. hainanensis* S. Y. Hu; *Hibiscus bodinieri* H. Léveillé; *H. cancellatus* Roxburgh ex G. Don (1831), not Linnaeus (1775); *H. cavaleriei* H. Léveillé; *H. crinitus* (Wallich) G. Don.

Herbs perennial, 0.5–2 m tall, entire plant long yellow setose (hairs 5–6 mm) and minutely gray puberulent. Stipules filiform, 1.5–4 cm; petiole 4–12 cm; leaf blades on proximal part of stem orbicular, ca. 9 cm in diam., 5-lobed, those on mid stem cordate, those on distal part of stem sagittate, 4–15 cm, hirsute with long hairs on both surfaces, sparsely hispid or stellate hispid with long hairs on veins. Inflorescences terminal or axillary, a 3–9-flowered raceme. Pedicel 1–1.5(–2.5) cm. Epicalyx lobes 10–20, filiform, 10–35 × 1–2 mm, densely yellow, long hirsute. Calyx spatheaceous, longer than epicalyx, simple-pubescent, also yellow setose toward apex, lobes linear. Corolla yellow, ca. 13 cm in diam.; petals 5–8 cm. Staminal column ca. 2 cm. Style branches 5; stigma flat. Capsule subglobose, 3–4 × ca. 3 cm, densely hirsute with yellow and long hairs. Seeds many, reniform, verrucose. Fl. May–Sep.

Grassy slopes; 300–1300 m. Guangxi, Guizhou, Hainan, Yunnan [India, Laos, Myanmar, Nepal, Thailand, Vietnam].

This species is easily distinguished from other species by its long yellow hairs and many filiform epicalyx lobes.

3. *Abelmoschus muliensis* K. M. Feng, Acta Bot. Yunnan. 4: 28. 1982.

木里秋葵 mu li qiu kui

Herbs to 1 m tall, velutinous. Stem ca. 5 mm thick, densely hirsute with yellow and long hairs. Stipule silklike, 1–1.5 cm, densely hirsute; petiole 1–4 cm, densely yellow hirsute; leaf blades on proximal part of stem round-cordate, 6–9 cm in diam., margin broadly dentate, apex obtuse or acute, those on distal part of stem ovate-sagittate, 7–10 × 5–7 cm, densely yellow hirsute, margin broadly dentate, apex obtuse. Flowers unknown. Capsule solitary or racemelike, axillary, stipe 2–4.5 cm, densely hirsute with yellow hairs. Epicalyx lobes 12, filiform, 15–30 × 2–3 mm, densely yellow hirsute. Capsule ovoid-ellipsoid, 4.5–5.5 × 2.5–3 cm, densely yellow hirsute, shortly beaked, hirsute on adaxial surface. Seeds reniform, ca. 4 mm, glandularly striate.

- Grassy slopes; 1200–2100 m. SW Sichuan (Miyi, Muli).

Abelmoschus muliensis differs from the other Chinese members of the genus by the short petioles, not more than 4 cm. It is most likely to be confused with *A. crinitus* but has broader epicalyx lobes, 2–3 mm, not 1–2 mm, wide.

4. *Abelmoschus esculentus* (Linnaeus) Moench, Methodus 1: 617. 1794.

咖啡黄葵 ka fei huang kui

Hibiscus esculentus Linnaeus, Sp. Pl. 2: 696. 1753; *H. longifolius* Willdenow.

Herbs annual, 1–2 m tall, most parts with very sparse prickly hairs. Stem often hollow. Stipule filiform, 7–10 mm, sparsely hirsute; petiole 7–15(–35) cm, long hirsute, often with pubescent adaxial groove; leaf blade palmately 3–7-lobed, (5–)10–30 cm in diam., lobes broad to narrow, sparsely hirsute on both surfaces, margin sparsely dentate and emarginate. Flowers solitary, axillary. Pedicel (0.5–)1–2(–5) cm, sparsely strigose. Epicalyx lobes 7–10(–12), filiform, 5–18 × 1–2.5 mm, sparsely hirsute. Calyx campanulate, 2–3 cm, densely stellate puberulent. Corolla yellow or white with dark purple center, 5–7 cm in diam.; petals obovate, 3.5–5 × 3–4 cm. Filament tube 2–2.5 cm. Capsule cylindrical to tower-shaped, 10–25 × 1.5–2(–3) cm, long beaked, sparsely strigose. Seeds dark brown or gray, globose to reniform, 5–15 per locule, (3–)4–5(–6) mm, striate, minutely warty. Fl. May–Sep.

Cultivated. Guangdong, Hainan, Hebei, Hubei, Hunan, Jiangsu, Shandong, Yunnan, Zhejiang [native to India].

The young fruits are an important vegetable (okra) in S Asia.

