

NYCTAGINACEAE

紫茉莉科 *zi mo li ke*

Lu Dequan (鲁德全)¹; Michael G. Gilbert²

Herbs, shrubs, trees, or sometimes spiny vines. Leaves opposite, alternate, or \pm whorled; stipules absent; petiole usually present, well defined; leaf blade simple, herbaceous or slightly fleshy, margin entire. Inflorescences mostly terminal, less often axillary, of cymes, umbels, or verticils, sometimes 1-flowered or fasciculate, often grouped into panicles; bracts often inconspicuous, sometimes forming calyxlike involucre, or large and brightly colored. Flowers bisexual, rarely unisexual or polygamous, actinomorphic. Perianth constricted beyond the ovary, base persistent, closely enclosing ovary which appears inferior, limb petaloid beyond constriction, tubular, funnellform, or campanulate, apex 5–10-lobed, lobes plicate or valvate in bud, persistent or caducous. Disk absent. Stamens (1–)3–5(–many), hypogynous, free or connate at base, involute in bud; anthers 2-loculed, dehiscence longitudinal. Ovary superior, 1-loculed; ovule 1. Style 1; stigma globose. Fruit an achenelike anthocarp enclosed by persistent perianth, ribbed or winged, often glandular. Seed 1; endosperm present; embryo straight or curved.

About 30 genera and 300 species: tropics and subtropics, mainly in tropical America; six genera (two introduced) and 13 species (one endemic, three introduced) in China.

Lu Dequan. 1996. Nyctaginaceae. *In*: Tang Changlin, ed., *Fl. Reipubl. Popularis Sin.* 26: 1–14.

- 1a. Shrubs, trees, or spiny vines; leaves often alternate.
 - 2a. Inflorescences many-flowered cymes or panicles; bracts absent or inconspicuous; ovary sessile; fruit sticky 1. *Pisonia*
 - 2b. Inflorescences 3-flowered cymes; bracts conspicuous, reddish, purple, or orange, rarely white or yellow, adnate to flowers; ovary stipitate; fruit not sticky 2. *Bougainvillea*
- 1b. Herbs or subshrubs; leaves always opposite.
 - 3a. Flowers enclosed by a calyxlike involucre; fruit globose, obovoid, oblong, fusiform, or terete, sometimes ribbed, without sticky glands.
 - 4a. Involucre not accrescent or membranous; flowers large, showy, opening in the afternoon; perianth salverform, 2–6 cm, limb 2.5–3 cm in diam.; pedicel 1–2 mm 3. *Mirabilis*
 - 4b. Involucre accrescent, membranous in fruit; flowers inconspicuous, opening in the morning; perianth campanulate or funnellform, 0.6–0.8(–1) cm, limb ca. 0.8 cm in diam.; pedicel 20–25 mm 4. *Oxybaphus*
 - 3b. Flowers in cymose panicles, umbels, or verticils; fruit clavate, obconic, turbinate, terete, or obovoid, 5- or 10-ribbed, with sticky glands.
 - 5a. Inflorescences cymose panicles, sometimes compact and headlike; perianth limb campanulate; filaments and style included or shortly exserted; fruit with unraised glands 5. *Boerhavia*
 - 5b. Inflorescences umbels or verticils; perianth limb funnellform; filaments and style long exserted; fruit with large, raised, wartlike glands, usually near apex 6. *Commicarpus*

1. PISONIA Linnaeus, Sp. Pl. 2: 1026. 1753.

腺果藤属 *xian guo teng shu*

Calpidia Thouars; *Ceodes* J. R. Forster & G. Forster.

Shrubs, trees, or vines. Stems sometimes armed. Leaves opposite or alternate, petiolate, margin entire. Inflorescences axillary (or terminal), many-flowered cymes or panicles; bracts absent or inconspicuous, caducous. Flowers unisexual (plant dioecious), bisexual, or polygamous; bracteoles 2–4. Male perianth limb campanulate or funnellform. Stamens 6–10. Female perianth ovate-tubular or cylindric, 5–10-lobed. Ovary sessile, oblique. Stigma capitate or lobed. Fruit oblong or clavate, ribbed, with sticky glands. Seed oblong, with a deep longitudinal furrow; embryo straight, cotyledons recurved, enclosing the endosperm.

Between 35 and 40(–75) species: tropical and subtropical regions, most diverse in SE Asia and tropical America; three species in China.

Some authors place freestanding plants that have bisexual or polygamous flowers and fruits with sessile glands in the genus *Ceodes* and recognize up to 75 species, but most modern authors believe the similarities between the groups outweigh the differences and recognize only one genus with 35(–40) species. The very sticky fruits can attach to birds, and species of *Pisonia* are often common on isolated islands hosting colonies of sea birds.

