
番泻决明属  fan xie jue ming shu

Herbs, shrubs, or small trees. Leaves abruptly pinnate; leaflets opposite; rachis and petiole with or without glands. Flowers in axillary or terminal racemes; bracteoles absent. Sepals 5. Petals 5, subequal, usually yellow. Stamens 10; filaments of all stamens straight, sometimes 10 fertile, subequal, sometimes 3 adaxial stamens staminodes, (6 or)7 fertile; anther thecium not ciliate along suture. Legume either indehiscent or ineruptly dehiscent through 1 or both sutures, in last case not coiling, sometimes valves breaking up into 1-seeded joints. Seeds numerous, fanicle filiform.

About 260 species; pantropical; 15 species (13 introduced) in China.

1a. Petiole and rachis of leaves without glands.
   2a. Petiole and rachis of leaves with 2 longitudinal ribs, narrowly winged; legume with a membranous wing at middle downward to base of each valve ............................. 1. S. alata

2b. Petiole and rachis of leaves without wings.
   3a. Leaflets abaxially densely yellowish brown velutinous; legume narrowly cylindrical ........................................ 4. S. spectabilis
   3b. Leaflets abaxially glabrous and farina-white; legume flattened.
      4a. Leaflets 6–10 pairs; stipules linear, caducous ................................................................. 2. S. siamea
      4b. Leaflets 8–16 pairs; stipules ovate-cordate, tardily deciduous .......................... 3. S. didymobotrya

1b. Petiole and rachis of leaves with glands.
   5a. Glands on petiole only.
      6a. Gland on upper part of petiole, blackish brown, discoid, sessile; leaflets 8–28 pairs .................................. 8. S. nomame
      6b. Leaf with a solitary gland above base of petiole; leaflets 3–10 pairs.
         7a. Young branchlets, petiole, and rachis of leaves densely yellowish brown villous; leaflets villous on both surfaces; legume densely hirsute on surfaces of valves ................................. 5. S. hisruta
         7b. Plants glabrous or subglabrous throughout; legume glabrous.
            8a. Petiolar gland sessile, globose or ovoid, at basal joint; legume flattened, 10–13 cm ............. 6. S. occidentalis
            8b. Petiolar gland narrow, clavate to subulate, above basal joint; legume terete, 5–10 cm, with light-colored suture ................................................................. 7. S. sophera

5b. Glands only present on rachis between leaflets.
   9a. Leaflets 2 pairs, obliquely ovate, very unequally sided, 4–16.5 × 2–7 cm, larger half facing leaf base .......... 9. S. fruticosa
   9b. Leaflets 3 to more pairs, smaller than above.
      10a. Leaflets 10–26(–50) pairs, a conical or narrowly ovoid gland between lowermost pair of leaflets (often early caducous) ............................................. 10. S. multijuga
      10b. Leaflets 3–9 pairs.
         11a. Fertile stamens 10.
            12a. Leaflets 4–6 pairs; leaves 15–30 cm; stipe of legume 10–20 mm ............................. 11. S. sulfurea
            12b. Leaflets 6–9 pairs; leaves 10–15 cm; stipe of legume 5–7 mm .......................... 12. S. surattensis
         11b. Fertile stamens 7.
            13a. Rachis of leaves with a gland between lowest pair of leaflets ................................ 15. S. bicapsularis
            13b. Rachis of leaves with a gland between each pair of leaflets.
               14a. Legume terete, 6–10 × ca. 1 cm; leaflets ovate to ovate-elliptic, apex acute to acuminate ............................................................... 13. S. septemtrionalis
               14b. Legume linear, terete, 10–15 × ca. 0.5 cm; leaflets obovate, apex broadly rounded ................................................................. 14. S. tora


