

2. STERCULIA Linnaeus, Sp. Pl. 2: 1007. 1753.

苹婆属 ping po shu

Trees or shrubs. Leaves simple, entire or palmately lobed, rarely palmately compound, margin entire or dentate. Inflorescence usually axillary, usually paniculate, rarely racemose. Flowers unisexual. Calyx 5-lobed or 5-partite. Petals absent. Male flowers: anthers clustered at top of androgynophore, enclosing undeveloped carpels. Female flowers: androgynophore very short, staminodes at top of androgynophore in whorl around base of carpels. Carpels 5; ovules 2 to many per carpel; styles connate at base; stigmas as many as carpels, free. Fruit a group of follicles, usually leathery, less often woody, dehiscent when mature. Seeds 1 to many per follicle, usually with endosperm.

Between 100 and 150 species: tropics and subtropics of both hemispheres, most abundant in Asian tropics; 26 species (14 endemic, one introduced) in China.

The fruits of nine species and male and/or female flowers of a further four species have not been recorded, indicating that the Chinese members of this genus require much more study in the field.

Sterculia bodinieri H. Léveillé is the basionym of *Phyllanthus bodinieri* (H. Léveillé) Rehder in the Euphorbiaceae s.l. (see Fl. China 11).

- 1a. Leaves palmately compound, leaflets 7–9.
 - 2a. Calyx divided for ca. 1/2 length or slightly more, lobes incurved, calyx tube well developed, campanulate; leaflet blades with lateral veins dense and apparent 1. *S. pexa*
 - 2b. Calyx divided to base, lobes recurved, calyx tube absent; leaflet blades with lateral veins lax and obscure 2. *S. foetida*
- 1b. Leaves simple.
 - 3a. Leaf blade palmately divided, abaxially and adaxially densely brown tomentose, very densely so abaxially 3. *S. villosa*
 - 3b. Leaf blade not divided.
 - 4a. Leaf blade abaxially densely hairy.
 - 5a. Leaf blade base obtuse, subrounded, or obliquely cordate.
 - 6a. Leaf blade usually ovate-elliptic, base more or less obliquely cordate, basal veins 5, petiole ca. 5 cm 11. *S. euosma*
 - 6b. Leaf blade elliptic, base rounded or obtuse, basal veins 1, petiole 1–2 cm 12. *S. tonkinensis*
 - 5b. Leaf blade base cuneate.
 - 7a. Leaf blade with one obvious pair of basal veins, abaxially not very densely hairy; epicalyx lobes as long as pedicels 13. *S. cinnamomifolia*
 - 7b. Leaf blade without a pair of basal veins, abaxially very densely hairy; epicalyx lobes much longer than pedicels 14. *S. pinbienensis*
 - 4b. Leaf blade abaxially glabrous or sparsely hairy only on veins.
 - 8a. Veins of old leaf blade abaxially sparsely stellate.
 - 9a. Lateral veins and veinlets apparently impressed adaxially, veinlets prominently raised abaxially, purple-red when dried 4. *S. impressinervis*
 - 9b. Lateral veins and veinlets not impressed adaxially, veinlets not impressed abaxially, not purple-red when dried.
 - 10a. Lateral veins 16–24 on each side of midrib, petiole 0.8–1 cm; calyx lobes much longer than calyx tube 5. *S. hymenocalyx*
 - 10b. Lateral veins 11 or 12 on each side of midrib, petiole 3–8 cm; calyx lobes as long as calyx tube 7. *S. micrantha*
 - 8b. Veins of old leaf blade abaxially glabrous.
 - 11a. Leaf blade base cordate 10. *S. ceramica*
 - 11b. Leaf blade base not or only slightly cordate.
 - 12a. Petiole to 1.2 cm 20. *S. brevissima*
 - 12b. Petiole at least 1.5 cm.
 - 13a. Lateral veins 12–20 on each side of the midrib.
 - 14a. Branchlets densely hairy.
 - 15a. Leaf blade apex acute, base decurrent, cuneate or obtuse, petiole 1.5–3 cm; calyx green, subglabrous 16. *S. gengmaensis*
 - 15b. Leaf blade apex acuminate, base rounded to shallowly cordate, cuneate or acute, petiole 2.5–5.5 cm; calyx red or purple, exterior stellate hairy.
 - 16a. Inflorescence rachis indumentum yellow-brown; leaf blade base rounded or cuneate; epicalyx lobes as long as pedicels 17. *S. henryi*

- 16b. Inflorescence rachis indumentum purple; leaf blade base shallowly cordate; epicalyx lobes ca. 1/2 as long as pedicels 18. *S. simaoensis*
- 14b. Branchlets glabrous or nearly so.
- 17a. Calyx tube well developed, campanulate; leaves clustered at branchlet tip 8. *S. kingtungensis*
- 17b. Calyx divided to near base, lobes ± free; leaves not clustered.
- 18a. Leaf blade 12–18 cm wide, petiole 5–12 cm; sepals ca. 20 mm 15. *S. scandens*
- 18b. Leaf blade 2.5–6 cm wide, petiole 1.5–2.5 cm; sepals ca. 6 mm 24. *S. hainanensis*
- 13b. Lateral veins 6–10 on each side of the midrib.
- 19a. Leaf blade obovate or narrowly obovate, 13–26 × 7–10 cm, apex rounded or with short acumen, lateral veins 5–9 25. *S. yuanjiangensis*
- 19b. Leaf blade not as above, apex not rounded.
- 20a. Base and apex of petiole pulvinate.
- 21a. Petiole 2.5–3.5 cm 23. *S. lanceifolia*
- 21b. Petiole 1–1.5 cm 26. *S. guangxiensis*
- 20b. Petiole not pulvinate.
- 22a. Calyx campanulate, lobes as long as calyx tube.
- 23a. Leaf blade oblong or elliptic, base rounded or obtuse 6. *S. monosperma*
- 23b. Leaf blade oblanceolate or elliptic-obovate, base acute or cuneate 9. *S. subracemosa*
- 22b. Calyx divided almost to base, lobes ± free.
- 24a. Sepals 10–20 mm, incurved and cohering with each other at apex 19. *S. principis*
- 24b. Sepals 4–8 mm, spreading, starlike.
- 25a. Inflorescence 10–18 cm; sepals ca. 8 mm, apex acuminate; leaf blade with 5 basal veins 21. *S. subnobilis*
- 25b. Inflorescence less than 10 cm; sepals 4–6 mm, apex obtuse or with short acumen; leaf blade with 1–3 basal veins 22. *S. lanceolata*