- 1a. Plants climbing, spiny; flowers unisexual; fruit with rows of conspicuous stalked glands 1. *P. aculeata*
- 1b. Plants erect, not spiny; flowers bisexual or polygamous; fruit with sessile glands.
 - 2a. Flowers bisexual; inflorescence 1–4 cm; pedicel 1–1.5 mm, apex bracteolate; perianth tube funnellform; fruit clavate, ca. 1.2 cm, muricate, aculeate, apex without persistent perianth 2. *P. grandis*

¹ Herbarium, Northwestern Institute of Botany, Yangling, Xianyang, Shaanxi 712100, People's Republic of China (Lu Dequan died in 2002).

² Missouri Botanical Garden, c/o Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE, England, United Kingdom.

- 2b. Flowers polygamous; inflorescence 5–12 cm; pedicel 1.5–6 mm, apex without bracteole; perianth tube campanulate; fruit subterete, 2.5–4 cm, smooth, apex with spreading persistent perianth 3. *P. umbellifera*

1. *Pisonia aculeata* Linnaeus, Sp. Pl. 2: 1026. 1753.

腺果藤 xian guo teng

Shrubs vinelike, climbing, to 20 m. Bark olive green. Stems with axillary spines, pilose or glabrous; branches pendent, often with 5–10 mm, recurved thorns. Petiole 1–1.5 cm; leaf blade ovate to elliptic, 3–10 × 1.5–5(–7) cm, ± leathery, abaxially greenish, adaxially dark green, glabrous, pubescent yellow-brown, lateral veins 4–6 pairs, base cuneate or rotund, apex acute or obtuse. Cymes axillary, yellow-brown pubescent. Pedicel with 3 ovate bracteoles near apex. Flowers unisexual; perianth yellow, fragrant. Male perianth tube funnelform, puberulous, apex 5-lobed, lobes short triangular. Stamens 6–8, exserted; anthers subglobose. Female perianth tube ovate-tubular, apex 5-lobed; style exserted; stigma lacerate. Fruit clavate, 7–14 × 4 mm, 5-ribbed, with rows of stalked glands and brownish black pubescent; carpopodium long. Fl. Jan–Jun.

Thickets along seashores and open forests. Hainan, SE Taiwan [Africa, America, Asia, Australia].

2. *Pisonia grandis* R. Brown, Prodr. 1: 422. 1810.

抗风桐 kang feng tong

Ceodes grandis (R. Brown) D. Q. Lu.

Trees to 14(–30) m; trunk 30–50(–70) cm in diam. Bark white-gray, with conspicuous furrows and large leaf-scars; puberulous to nearly glabrous, lenticels conspicuous; branches unarmed. Petiole 1–8 cm; leaf blade elliptic, oblong, or ovate, (7–)10–20(–30) × (4–)8–15(–20) cm, papery or membranous, puberulous or glabrescent, lateral veins 8–10 pairs, base rounded or slightly cordate, mostly oblique, margin entire, apex acute to acuminate. Cymes terminal, 1–4 × 3–5 cm; peduncle ca. 1.5 cm, with light brown hairs. Flowers bisexual. Pedicel 1–1.5 mm, apex with 2–4 oblong bracteoles. Perianth tube funnelform, ca. 4 mm, 5-lobed, with 5 rows of black glands.

Stamens 6–10, exserted. Stigma fimbriate, included. Fruit clavate, ca. 1.2 cm × 2.5 mm, 5-ribbed, with sessile glands, without persistent perianth, rib with a row of viscid prickles, hairy between the ribs. Seed 9–10 × 1.5–2 mm. Fl. summer, fr. late summer–autumn.

Forests. Hainan (Xisha Qundao), E Taiwan [India, Indonesia, Malaysia, Sri Lanka; NE Australia, Madagascar, Maldives, Pacific Islands].

In the Xisha Qundao (part of the South China Sea Islands archipelago), *Pisonia grandis* is a dominant tree in the forests, often forming pure stands.

3. *Pisonia umbellifera* (J. R. Forster & G. Forster) Seemann, Bonplandia 10: 154. 1862.

胶果木 jiao guo mu

Ceodes umbellifera J. R. Forster & G. Forster, Char. Gen. Pl. 71. 1775; *Calpidia excelsa* (Blume) Heimerl; *Pisonia alba* Spanoghe; *P. excelsa* Blume.