翅荚决明  chi jia jue ming


Shrubs, 1.5–3(–5) m tall. Branches greenish, thick, pubescent. Leaves 30–60 cm; stipules persistent, triangular, 6–10(–15) mm; petiole and rachis with 2 longitudinal ribs and narrow wings; petiolar glands absent; petiolules very short or leaflets subsessile; leaflets 6–12(–20) pairs, oblong or obovate-oblong, 6–15 × 3.5–7.5 cm, thinly leathery, glabrous, base obliquely truncate, apex obtusely rounded and cuspidate. Rachemes axillary, dense, many flowered, or sometimes several racemes forming a terminal panicle, 10–50 cm; peduncles 7–14 cm; bracts caducous, strobilaceous, oblong to broadly ovate, 2–3 × 1–2 cm, at first enveloping flowers. Flowers ca. 2.5 cm in diam. Sepals orange-yellow, oblong, unequal. Petals bright yellow, tinged with conspicuous purple veins, ovate-orbicular, 16–24 × 10–15 mm, shortly clawed. Stamens 10, fertile stamens 7, opening with apical pores, lower 2 with stout filaments ca. 4 mm and larger anthers, 4 with filaments ca. 2 mm and smaller anthers, reduced stamens 3 or 4. Ovary puberulent, sessile; ovules many. Legume winged, sharply tetragonal, 10–20 × 1.5–2 cm, glabrous, with a broad, membranous wing down middle.
of each valve; wings 4–8 mm wide, papery, crenulate. Seeds 50–60, compressed, deltoid. 2n = 24, 28.

Sparse forests, dry slopes. Guangdong, Yunnan, S Yunnan [native to tropical America; widely introduced in the tropics elsewhere].

This plant is used as a laxative.


铁刀木 tie dao mu

*Cassia siamea* Lamarck, Encycl. 1: 648. 1785.

Trees, 10–15 m tall. Bark gray, subsmooth; young branches ribbed, sparsely puberulent. Leaves 20–30 cm; stipules caducous, linear, tiny; rachis and petiole without glands, puberulent; leaflets 6–10(–15) pairs, oblong or ovate-oblong, 3–7 × 1.5–2.5 cm, leathery, abaxially finely pubescent, adaxially smooth and glabrous, base rounded, apex obtusely rounded, often emarginate, mucronate. Racemes in axils of apical leaves, often several forming a large terminal panicle on a robust peduncle 5–7 cm; bracts linear, 5–6 mm. Sepals suborbiculate, unequal in size, outer smaller, inner larger, ca. 9 mm, outside hairy. Petals yellow, broadly obovate, 1.2–1.5 cm, shortly clawed. Stamens 10, among them 7 fertile, anthers opening by apical pores, staminodes 3 or 4. Ovary hirsute, subsessile; style short, glabrous. Legume long, slender, flat, 10–20 × ca. 0.5 cm. Ovary sessile, densely white pubescent. Legume flattened, 15–30 × 1–1.5 cm, suture thick, riblike, pubescent, purplish brown when mature. Seeds 9–16, obovoid-oblong, 2.5 × 5–6 mm. 2n = 28.

Cultivated in S China [native to Myanmar and Thailand, and probably also to Cambodia, Laos, and Vietnam; widely cultivated in the tropics].

This tree is planted as an ornamental in parks and gardens and is used as a wayside tree. The hard, durable wood is used for furniture.


长穗决明 chang sui jue ming

*Cassia didymobotrya* Fresenius, Flora 22: 53. 1839.

Shrubs, 2.5–3 m tall. Young branches and leaves puberulent, glabrescent when ca. Leaves to 35(–50) cm; stipules tardily deciduous, ovate-cordate, 6–17 mm, acuminate; petiole and rachis without glands, puberulent; petiolules very short; leaflets 8–16 pairs, abaxially farina-white, ovate-oblong or lanceolate-oblong, 3–5.5 × 1–2 cm, base rounded and oblique, apex obtuse or subacute, pubescent. Racemes in axils of leaves in upper part of branches, 10–35 cm, sometimes several arranged in a terminal leafy panicle; bracts caducous, imbricate, broadly ovate, apex subacute or acuminate. Sepals oblong-obovate. Petals yellow, oblong or obovate, shortly clawed. Stamens 10, among them functionally 2 extra large, curved, ca. 12 mm. Ovary densely yellowish or pallid pilosulous. Legume compressed, ligulate-oblong, 8–10 × 1.6–1.8 cm, leathery, bicarinate by sutures, apex with a long and slender awn, stipe 1–1.2 cm; fruiting pedicel ca. 1 cm. Seeds 9–16, obovoid-oblong, compressed. 2n = 28.