1. *Sterculia pexa* Pierre, Fl. Forest. Cochinch. t. 182. 1888.

家麻树 jia ma shu

Sterculia pexa var. *yunnanensis* (Hu) H. H. Hsue; *S. yunnanensis* Hu.

Trees. Branchlets robust. Leaves palmately compound; stipules triangularly lanceolate, ca. 5 mm, pilose; petiole usually 20–23 cm; leaflets 7–9; leaflet blades obovate-lanceolate or narrowly elliptic, 9–23 × 4–6 cm, abaxially densely stellate pubescent, adaxially nearly glabrous, lateral veins 22–44, parallel, base cuneate, margin entire, apex acuminate. Inflorescence clustered at branchlet tips, racemose or paniculate, up to 20 cm. Epicalyx lobes linear-lanceolate, ca. 1 cm. Calyx white, campanulate, ca. 6 mm, divided to 1/2 length, abaxially densely stellate pubescent, lobes triangular, apex acuminate, incurved and apically coherent with each other. Male flower: androgynophore linear, glabrous. Anthers 10–20, capitate. Female flower: ovary globose, 5-locular, densely puberulent. Style very short; stigma 5-branched. Follicle brownish red, ellipsoid and slightly curved to sickle-shaped, 4–9 × 2–4 cm, 3-seeded, abaxially densely puberulent and hispid, adaxially stellate hairy, margin densely ciliate, apex obtuse. Seeds black, oblong, ca. 1.5 cm. Fl. Oct.

Sunny dry slopes, roadsides, cultivated around villages. SW Guangxi, S and SE Yunnan [Laos, Thailand, Vietnam].

The bark fiber is used for making rope or other similar purposes. The seeds are edible after boiling. The timber is good for furniture.

2. *Sterculia foetida* Linnaeus, Sp. Pl. 2: 1008. 1753.

香苹婆 xiang ping po

Trees. Branches verticillate and spreading. Leaves apically clustered, palmately 7–9-foliolate; stipules arrow-shaped, caducous; petiole 10–20 cm; leaflet blades elliptic-lanceolate, 10–15 × 3–5 cm, at first pilose, glabrescent when mature, base cuneate, margin entire, apex long acuminate or caudate. Inflorescence apical on branchlets, paniculate, erect, many-flowered. Pedicels shorter than flowers. Epicalyx lobes minute. Calyx purple-red, ca. 12 mm, divided nearly to base, lobes elliptic-lanceolate, abaxially yellowish brown pubescent, adaxially upper half white villous. Male flowers: stamens 12–15, capitate. Female flowers: carpels 5, hairy. Style curved; stigma 5-divided. Follicle ellipsoid and boat-shaped, 5–8 cm, woody, nearly glabrous, apex acute into beak, 10–15-seeded. Seeds black, ellipsoid, ca. 1.5 cm, smooth. Fl. Apr–May.

Cultivated. Guangdong (Guangzhou), Guangxi, S Hainan (Sanya) [Cambodia, India, Indonesia, ?Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam; native to India, now cultivated in tropical Africa, N Australia, and South America].

Sterculia foetida seems to be a rather weedy species of uncertain origin. The seeds are edible after toasting and taste like chestnuts (*Castanea sativa* Miller); they also contain an oil that is used medicinally, while the timber is used for making furniture and the bark for rope.

3. *Sterculia villosa* Roxburgh, Fl. Ind., ed. 1832, 3: 153. 1832.

绒毛苹婆 rong mao ping po

Sterculia armata Masters; *S. lantsangensis* Hu; *S. ornata* Wallich ex Kurz.

Trees; bark gray-white. Branchlets robust, with leaf scars, brown stellate pubescent when young. Leaves simple; stipules lanceolate, ca. 1 cm; petiole robust, ca. 16 cm, pilose; leaf blade palmately 3–7-lobed, 17–22 cm, abaxially densely yellow-brown stellate tomentose, adaxially sparsely pubescent, base broadly cordate, central lobe broadly ovate, ca. 8 × 8 cm at base, apex caudate. Inflorescence subterminal on branchlets, paniculate, densely ferruginous stellate tomentose. Calyx yellow, campanulate, ca. 1 cm, tube ca. 4 mm, abaxially pubescent, adaxially glabrous, lobes lanceolate, apex acuminate, ca. 6 mm, spreading outward. Male flowers: androgynophore curved, glabrous. Stamens 10. Female flowers: ovary globose. Style curved downward, hairy. Follicles narrowly ellipsoid, 3–5 cm, both surfaces densely ferruginous villous, apex shortly beaked. Seeds black, oblong. Fl. Feb, fr. Apr–Oct.

Mixed forests in gullies, also cultivated near villages; 500–1500 m. SW Yunnan [Bhutan, Cambodia, India, Myanmar, Nepal, Thailand].