5. *Abelmoschus moschatus* Medikus, Malvenfam. 46. 1787.

黄葵 huang kui

Hibiscus abelmoschus Linnaeus, Sp. Pl. 1: 696. 1753; *Abelmoschus moschatus* var. *betulifolius* (Masters) Hochreutiner; *H. abelmoschus* var. *betulifolius* Masters; *H. chinensis* Roxburgh ex Masters.

Herbs annual or perennial, (0.25–)1–2 m tall, most parts uniformly yellow hispid/setose, rarely glabrous or also pale pubescent, taproot tapered, not swollen. Stipules filiform, 7–8 mm; petiole 7–15 cm, sometimes densely pubescent along adaxial groove; leaf blade 6–15 cm in diam., very variable in form, usually palmately (3–)5–7-lobed, lobes lanceolate to triangular; blades on distal part of stem narrower, both surfaces sparsely hirsute, base cordate, margin irregularly serrate. Flowers solitary, axillary. Pedicel 2–3 cm, hirsute. Epicalyx lobes 6–10, linear to narrowly oblong, (8–)10–13 × 1.5–2 mm, incurved, appressed to capsule. Calyx spatulate, much longer than epicalyx, 2–3 cm, 5-parted, usually caducous, uniformly densely pubescent. Corolla 7–12 cm in diam., yellow with dark purple center; petals obovate. Staminal column ca. 2.5 cm, glabrous. Ovary hairy; style hairy, branches 5; stigma disk-shaped. Capsule oblong, 5–6 cm, apex acute, uniformly yellow hirsute. Seeds black-brown, reniform, concentrically ribbed, glandular-reticulate, with musk smell. Fl. Jun–Oct.

Scrub on slopes, valleys, streamsides, flat areas. Guangdong, Guangxi, Hunan, Jiangxi, Taiwan, Yunnan [Cambodia, India, Laos, Thailand, Vietnam].

Oil from the seed is economically valuable. Borssum Waalkes recognized three subspecies within *Abelmoschus moschatus*, one of which, subsp. *tuberosus*, is here included within *A. sagittifolius*. The Chinese material belongs to subsp. *moschatus* while the third subspecies, subsp. *biakensis*, is restricted to New Guinea.

6. *Abelmoschus sagittifolius* (Kurz) Merrill, Lingnaam Agric. Rev. 2: 40. 1924.

剑叶秋葵 jian ye qiu kui

Hibiscus sagittifolius Kurz, J. Asiat. Soc. Bengal, Pt. 2,

Nat. Hist. 40: 46. 1871; *Abelmoschus coccineus* S. Y. Hu; *A. coccineus* var. *acerifolius* S. Y. Hu; *A. esquirolii* (H. Léveillé) S. Y. Hu; *A. moschatus* Medikus subsp. *tuberosus* (Spanoghe) Borssum Waalkes; *A. sagittifolius* var. *septentrionalis* (Gagnepain) Merrill; *H. bellicosus* H. Léveillé; *H. bodinieri* H. Léveillé var. *brevicalyculatus* H. Léveillé; *H. esquirolii* H. Léveillé; *H. longifolius* Willdenow var. *tuberosus* Spanoghe; *H. sagittifolius* var. *septentrionalis* Gagnepain.

Herbs perennial, 0.4–1(–2) m tall, most parts densely pubescent, sometimes also setose or stellate hairy; rootstock fleshy, radish-shaped, to 5 cm thick. Branchlets scabrous and hirsute with long hairs. Petiole 4–8 cm, sparsely long hirsute; leaf blades variable; blades on proximal part of stem ovate, those on middle and distal parts ovate-hastate, sagittate, or palmately 3–5-lobed or -parted, lobes broadly ovate or broadly lanceolate, 3–10 cm, abaxially long hirsute, adaxially sparsely spiny, base cordate or hastate, margin serrate or lobed, apex obtuse. Flowers solitary, axillary. Pedicel slender, 4–7 cm, densely scabrous hirsute. Epicalyx lobes 6–12, filiform, ca. 15 × 1–1.7 mm, sparsely hirsute, spreading or reflexed. Calyx spatulate, ca. 7 mm, apex 5-toothed, densely minutely puberulent. Corolla mostly white or pale yellow to dark pink, 4–5 cm in diam.; petals obovate-oblong, 3–4 cm. Staminal column ca. 2 cm, glabrous. Style branches 5; stigma flat. Capsule ellipsoid, ca. 3 × 2 cm, spiny, shortly beaked. Seeds reniform, glandularly reticulately striate. Fl. May–Sep.

Open *Pinus* forests, hills, grassy slopes, wastelands. Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Cambodia, India, Laos, Malaysia, Myanmar, Thailand, Vietnam; Australia].

This species is grown as an ornamental.

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