Cultivated in Hainan, Yunnan [native to tropical America; now naturalized in India and Sri Lanka].


美丽决明 mei li jue ming

*Cassia spectabilis* Candolle, Cat. Pl. Horti Monsp. 90. 1813.

Trees, evergreen, small, 5–7(–10) m tall, with long, spreading branches. Young branches, petioles, and rachises of leaves densely yellowish brown velutinous. Leaves 12–30 cm; rachis and petiole without glands; leaflets 8–15(–19) pairs, elliptic or oblong-lanceolate, 3–7 × 1–2 cm (lowermost pair usually much smaller and early caducous), adaxially densely yellowish brown velutinous, adaxially glabrous or puberulent, base subrounded and slightly oblique, apex acute, cuspidate. Flowers in terminal panicles or axillary racemes; peduncles and pedicels densely yellowish brown velutinous; bracts caducous, ovate, 4–5 mm. Sepals 5, orange-yellow, unequal: 2 outer smaller, ovate, 5–7 mm, pubescent; 3 inner larger, suborbiculate, 8–11 mm in diam. Petals yellow, darkly brownish yellow veined, unequal in size, broadly to narrowly obovate, shortly clawed. Stamens 10, 7 of them fertile, anthers opening by apical pores, staminodes 3, smaller. Ovary linear, ca. 3 cm, recurved; style and stigma inconspicuous. Legume pendulous, black, narrowly cylindric, slightly compressed, 25–35 × 1–1.5 cm, slightly contracted between seeds, annulate-septate, glabrous. Seeds 50–70, suborbiculate, ca. 5 mm in diam.

Cultivated in Guangdong, S Yunnan [native to tropical America; cultivated throughout the tropics].

This is a rapidly growing tree, which is usually cultivated ornamentally; the flowers are fragrant.


毛荚决明 mao jia jue ming


Herbs or shrubs, 0.6–2.5 m tall. Young branches, petioles, and rachises of leaves densely yellowish brown villous. Leaves 10–20 cm; petiole 3–6 cm, with a sessile, blackish brown, ovoid-oblong gland near insertion; rachis 7–10 cm, without glands; leaflets 3–7 pairs, ovate-oblong or oblong-lanceolate, 3–9 × 1.5–3.5 cm, papery, both surfaces villous, base subrounded, apex acuminate. Racemes axillary or several in axils of apical leaves forming a leafy panicle; peduncles and pedicels densely yellowish brown villous; bracts caducous, ovate, 5–7 mm. Sepals 5, unequal in size, densely villous, 2 outer smaller, ovate to obovate, ca. 5 mm, 3 inner puberulent, similar but larger, 7–8 mm. Petals yellow, obovate, 1.4–1.8 cm, glabrous. Stamens 10, 6 or 7 of them fertile, unequal in length, anthers opening by apical pores, staminodes 3 or 4. Ovary hirsute, subsessile; style short, glabrous; stigma small. Legume long, slender, flat, 10–20 × ca. 0.5 cm, densely hirsute on surfaces of valves. Seeds numerous, flat, obovoid, 3–4 mm. 2n = 14, 28.

Cultivated in Guangdong, Yunnan [native to tropical America; introduced in the tropics elsewhere].


Subshrubs or shrubs, erect, 0.8–1.5 m tall, glabrous, few branched. Branches herbaceous, ribbed; roots blackish. Leaves ca. 20 cm; stipules caducous, triangular to lanceolate, 1–2 cm, membranous; petiole 3–4 cm, with a large, brown, ovoid gland near base; petiolule 1–2 mm, with a rotten smell when kneaded; leaflets 3–5(or 6) pairs, ovate to ovate-oblong, 4–10 × 2–3.5 cm, membranous, base rounded, apex acuminate. Corymbose racemes few flowered, axillary or terminal, ca. 5 cm; bracts caducous, linear-lanceolate. Flowers ca. 2 cm. Sepals unequal, outer ones suborbicular, ca. 6 mm in diam., inner ones ovate, 8–9 mm. Petals yellow, purplish veined, 2 outer slightly larger, shortly clawed. Fertile stamens 7, anthers opening by apical pores. Ovary tomentose; staminodes 3 or 4, ca. 2 mm. Ovary densely puberulent. Legume brown, with pale oblong-ovate, 4–16.5 × 2–7 cm, membranous, both surfaces pubescent when young, abaxially puberulent when old; base obliquely cuneate, very unequally sided; midvein near upper side, apex acute to acuminate. Racemes short, densely flowered, to 6 cm, in axils of apical leaves, several racemes forming a leafy panicle; bracts early caducous, narrowly lanceolate. Sepals yellowish green, often tinged with red, oblong-ovate, outside puberulent. Petals orange-yellow, broadly obovate to orbicular, 2–2.5 cm, both sides pubescent. Fertile stamens 6 or 7, opening by apical pores, upper 3 stamens usually absent. Ovary linear, densely appressed whitish pubescent. Legume pendulous on a short stout stipe, terete, 15–25 × 1–1.5 cm, slightly annulate, with a beak ca. 1 cm on top. Seeds 80–100, dark brown, compressed, ovoid, 5–6 mm, embedded in a foetid, black pulp. 2n = 28.