4. *Sterculia impressinervis* H. H. Hsue, Acta Phytotax. Sin. 15(1): 82. 1977.

凹脉苹婆 ao mai ping po

Trees or shrubs. Branchlets gray-brown when dried, at first stellate pilose. Leaves simple; stipules ovate, hairy, apex acute, caducous; petiole 3–6.5 cm, swollen at both ends, minutely pilose; leaf blade elliptic-oblancheolate, 7–17 × 6–9.5 cm, thinly leathery, abaxially subglabrous, midrib and veins yellowish brown puberulent, veins drying purple-red, adaxially glabrous, with veins obviously impressed, lateral veins 14–16 on each side of midrib, curved upward, base obtuse, margins entire or slightly sinuate, apex caudate or long acuminate. Flowers unknown. Follicles purple-red when dried, oblong, ca. 5.5 × 1.5–1.8 cm, 4- or 5-seeded, densely purple-brown stellate tomentose, apex with 1–1.2 cm beak. Seeds purple-red, globose or flattened reniform, ca. 1 cm in diam.

• SE Yunnan (Malipo).

5. *Sterculia hymenocalyx* K. Schumann, Bot. Jahrb. Syst. 24(Beibl. 58): 18. 1897.

膜萼苹婆 mo e ping po

Shrubs. Branchlets stellate puberulent, leaves several, nearly verticillate, bud scales many, persistent near tip, linear-lanceolate, 5–15 mm, longer than petiole, with yellowish brown branched hairs. Leaves simple; stipules mixed with bud scales; petiole 8–10 mm, hairy; leaf blade obovate or oblanceolate, 24–37 × 9–13 cm, papery or thinly leathery, dark green when dried, abaxially sparsely stellate on midrib and lateral veins, adaxially glabrous, lateral veins 16–24 on each side of midrib, curved upward, base decurrent, cuneate or obtuse, apex obtuse or obtusely lanceolate. Inflorescence paniculate, terminal or axillary, 5–10 cm, with reddish yellow hairs. Pedicels slender. Epicalyx lobes linear, 5–7 mm, caducous. Calyx whitish or pink, up to 16

mm, calyx tube ca. 3 mm, abaxially hairy, adaxially glabrous, lobes ca. 12 mm, spreading starlike. Male flowers: androgynophore glabrous, reflexed, ca. 7 mm. Female flowers: ovary globose, sessile, densely hairy; ovules 5–8 per carpel. Style reflexed, hairy, as long as ovary; stigma sinuately 5-divided. Follicles 3–5, ± olive-shaped, 5–8 × ca. 2 cm before dehiscence, thickly papery, abaxially densely orange villous, adaxially glabrous, base attenuate into long and slender stipe, apex attenuate. Seed ellipsoid, ca. 1 cm. Fr. May.

Forests; 100–300 m. SE Yunnan (Hekou) [Vietnam].

6. *Sterculia monosperma* Ventenat, Jard. Malmaison 2: t. 91. 1805.

苹婆 ping po

Trees; bark brown-black. Branchlets at first minutely stellate. Leaves simple; stipules caducous; petiole 2–3.5 cm; leaf blade oblong or elliptic, 8–25 × 5–15 cm, thinly leathery, glabrous, base rounded or obtuse, apex acute or obtuse. Inflorescence terminal or axillary, paniculate, slender and lax, to 20 cm, pubescent. Pedicels much longer than flowers. Calyx cream-white, becoming reddish, campanulate, ca. 10 mm, abaxially pubescent, lobes linear-lanceolate, as long as calyx tube, apex acuminate, incurved and cohering apically, as long as calyx tube. Male flowers many, androgynophore curved, glabrous, anthers yellow. Female flowers fewer, slightly larger. Ovary globose, with 5 grooves, densely hairy; style curved; stigma shallowly 5-lobed. Follicles red, oblong-ovate, ca. 5 × 2–3 cm, 1–4-seeded, thickly leathery, apex beaked. Seeds black-brown, ellipsoid or oblong, ca. 1.5 cm. Fl. Apr–May, rarely Oct–Nov.

Dense forests, also often cultivated. SE Fujian, S Guangdong, Guangxi, Taiwan, S Yunnan [India, Indonesia, Malaysia, Thailand, Vietnam].

- 1a. Leaf blade base rounded or obtuse; bark brownish black 6a. var. *monosperma*
- 1b. Leaf blade base cuneate or obtuse; bark gray with sparse spots 6b. var. *subspontanea*

6a. *Sterculia monosperma* var. *monosperma*

苹婆(原变种) ping po (yuan bian zhong)

Sterculia nobilis Smith.

Bark brownish black. Leaf blade base rounded or obtuse.

Often cultivated. SE Fujian, S Guangdong, S Guangxi, Taiwan, S Yunnan [India, Indonesia, Malaysia, Thailand, Vietnam].

6b. *Sterculia monosperma* var. *subspontanea* (H. H. Hsue & S. J. Xu) Y. Tang, M. G. Gilbert & Dorr, **comb. nov.**

野生苹婆 ye sheng ping po

Basionym: *Sterculia nobilis* Smith var. *subspontanea* H. H. Hsue & S. J. Xu, J. S. China Agric. Univ. 8(3): 3. 1987.

Bark gray, with sparse spots. Leaf blade base cuneate or obtuse.

• Dense forests. SW Guangxi.

7. *Sterculia micrantha* Chun & H. H. Hsue, J. Arnold Arbor. 28: 328. 1947.