Trees 4–20(–28) m, tomentose or glabrous; branches unarmed. Petiole 1–2.5 cm; leaf blade black-brown when dry, elliptic, oblong, or ovate-lanceolate, 10–20 × 4.5–8 cm, papery, glabrous, lateral veins 8–10 pairs, base broad cuneate, apex acuminate or slightly obtuse. Cymes terminal, paniculate, 5–12 cm. Flowers polygamous. Pedicel 1.5–6 mm, with 1–3 bracteoles near base. Perianth tube white, campanulate, 5–7 mm, with brown hairs, apex 5-lobed. Stamens 7–10, slightly exserted; filaments unequal, base united in a ring; anthers subglobose. Ovary oblong, upper acuminate. Style slender; stigma fimbriate, slightly exserted. Fruit subterete, slightly curved, 2.5–4 cm × 6–7 mm, 5-ribbed, smooth, glutinous; carpopodium thick, ca. 1 cm, with spreading persistent perianth at apex. Fl. and fr. autumn–winter.

Moist thickets, open forests; low to medium elevations. Hainan, S Taiwan [India (Andaman Islands), Indonesia, Malaysia, Philippines, Thailand, Vietnam; Australia, Madagascar, Pacific Islands (Hawaii)].

2. BOUGAINVILLEA Commerson ex Jussieu, Gen. Pl. 91. 1789 [“*Buginvillaea*”], nom. et orth. cons.

叶子花属 ye zi hua shu

Shrubs or small trees, sometimes climbing. Branches spiny. Leaves alternate, petiolate, leaf blade ovate or elliptic-lanceolate. Inflorescences axillary, pedunculate, 3-flowered cymes, each flower subtended by a persistent, often brightly colored, ovate bract adnate to the pedicel, often grouped into terminal panicles. Flowers bisexual; pedicel adnate to the midvein or the bract. Perianth connate, limb rose or yellow, funnelform, 5–6-lobed, lobes short. Stamens 5–10, included; filaments shortly united at base. Ovary fusiform, stipitate. Style lateral, short linear; stigma fimbriate. Fruit cylindrical or clavate, 5-ribbed, without sticky glands. Seed: testa thin; embryo curved, cotyledons convolute, enclosing the endosperm.

About 18 species: native to South America, widely cultivated in tropical and subtropical regions; two species (introduced) in China.

- 1a. Leaves glabrous or sparsely pubescent; bracts oblong or elliptic, as long as flowers; perianth tube distinctly angled, hairs very short, curved away from pedicel 1. *B. glabra*
 1b. Leaves densely pubescent; bracts elliptic-ovate, longer than flowers; perianth tube rounded, hairs copious, spreading, to 1 mm 2. *B. spectabilis*

1. *Bougainvillea glabra* Choisy in Candolle, Prodr. 13(2): 437. 1849.

光叶子花 guang ye zi hua

Bougainvillea spectabilis var. *glabra* (Choisy) W. J. Hooker.

Shrubs vinelike. Stems thick, branches pendent, glabrous

or sparsely pubescent; spines axillary, 5–15 mm. Petiole 1 cm; leaf blade ovate or ovate-lanceolate, 5–13 × 3–6 cm, chartaceous, abaxially sparsely pubescent, adaxially glabrous. Foliaceous bracts purple or magenta, oblong or elliptic, 2.5–3.5 × 2 cm, chartaceous. Perianth tube greenish, distinctly angled, ca. 2 cm, sparsely pubescent, ribbed, apex 5-lobed, hairs short, curved away from pedicel. Stamens 6–8. Fl. winter–spring (in south), Mar–Jul. (in north or greenhouse).

Widely cultivated in China, outdoors in frost-free areas, in greenhouses elsewhere [native to South America (Brazil)].

This species is used as an ornamental and medicinal plant. It is better adapted to areas lacking a distinct dry season and flowers more or less continuously in perpetually humid conditions.

2. *Bougainvillea spectabilis* Willdenow, Sp. Pl. 2: 348. 1799.

叶子花 ye zi hua

Branches and leaves densely pubescent; spines recurved. Leaves petiolate; leaf blade elliptic or ovate, base rotund. Bracts dark red or light purple-red, elliptic-ovate, 2.5–6.5 × 1.5–4 cm, base rotund to cordate. Perianth tube green, narrowly tubular, rounded, 1.6–2.4 cm, densely pubescent, apex 5–6-lobed, lobes spreading, yellow, 3.5–5 mm, hairs copious, spreading, to 1 mm. Stamens 8. Ovary stipitate. Fruit 1–1.5 cm, densely hairy. Fl. winter–spring.

Cultivated. S China [tropical America].

This species is used as an ornamental plant. It is adapted to climates with a distinct dry season and does not flower well in perpetually humid conditions. The name is often applied uncritically to material of hybrid origin.