Cultivated in Guangdong [native to tropical America].


*Chamaecrista nomame* (Linnaeus) Link, var. *sophera* (Linnaeus) X. Y. Zhu.

Shrubs, 1–2(–3) m tall, glabrous. Leaves 7–18(–21) cm; petiole 3–5 cm, with a subulate or narrow clavate gland 5–10 mm above petiole joint; petiolules ca. 2 mm; leaflets 4–10 pairs, lanceolate or elliptic-lanceolate, 1.7–4 × 0.7–2 cm, base rounded, apex acute to shortly acuminate. Corymb axillary, few flowered; peduncles 1–2 cm; bracts ovate, ca. 5 mm; pedicels 1–1.5 cm. Sepals ovate-oblanceolate, ca. 5 mm. Petals yellow, obovate, shortly clawed. Stamens 10, 6 or 7 fertile, 2 longer; anthers opening by apical pores; staminodes 3 or 4, ca. 2 mm. Ovary finely pubescent. Legume straight, 5–10 × 0.5–1 cm, flattened and slightly thick at first, subcylindric, ± swollen when ripe. Seeds 30–40, ovoid, compressed. 2n = 28.

Mountain slopes, roadsides. C and S China [native to tropical Asia; widely introduced in the tropics and subtropics elsewhere].

The young leaves and legumes are edible. The seeds are used medicinally for fever reduction.


Herbs, annual, 30–60 cm tall, slightly hairy, branched or not. Leaves 4–8 cm, with a blackish brown, discoid, sessile gland in upper part of petioles; leaflets 8–28 pairs, ligulate-lanceolate, 5–9 mm, slightly asymmetric. Flowers inserted in axils of leaves, with pedicels, solitary or 2 to several in short racemes. Sepals 5, free, outside sparsely pubescent. Petals 5, yellow. Stamens 4, sometimes 5. Ovary densely puberulent. Legume compressed, dehiscent, 3–8 × ca. 0.5 cm, hairy, 6–12-seeded. Seeds compressed, subtrihomoid, smooth.

Mountain slopes, open grassy fields. Anhui, Hebei, Heilongjiang, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea].


*N. da ye jue ming*

*Cas sia fruticosa* Miller, Gard. Dict., ed. 8, *Cassia* no. 10. 1768.

Shrubs or small trees, ca. 3 m tall. Branches grayish white, glabrous. Leaves 12–18 cm, with an oblong, convex gland on rachis between lower pair of leaflets; stipules early caducous, linear, 3–4 mm; petiolules 3–4 mm; leaflets 2 pairs, obliquely oblong-ovate, 4–16.5 × 2–7 cm, membranous, both surfaces pubescent when young, abaxially puberulent when old; base obliquely cuneate, very unequally sided; midvein near upper side, apex acute to acuminate. Racemes short, densely flowered, to 6 cm, in axils of apical leaves, several racemes forming a leafy panicle; bracts early caducous, narrowly lanceolate. Sepals yellowish green, often tinged with red, oblong-ovate, outside puberulent. Petals orange-yellow, broadly obovate to orbicular, 2–2.5 cm, both sides pubescent. Fertile stamens 6 or 7, opening by apical pores, upper 3 stamens usually absent. Ovary linear, densely appressed whitish pubescent. Legume pendulous on a short stout stipe, terete, 15–25 × 1–1.5 cm, slightly annulate, with a beak ca. 1 cm on top. Seeds 80–100, dark brown, compressed, ovoid, 5–6 mm, embedded in a foetid, black pulp. 2n = 28.