小花苹婆 xiao hua ping po

Trees. Branchlets robust, with wide pith and conspicuous leaf scars. Leaves simple; petiole 3–8 cm, minutely stellate; leaf blade oblong-ovate, 7–14 × 3.5–6.5 cm, abaxially sparsely stellate villous on veins, adaxially nearly glabrous, lateral veins 11 or 12 on each side of midrib, base obtuse, apex obtuse or acute. Inflorescence paniculate, slender, ca. 26 cm. Pedicels 3–4 mm, articulate. Calyx white, campanulate, very thin, 5–6 mm, abaxially minutely pubescent, adaxially hairy only near lobe margin, mucronate, lobes triangular-lanceolate, as long as calyx tube, margins densely hairy. Male flowers: androgynophore slender, ca. 3 mm, glabrous. Anthers 10. Female flowers: androgynophore ca. 1.5 mm. Ovary globose, villous. Fruits unknown. Fl. Oct.

- Open forests; ca. 1400 m. S Yunnan.

8. *Sterculia kingtungensis* H. H. Hsue ex Y. Tang, M. G. Gilbert & Dorr, *nom. nov.*

大叶苹婆 da ye ping po

Replaced synonym: *Sterculia megaphylla* H. T. Tsai & P. I Mao, Acta Phytotax. Sin. 9: 202. 1964, not *Sterculia megaphylla* Bureau & J. Poisson ex Guillaumin, Bull. Soc. Bot. France 67: 122. 1920.

Trees, to 10 m tall; bark gray. Branchlets robust, terete, with large leaf scars. Leaves large, simple, apically clustered; stipule linear, ca. 1 cm, glabrous; petiole slender, 6–7 cm, grooved, nearly glabrous; leaf blade elliptic-oblong, to 28 × 14 cm, abaxially and adaxially glabrous, lateral veins ca. 17 on each side of midrib, parallel, prominently raised abaxially, venation lax, base broadly cuneate, apex abruptly shortly acuminate. Inflorescence paniculate, apically clustered, ca. 12 cm, sparsely and minutely rust-colored hairy. Pedicel slender, articulate. Calyx red, campanulate, lobes lanceolate, ca. 6 mm, slightly longer than calyx tube, incurved and cohering apically with each other, abaxially minutely puberulose, adaxially mucronate, margins ciliate. Androgynophore slender, curved, ca. 4 mm, glabrous. Anthers 10. Fruits unknown. Fl. Apr–May.

- Streamsides or riversides; ca. 1600 m. S Yunnan (Jingdong).

The earlier intended nomen novum "*Sterculia kingtungensis*" (H. H. Hsue, Acta Phytotax. Sin. 15(1): 74. 1977) was not validly published because a full and direct reference to the place of publication of the replaced synonym was not given (*Vienna Code*, Art. 33.4).

9. *Sterculia subracemosa* Chun & H. H. Hsue, J. Arnold Arbor. 28: 328. 1947.

信宜苹婆 xin yi ping po

Shrubs, ca. 3.5 m tall. Branchlets slender, drying red-brown, sparsely stellate pilose. Leaves simple; petiole 1.5–2.5 cm, minutely puberulent, petiole and leaf blade with black dots; leaf blade oblanceolate or elliptic-obovate, 11–18 × 4–6.5 cm, abaxially and adaxially glabrous, with venation apparent, lateral veins 8–10 on each side of midrib, interlinked submarginally,

base acute or cuneate, apex obtuse or shortly acute. Inflorescence racemose, slender, ca. 9 cm, densely yellow-brown puberulent. Pedicel 8–10 mm. Epicalyx lobes linear-lanceolate, ca. 2 mm. Calyx white to pink or orange-red, ca. 13 mm, exterior puberulent, interior hairy only on upper part of segments, tube campanulate, lobes ovate-lanceolate, slightly longer than tube, margins sparsely hairy. Male flowers: androgynophore slender. Female flowers: staminodes ca. 17. Ovary globose, ca. 1.5 mm in diam., densely puberulent; style hairy; stigma 5-divided. Fruits unknown. Fl. Mar–Apr.

- Dense forests in gullies and on slopes; 500–6000 m. Guangdong (Xinyi), Guangxi (Daqing Shan).

10. *Sterculia ceramica* R. Brown, *Pterocymbium*, 233. Jun 1844.

台湾苹婆 tai wan ping po

Sterculia luzonica Warburg; ?*S. richardiana* Baillon.

Small trees. Leaves simple; petiole 3–5 cm, minutely pilose; leaf blade ovate or elliptic-ovate, 8–17 × 7–9 cm, papery or thinly leathery, abaxially and adaxially glabrous or minutely yellowish brown stellate between basal veins, basal veins 5–7, base cordate, margin entire, apex acuminate or acute. Inflorescence paniculate, flat-topped, axillary. Pedicels ca. 11 mm. Male flowers: calyx ellipsoid, ca. 5 mm, lobes triangular, 1/3 as long as calyx, spreading outward. Female flowers: ovary 5-loculed, with 5 longitudinal grooves, densely puberulent. Style very short; stigmas 5, globose. Follicle ovoid sickle-shaped, 3–6 × 2.5–3 cm, thickly leathery, 2-seeded, abaxially reddish brown hairy, apex obtuse. Seeds nearly ellipsoid, 1.5–2 cm. Fl. Jun.

Taiwan (Huoshao Dao, Lan Yu) [Malaysia, Philippines; Madagascar].

The apparent disjunction of *Sterculia ceramica* between SE Asia and Madagascar is noteworthy. The place of publication of *S. ceramica* is often given as R. Brown in Bennett, Pl. Jav. Rar. 233. 1844, which was published in November 1844 and was thus predated by Brown's preprint published in June of the same year.

11. *Sterculia euosma* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 72. 1917.

粉苹婆 fen ping po

Trees. Young branchlets densely yellowish brown villous, glabrescent. Petiole ca. 5 cm; leaf blade ovate-elliptic, 12–24 × 7–12 cm, leathery, abaxially densely yellowish brown stellate villous, adaxially glabrous or nearly glabrous; basal veins 5, base rounded or nearly obliquely cordate, apex shortly acuminate. Inflorescence racemose, clustered subapically on branchlets, produced simultaneously with new leaves, minutely yellowish brown villous. Pedicels 1–1.5 cm. Calyx dark red, ca. 1 cm, divided nearly to base, lobes linear-lanceolate, abaxially pubescent, adaxially glabrous. Androgynophore ca. 2 mm. Ovary ovoid, densely hairy; style curved, villous. Follicle red when mature, oblong or oblong-ovate, 6–10 × ca. 3 cm, abaxially densely stellate villous, apex acuminate into beak. Seeds black, ovoid, ca. 2 cm.

- Dense forests, forests on rocky slopes; ca. 2000 m. SW Guang-

xi, S Guizhou, Xizang, SW Yunnan (Tengchong).

12. *Sterculia tonkinensis* Aug. Candolle, Bull. Herb. Boissier, sér. 2, 3: 368. 1903.

北越苹婆 bei yue ping po

Small trees or shrubs. Branchlets sparsely brown stellate hairy, glabrescent. Leaves simple; stipules triangular, 5–10 mm; petiole 1–2 cm, hairy; leaf blade elliptic, 11–21 × 5.5–10 cm, thinly leathery, abaxially densely yellowish brown villous, adaxially glabrous and glossy, lateral veins 6–9 on each side of midrib, curved upward, interconnected submarginally, base rounded, apex shortly acuminate or obtuse. Inflorescence paniculate, apically clustered, 8–9 cm, hairy. Flowers stellate. Pedicel linear, ca. 1 cm. Epicalyx lobes triangular, 1–3 mm. Calyx red, ca. 1 cm, tube ca. 2 mm, abaxially stellate pubescent, adaxially glabrous but spotted, lobes lanceolate, ca. 8 × 2–3 mm, stellately spreading, apex long acuminate. Male flowers: androgynophore glabrous. Female flowers: ovary globose, hairy. Style reflexed, shorter than ovary, hairy; stigma short and 5-divided. Follicle pendulous, red, spindle-shaped, ca. 6 × 1–1.5 cm, 3–6-seeded, densely villous abaxially with yellow-brown hairs, tapering apically and basally. Seeds black-brown or black, ellipsoid, ca. 1 cm, glossy. Fl. Apr.

Forests. SE Yunnan (Hekou) [Vietnam].

13. *Sterculia cinnamomifolia* H. T. Tsai & P. I. Mao, Acta Phytotax. Sin. 9: 200. 1964.

樟叶苹婆 zhang ye ping po

Shrubs. Branchlets blackish or black-brown stellate pilose when young. Stipules linear, ca. 2 mm; petiole robust, 1.5–3 cm, apex swollen, hairy; leaf blade elliptic-oblong or ovate-oblong, 11–21 × 7–9.5 cm, thickly papery, abaxially stellate pubescent, adaxially glabrous; lateral veins 6–9 on each side of midrib, veins and midrib adaxially and abaxially prominent, base cuneate, apex shortly acuminate. Inflorescence paniculate, axillary, pendulous, 6–7 cm, yellow-brown stellate pubescent. Epicalyx lobes linear, ca. 3 mm, as long as or slightly longer than pedicel. Male flowers: calyx yellowish, divided nearly to base, lobes narrowly triangular-lanceolate, ca. 7 × 2.5 mm wide below middle, abaxially yellow-brown puberulent, adaxially glabrous. Androgynophore curved, glabrous. Anthers 10. Female flowers and fruits unknown. Fl. Mar.

• Open forests; ca. 900 m. SE Yunnan (Hekou).

14. *Sterculia pinbienensis* H. T. Tsai & P. I. Mao, Acta Phytotax. Sin. 9: 200. 1964.

屏边苹婆 ping bian ping po

Shrubs. Branchlets at first densely stellate pubescent. Stipules linear-lanceolate, ca. 6 mm; petiole robust, 2–3 cm, densely yellow-brown hairy; leaf blade elliptic or elliptic-oblong, 10–22 × 4–9 cm, papery, abaxially gray and gray-brown stellate pubescent, adaxially dark green and glabrous, base cuneate or acute, apex shortly acuminate. Inflorescence paniculate, axillary, minutely yellow-brown hairy. Pedicel 6–8 mm. Epicalyx lobes linear, ca. 2.5 cm. Male flowers: calyx red, divided to

base, lobes triangular-lanceolate, ca. 12 cm, adaxially nearly glabrous, abaxially stellate pubescent. Male flowers: androgynophore curved, glabrous. Anthers 10. Female flowers: ovary globose, densely yellow-white puberulent. Style reflexed, minutely villous; stigma swollen. Follicle elliptic, 4–5 × ca. 1.5 cm, densely red-brown puberulent. Seeds black-brown, oblong, ca. 1.1 cm. Fl. Apr.

• Mountain and valley forests; 1000–2000 m. Guangxi (Ningming), Yunnan (Pingbian).

15. *Sterculia scandens* Hemsley, Bull. Misc. Inform. Kew 1908: 179. 1908.

河口苹婆 he kou ping po

Shrubs. Branchlets glabrous, grooved. Petiole swollen at both ends, 5–12 cm, glabrous; leaf blade long elliptic-oblong or lanceolate, 15–45 × 12–18 cm, papery, drying greenish, abaxially and adaxially glabrous, lateral veins 17–20 on each side of midrib, connected submarginally, venation prominently raised on both surfaces, base rounded, apex acuminate or caudate. Inflorescence paniculate, axillary, slender, 10–34 cm, minutely villous. Flowers sparse. Pedicels slender, 5–10 mm. Epicalyx lobes linear, ca. 3 mm, caducous. Calyx divided to near base, both surfaces stellate villous, lobes linear-lanceolate, ca. 20 mm, apex acuminate, incurved and cohering apically with each other. Androgynophore glabrous. Male flowers: androgynophore slender, curved downward. Anthers 10. Female flowers: ovary globose, densely yellow-white tomentose. Style curved. Fruit unknown.