Cultivated in Guangdong [native to tropical America].


密叶决明


Shrubs, small trees, or trees, 7–20(–40) m tall. Young parts generally puberulent; branchlets reddish brown when dry. Leaves 12–20 cm; stipules early caducous, linear; rachis and petiole puberulent, with a long, ovoid gland on rachis between lowest pair of leaflets (often early caducous); leaflets 10–26(–50) pairs, linear-oblong or oblong, 1.2–4 × 0.6–0.8 cm, both surfaces puberulent or adaxially glabrous, apex obtusely rounded, mucronate, slightly oblique. Racemes several, arranged in a terminal, leafy panicle 10–20(–40) cm; peduncle and pedicels puberulent. Flowers 2.5–4 cm in diam.; bracts ovate, ca. 2 mm, tomentose. Sepals greenish yellow when mature, slightly unequal, 5–6 mm. Petals yellow, ovate-oblong, 1–2(–3) cm, glabrous. Fertile stamens 7, 3 larger, with filament ca. 10 mm and anthers 6–7 mm, staminodes 3, tiny. Ovary linear,

Senna sulfurea Colladon, Hist. Nat. Méd. Casses, 84. 1816; C. glauca Lamarck; C. surattensis N. L. Burman subsp. glauca (Lamarck) K. Larsen & S. S. Larsen; Senna surattensis (N. L. Burman) H. S. Irwin & Barneby subsp. glauca (Lamarck) X. Y. Zhu.

Shrubs, large, or small trees. Young shoots pilose, later glabrescent. Leaves 15–30 cm, with a clavate gland 1–2 mm on rachis between each of lowest 2 pairs of leaflets; stipules caducous, linear; petiole 3.5–6.5 cm; petiolules ca. 3 mm; leaflets 4–6 pairs, usually 5 pairs, abaxially farina-white, adaxially greenish, ovate or elliptic, 3.5–10 × 2.5–4 cm, base broadly cuneate or subrounded, apex obtusely rounded or inconspicuously emarginate. Racemes in axils of leaves in upper part of branches; peduncles 3–10 cm; rachis 1–6 cm; bracts ovate, 3–8 mm, apex acute, finally reflexed. Pedicels 1–3 cm. Sepals green to reddish brown, unequal, outer 2 suborbicular, ca. 3 mm in diam., inner 3 obovate, 6–9 mm. Petals bright yellow (drying to reddish brown, 5–11 × 2–3.5 cm, both surfaces glabrous, base cuneate or narrowly cuneate, sometimes oblique, apex acute to acuminate. Racemes axillary or terminal, 4–10-flowered, 5–10 cm including peduncle 2.5–5 cm; bracts caducous, linear-lanceolate, 2–5 cm. Pedicels 1.5–2.5 cm. Sepals yellowish green, ovate-elliptic, unequal, inner 8–10 mm, outer shorter. Petals bright yellow, ovate-orbicular, 1–1.5(–2) cm, shortly clawed. Fertile stamens 7, unequal, anthers opening by apical pores; 3 staminodes with anthers flat, suborbicular, non-functional. Ovary glabrous; style linear. Legume terete, 6–10 × ca. 1 cm, slightly subquadrangular when fully mature, valves subleathery, tardily dehiscent. Seeds 50–70, olive-colored, glossy, obovoid, flat, 5–6 mm.

Cultivated in Guangdong, Guangxi [native to tropical America; widely cultivated in the tropics].


Senna surattensis Colladon, Hist. Nat. Méd. Casses, 84. 1816; Senna laevigata Willdenow.