S Yunnan (Hekou) [Vietnam].

This species is characterized by its large and glabrous leaves and lax flowers. The sepals enlarge after flowering.

16. *Sterculia gengmaensis* H. H. Hsue ex Y. Tang, M. G. Gilbert & Dorr, **nom. nov.**

绿花苹婆 lu hua ping po

Replaced synonym: *Sterculia viridiflora* H. T. Tsai & P. I. Mao, Acta Phytotax. Sin. 9: 201. 1964, not *Sterculia viridiflora* W. Fitzgerald, J. Proc. Roy. Soc. Western Australia 3: 177. 1918.

Shrubs. Branchlets gray tomentose when young. Stipules lanceolate, ca. 4 mm; petioles 1.5–3 cm, not swollen at ends, yellow-brown puberulent; leaf blade elliptic or oblanceolate-elliptic, 11–23 × 4–10 cm, membranous, abaxially and adaxially glabrous, lateral veins 12–14 on each side of midrib, prominent on both surfaces, venation lax, base attenuate and obtuse, apex acute. Inflorescence racemose, nearly terminal, minutely red-brown pilose. Pedicel ca. 6 mm, articulate. Calyx green, divided to near base, both surfaces nearly glabrous or minutely pilose near apex, lobes triangular, ca. 8 mm, apically cohering with each other. Androgynophore tomentose. Fruits unknown.

• Forests; 1600–1700 m. S Yunnan (Gengma).

The earlier intended nomen novum "*Sterculia gengmaensis*" (H. H. Hsue, Acta Phytotax. Sin. 15(1): 74. 1977) was not validly published

because a full and direct reference to the place of publication of the replaced synonym was not given (*Vienna Code*, Art. 33.4).

17. *Sterculia henryi* Hemsley, Bull. Misc. Inform. Kew 1908: 179. 1908.

蒙自苹婆 meng zi ping po

Shrubs or small trees, 1–5 m tall. Branchlets densely yellow-brown pubescent. Petiole 2.5–5 cm; leaf blade oblong or lanceolate-oblong, 14–25 × 4–6 cm, papery, abaxially and adaxially glabrous, lateral veins ca. 15 on each side of midrib, curved upward, connected with each other near margin, lateral veins and midrib prominently raised abaxially, base rounded, apex acuminate. Inflorescence racemose, axillary, 5–15 cm, yellow-brown hairy. Pedicel 5–10 mm. Epicalyx lobes linear-lanceolate, as long as pedicels. Calyx red, divided to base, lobes narrowly triangular, 10–15 × 3–4 mm, abaxially yellow-brown stellate hairy, adaxially glabrous, incurved and cohering apically with each other. Male flowers: androgynophore ca. 4 mm, curved downward, glabrous. Female flower: ovary ovoid, densely hairy, 4–6 mm. Style curved, hairy. Fruit unknown.

Forests; 800–1500 m. S Yunnan (Mengzi) [Vietnam].

The sepals usually enlarge after flowering.

- 1a. Leaf blade base rounded 17a. var. *henryi*
1b. Leaf blade base acute or cuneate 17b. var. *cuneata*

17a. *Sterculia henryi* var. *henryi*

蒙自苹婆(原变种) meng zi ping po (yuan bian zhong)

Leaf blade base rounded.

Forests; ca. 1500 m. S Yunnan (Mengzi) [Vietnam].

17b. *Sterculia henryi* var. *cuneata* Chun & H. H. Hsue, J. Arnold Arbor. 28: 329. 1947.

大围山苹婆 da wei shan ping po

Leaf blade base cuneate or acute.

• Dense forests in gullies, sparse forests on slopes; 800–1000 m. SE Yunnan (Pingbian).

18. *Sterculia simaoensis* Y. Y. Qian, Acta Phytotax. Sin. 35: 79. 1997.

思茅苹婆 si mao ping po

Shrubs, 2–4 m. Branchlets grooved, densely stellate pilose and puberulent, glabrescent. Petiole 2.5–5.5 cm, stellate pilose, glabrescent; leaf blade simple, oblanceolate, 11–27 × 3.5–8 cm, papery or rarely thinly leathery, both surfaces stellate pilose, when young, glabrescent, lateral veins 14–16 on each side of midrib, base shallowly cordate, rarely cuneate, apex acuminate. Inflorescence racemose, pendulous, subterminal, 6–15 cm, purple stellate pilose. Pedicel slender, 8–10 mm. Epicalyx lobes lanceolate, 4–5 mm. Calyx purple, divided nearly to base, exterior stellate pilose, interior glabrous, lobes lanceolate, 12–14 × 3.5–4.2 mm, incurved with coherent tips, margin ciliate. Male flowers: androgynophore curved, 3.5–4 mm glabrous. Female flowers: ovary globose, white stellate pilose; style curved, white

stellate pilose. Follicle red, drying brownish red, obliquely fusiform, 5–8 × 1.5–2.5 cm, 3–5-seeded, base tapered, apex narrowly acute, stellate pilose and puberulent. Seed purplish black, oblong, 12–15 × 8–10 mm. Fl. and fr. Feb.

• Forests; ca. 1400 m. S Yunnan (Simao).

More detailed study could show that *Sterculia simaoensis* is better included within *S. henryi*. It is differentiated by the subcordate base of the leaf blade, the relatively shorter bracteoles, only ca. 1/2 as long as the pedicels, and by the purplish, not yellow-brown, indumentum of the inflorescence.

19. *Sterculia principis* Gagnepain, Notul. Syst. (Paris) 1: 82. 1909.

基苹婆 ji ping po

Sterculia lanceolata Cavanilles var. *principis* (Gagnepain) Phengklai.

Shrubs. Branchlets at first stellate pubescent. Stipules triangular, 7–10 mm; petiole 4–6 cm, with black-brown spots; leaf blade elliptic or linear-elliptic, 16–28 × 4–8.5 cm, both surfaces glabrous or very sparsely stellate pilose abaxially, basal veins 5, lateral veins 7–10 on each side of midrib, base nearly rounded, apex long acuminate. Inflorescence racemose or few-branched paniculate, axillary, flowers lax. Calyx divided nearly to base, 10–12 mm, abaxially minutely pilose, adaxially glabrous, lobes linear-lanceolate, margins ciliate, apex long acuminate, incurved and cohering apically with each other. Male flowers: androgynophore glabrous, curved. Female flowers: androgynophore very short, hairy. Style minutely hairy; stigma 5-lobed. Fruit not seen. Fl. Mar.

Forests on slopes; 1600–1700 m. SE Yunnan (Jinping) [Laos, Myanmar, Thailand].

20. *Sterculia brevissima* H. H. Hsue ex Y. Tang, M. G. Gilbert & Dorr, **nom. nov.**

短柄苹婆 duan bing ping po

Replaced synonym: *Sterculia brevipetiolata* H. T. Tsai & P. I. Mao, Acta Phytotax. Sin. 9: 201. 1964, not *Sterculia brevipetiolata* Merrill, Publ. Bur. Sci. Gov. Lab. 35: 40. 1906.

Small trees or shrubs. Branchlets yellow-brown villous when very young. Leaves apically clustered. Stipules lanceolate, ca. 7 mm; petiole short, almost absent or 5–12 mm, gray pubescent; leaf blade oblanceolate or narrowly oblanceolate-elliptic, 15–30 × 4–7 cm, papery, both surfaces glabrous, lateral veins 14–16 on each side of midrib, base attenuate, apex acuminate or obtusely acute. Inflorescence slender, racemose or paniculate, axillary, pendulous. Epicalyx lobes linear-lanceolate, ca. 7 mm, as long as pedicels. Calyx pink, purple below middle, sparsely stellate villous, tube campanulate, lobes elliptic-lanceolate, ca. 8 × 3 mm, ca. 3 × as long as calyx tube. Androgynophore slender, curved, ca. 4.5 mm. Ovary globose, densely tomentose; style reflexed. Fruit stipe ca. 3 cm; follicle red-brown, ellipsoid, ca. 8 × 2 cm, abaxially densely puberulent, both ends attenuate. Seeds brown, globose, ca. 1 cm in diam. Fl. Apr.

• Gullies or slopes in mixed forests or rain forests; 500–1300 m. S Yunnan.

The subsessile, oblanceolate leaf blades of *Sterculia brevissima*, clustered at the tips of the branchlets, are very distinct from those of other species.

The earlier intended nomen novum "*Sterculia brevissima*" (H. H. Hsue, Acta Phytotax. Sin. 15(1): 74. 1977) was not validly published because a full and direct reference to the place of publication of the replaced synonym was not given (*Vienna Code*, Art. 33.4).

21. *Sterculia subnobilis* H. H. Hsue, Acta Phytotax. Sin. 15(1): 82. 1977.

罗浮苹婆 luo fu ping po

Trees. Branchlets minutely pubescent. Petiole 2–5 cm, nearly glabrous; leaf blade elliptic, 17–28 × 8–13 cm, both surfaces glabrous, or abaxially sparsely pubescent when young, basal veins 5, lateral veins 6–9 on each side of midrib, base nearly rounded or ± cordate, apex obtusely acute. Inflorescence paniculate, axillary, lax, 10–18 cm, minutely hairy. Pedicels slender, ca. 1 cm. Calyx green at first, becoming red later, up to 18 mm in diam., divided nearly to base, both surfaces sparsely puberulent, lobes linear-lanceolate, ca. 8 mm, spreading outward, margins ciliate, apex long acuminate. Male flowers: androgynophore glabrous. Anthers ca. 15. Female flowers: ovary shortly stipitate, globose, tomentose with yellow-brown hairs. Style curved downward, hairy. Fruit not seen. Fl. Apr.

• Slopes; 1000–1100 m. S Guangdong, Guangxi (Fusui).

This species is similar to *Sterculia monosperma*.

22. *Sterculia lanceolata* Cavanilles, Diss. 5: 287. 1788.

假苹婆 jia ping po

?*Helicteres undulata* Loureiro; *Sterculia balansae* Aug. Candolle.

Trees. Branchlets at first pilose. Petiole 2.5–3.5 cm; leaf blade elliptic, lanceolate, or elliptic-lanceolate, 9–20 × 3.5–8 cm, abaxially nearly glabrous, adaxially glabrous, lateral veins 7–9 on each side of midrib, curved upward, connected near margin, base obtuse or nearly rounded, apex acute. Inflorescence paniculate, 4–10 cm, densely many-branched. Calyx reddish, divided almost to base, pubescent abaxially, lobes oblong-lanceolate or oblong-elliptic, 4–6 mm, stellately spreading, margins ciliate, apex obtuse or minutely mucronate. Male flowers: androgynophore 2–3 mm, curved. Anthers ca. 10. Female flowers: ovary globose, hairy. Style curved; stigma minutely 5-lobed. Follicle fresh red, narrowly ovoid or ellipsoid, 5–7 × 2–2.5 cm, 2–4-seeded, densely puberulent, base attenuate, apex beaked. Seeds black-brown, ellipsoid-ovoid, ca. 1 cm. Fl. Apr–Jun.