Shrubs or small trees, 1–4 m tall. Young branches green, smooth, glabrous. Leaves ca. 15 cm; rachis 6–12 cm, with a clavate or conical gland between all except upper pair of leaflets; stipules early caducous, linear; leaflets 3 or 4 pairs, abaxially farina-white, ovate to ovate-lanceolate, 5–11 × 2–3.5 cm, both surfaces glabrous, base cuneate or narrowly cuneate, sometimes oblique, apex acute to acuminate. Racemes axillary or terminal, 4–10-flowered, 5–10 cm including peduncle 2.5–5 cm; bracts caducous, linear-lanceolate, 2–5 cm. Pedicels 1.5–2.5 cm. Sepals yellowish green, ovate-elliptic, unequal, inner 8–10 mm, outer shorter. Petals bright yellow, ovate-orbicular, 1–1.5(–2) cm, shortly clawed. Fertile stamens 7, unequal, anthers opening by apical pores; 3 staminodes with anthers flat, suborbicular, non-functional. Ovary glabrous; style linear. Legume terete, 6–10 × ca. 1 cm, slightly subquadrangular when fully mature, valves subleathery, tardily dehiscent. Seeds 50–70, olive-colored, glossy, obovoid, flat, 5–6 mm.

Cultivated in Guangdong, Guangxi [native to tropical America; widely cultivated in the tropics].


Herbs, suffrutescent, annual, erect, 1–2 m tall. Leaves 4–8 cm; stipules caducous, linear, 10–15 mm; petiole without glands; rachis with a club-shaped gland between leaflets; petiolules 1.5–2 mm; leaflets 3 pairs, ovate or ovate-oblong, 2–6 × 1.5–2.5 cm, membranous, abaxially pubescent, adaxially sparsely pubescent, base cuneate to rounded and oblique, apex rounded, cuspitate. Racemes axillary, short, 1–2 or (3)–flowered; peduncles 6–10 mm; bracts linear, acute. Pedicels 1–1.5 cm. Sepals ovate or ovate-oblong, 5–8 mm, membranous, outside pubescent. Petals yellow, unequal, ovate, lower 2 slightly longer, 12–15 × 5–7 mm, shortly clawed. Fertile stamens 7, nearly equal, filaments 1.5–2 mm, anthers opening by apical pores, ca. 4 mm, 3 larger, 4 smaller, staminodes absent. Ovary sessile, densely white pubescent; style glabrous. Legume terete, subtetragonal, slender, 10–15 × 0.3–0.5 cm, both ends acuminate, valves membranous. Seeds 20–30, glossy, rhomboid, ca. 5 × 3 mm, with an aril. 2n = 26*, 28*, 56*.

Mountain slopes, wastelands, riverbank sand. Widespread to S of...
the Chang Jiang [native to tropical America; widely cultivated in the tropics and subtropics].

The seeds known as “jue ming zi” (决明子) are used medicinally as a diuretic and purgative.

In addition, X. Y. Zhu et al. (Legumes China, 32. 2007) recorded *Senna obtusifolia* (Linnaeus) H. S. Irwin & Barneby as widely cultivated in China (as *S. tora* var. *obtusifolia* (Linnaeus) X. Y. Zhu).


双荚决明  shuang jia jue ming


Shrubs, erect, to 3 m tall, much branched. Crown spreading, with pendent or sometimes climbing twigs. Leaves 7–12 cm, with 3 or 4 pairs of leaflets; stipules caducous, narrowly lanceolate, subulate, 1–3 mm; petiole 2.5–4 cm, slender; rachis with a blackish brown, clavate to ovoid gland between lowest pair of leaflets; leaflets obovate or obovate-oblong, 1.5–4 × 1–2.5 cm, membranous, glabrous, base obliquely cuneate, apex obtusely rounded. Racemes lax, in axils of apical leaves, 5–15 cm, slender; bracts early caducous. Sepals yellowish to reddish brown, ovate, 5–10 mm. Petals yellow, obovate, 1.1–1.5 cm, very shortly clawed. Stamens 10, 7 fertile: 3 lower with unequal filaments 2–10 mm, anthers large, curved, ca. 1 mm; 4 short with filaments ca. 1 mm and anthers 4–5 mm; 3 staminodes with minute anthers. Ovary with glabrous stalk and style. Legume brown, terete, straight or slightly curved, 9–17 × 1–1.5 cm, tardily dehiscent, valves membranous. Seeds 50–60, olive-green, ovoid, flattened, 5–7 mm.

Cultivated in Guangdong, Guangxi, Hainan [native to tropical America; widely cultivated in the tropics].