Usually near streams. Guangdong, Guangxi, Guizhou, S Sichuan, Yunnan [Laos, Myanmar, Thailand, Vietnam].

This species is the most widely distributed member of the genus in the Flora area. The bark fiber is used for making bags or paper.

23. *Sterculia lanceifolia* Roxburgh, Fl. Ind., ed. 1832, 3: 150. 1832 [*"lancaefolia"*].

西蜀苹婆 xi shu ping po

Sterculia roxburghii Wallich.

Trees or shrubs; bark gray. Branchlets puberulent. Stipules

subulate, minutely hairy, caducous; petiole 2.5–3.5 cm, both ends pulvinate; leaf blade lanceolate, linear-lanceolate, or oblong-lanceolate, 10–23 × 2.5–7.5 cm, minutely pilose, becoming glabrous, lateral veins 9–10 on each side of midrib, slightly connected near margin, base rounded or obtuse, apex obtusely acuminate. Inflorescence racemose, or rarely paniculate, axillary, 5–7 cm, much shorter than leaves, laxly few-flowered, stellate pilose. Pedicel slender, 5–8 mm. Calyx red, campanulate, divided nearly to base, ca. 7 mm, abaxially sparsely puberulent, lobes oblong-lanceolate, ca. 5 mm, much longer than calyx tube, spreading outward. Male flowers: androgynophore curved, glabrous. Female flowers: ovary globose, densely puberulent. Follicle oblong or oblong-lanceolate, ca. 7 cm, 4–8-seeded, abaxially densely red hirsute, apex beaked. Seeds black, ovoid.

Forested slopes; 800–2000 m. Guizhou, S Sichuan, S Yunnan [Bangladesh, NE India].

The name *Sterculia lanceifolia* was first published as a nomen nudum in 1814 (Roxburgh, Hort. Bengal. 50. 1814) and is sometimes indicated as having been validated by G. Don (Gen. Hist. 1: 517. 1831, "*lancaefolia*") but Don only listed the name at the end of the account of *Sterculia*, under "Species the names of which are only known," stating "Tree 30 feet." Some would regard this as a validating description.

24. *Sterculia hainanensis* Merrill & Chun, Sunyatsenia 2: 281. 1935.

海南苹婆 hai nan ping po

Small trees or shrubs. Branchlets glabrous or minutely stellate puberulent when young. Petiole 1.5–2.5 cm; leaf blade oblong or linear-lanceolate, 15–23 × 2.5–6 cm, abaxially and adaxially glabrous, lateral veins 13–18 on each side of midrib,

curved and connected far from margin, base acute or obtuse, apex obtuse or nearly acuminate. Inflorescence racemose, terminal. Male flowers: calyx red, ca. 8 mm, divided nearly to base, abaxially sparsely stellate pilose, lobes oblong or oblong-elliptic, ca. 6 mm. Androgynophore curved. Anthers ca. 8 in circle. Female flowers slightly larger, ca. 10 mm. Ovary globose; style curved. Follicle red, narrowly ellipsoid, ca. 4 cm, abaxially densely velutinous, apical beak ca. 6 mm. Seeds black-brown, ellipsoid, ca. 1 cm. Fl. Jan–Apr.

- Valleys and gullies in dense forests. S Guangxi, E Hainan.

25. *Sterculia yuanjiangensis* H. H. Hsue & S. J. Xu, J. S. China Agric. Univ. 8(3): 3. 1987.

元江苹婆 yuan jiang ping po

Trees, to 9 m tall. Branchlets drying purple-red, nearly glabrous. Stipules caducous; petiole 3.5–5 cm, glabrous or sparsely stellate pilose; leaf blade obovate or narrowly obovate, 13–26 × 7–10 cm, thinly leathery, glabrous, lateral veins 5–9 on each side of midrib, ascending and curved, abaxially prominently raised, adaxially apparent, base tapering or cuneate, apex rounded or minutely acute. Flowers unknown. Follicle drying brown, ellipsoid, ca. 6 × 3 cm, 4-seeded, abaxially densely brown stellate pilose, base narrowed, apex beaked. Seeds black, subglobose, 1.5–2 cm.

- Yunnan (Yuanjiang).

26. *Sterculia guangxiensis* S. J. Xu & P. T. Li, Acta Phytotax. Sin. 38: 568. 2000.

广西苹婆 guang xi ping po

Trees, to 7 m tall. Branchlets sparsely pubescent when young. Petiole 1–1.5 cm, base and apex pulvinate, sparsely pubescent; leaf blade simple, obovate or elliptic-obovate, 10–18 × 4.5–6 cm, thinly leathery, abaxially subglabrous, adaxially glabrous, lateral veins 9–11 on each side of midrib, curved upward, ± connected near margin, base cuneate, apex acute or acuminate. Inflorescence and flowers not seen. Follicle scarlet, cylindrical-ellipsoid, 3.5–6 × 1.5–2 cm, 3-seeded, base rounded, apex beaked, densely yellow pubescent and stellate pilose. Seeds blackish, ellipsoid, 10–12 × ca. 8 mm, glossy. Fr. Jun.

- Guangxi.

Sterculia guangxiensis was compared in the protologue to *S. lanceolata* Cavanilles, but the petiole of the former is distinctly pulvinate at both ends, suggesting a closer relationship to *S. lanceifolia*, which differs by the longer (2.5–3.5 cm) petiole and rounded, not cuneate, base of the leaf blade.