3. *MIRABILIS* Linnaeus, Sp. Pl. 1: 177. 1753.

紫茉莉属 zi mo li shu

Herbs annual or perennial. Roots thick, obconic. Leaves opposite, petiolate or upper ones sessile. Inflorescence with each flower surrounded by a 5-fid, calyxlike involucre of bracts, arranged in terminal, ± flat-topped cymes, rarely solitary; involucre lobes erect, acuminate, plicate, not enlarged after flowering. Flowers bisexual, opening in afternoon, fragrant or not. Perianth constricted beyond ovary; limb showy, variously colored, expanded, salverform, plicate, distally 5-lobed, deciduous. Stamens 5 or 6, as long as perianth tube or exserted; filaments adnate to tube at base. Ovary ovoid or ellipsoid. Style linear, as long as stamens or longer, exserted; stigma capitate. Fruit globose or obovoid, coriaceous, crustaceous, or chartaceous, ribbed or tuberculate, without sticky glands. Seed: embryo curved, cotyledons folded, enclosing the mealy endosperm.

About 50 species: mainly in tropical America; one species (introduced) in China.

1. *Mirabilis jalapa* Linnaeus, Sp. Pl. 1: 177. 1753.

紫茉莉 zi mo li

Nyctago jalapa (Linnaeus) Candolle.

Herbs annual, to 1 m tall. Roots tuberous, black or black-brown. Stems erect, much branched, cylindric, glabrous or slightly pubescent, inflated on nodes. Petiole 1–4 cm; leaf blade ovate or ovate-triangular, 3–15 × 2–9 cm, base truncate or cordate, margin entire, apex acuminate. Flowers usually several clustered at apex of branches, fragrant; pedicel 1–2 mm. Invo-

lucre campanulate, ca. 1 cm, 5-lobed, lobes triangular-ovate, acuminate, glabrous, persistent. Perianth purple, red, yellow, white, or variegated; tube 2–6 cm; limb 2.5–3 cm in diam., opening in late afternoon, closing next morning. Stamens 5; filaments slender, exserted; anther globose. Fruit black, globose, 5–8 mm in diam., coriaceous, ribbed and plicate. Endosperm white mealy. Fl. Jun–Oct, fr. Aug–Nov.

Originally introduced as an ornamental, now a ruderal weed in some areas of China [native to tropical America; now pantropical].

This species is used medicinally and as an ornamental.

4. *OXYBAPHUS* L'Héritier ex Willdenow, Sp. Pl. 1: 185. 1797.

山紫茉莉属 shan zi mo li shu

Herbs annual or perennial, erect, ascending, or prostrate, sometimes with tuberous roots. Stems viscid glandular pubescent or glabrescent. Leaves opposite. Inflorescences axillary, in 1–3-flowered cymes, sometimes panicles, or rarely 1-flowered, enclosed within a campanulate involucre; involucre lobes 5, reticulate-venose, enlarged and membranous after flowering. Flowers bisexual, inconspicuous, opening in morning; pedicel 20–25 mm. Perianth constricted beyond the ovary, 0.6–0.8(–1) cm, limb rose-red or light red-purple, plicate, campanulate or short funnelform, often oblique, ca. 0.8 cm in diam., deciduous. Stamens (2–)3(–5); filaments capillary, circinate incurved, jointed at the ovary base. Style filiform; stigma capitate. Fruit oblong, fusiform, obovoid, or terete, small, smooth or tuberculate, without sticky glands. Seed: embryo curved, cotyledons enclosing the endosperm, radicle elongated.

About 25 species: mainly in warm regions of America, one species in Asia.

1. *Oxybaphus himalaicus* Edgeworth var. ***chinensis*** (Heimerl) D. Q. Lu, Rep. Abst. 60th Ann. Bot. Soc. China, 102. 1993.

中华山紫茉莉 zhong hua shan zi mo li

Mirabilis himalaica (Edgeworth) Heimerl var. *chinensis* Heimerl, Notizbl. Bot. Gart. Mus. Berlin-Dahlem 11: 454. 1932.

Herbs annual. Stems ascending or prostrate, many branched, terete, 50–80 cm, sparsely glandular pubescent to glabrescent. Petiole 1–2 cm; leaf blade ovate, 2–6 × 1–5 cm, abaxially hairy, adaxially scabrous, base cordate or rotund, margin pubescent or not obviously denticulate, apex acuminate or acute. Flowers terminal or axillary. Pedicel slender, 1–2.5 cm, densely viscid glandular pubescent. Involucre campanulate, 2.5–5 mm,

5-dentate (teeth triangular), densely viscid glandular pubescent outside. Perianth purple-red or pink, 6–8 mm, apex 5-lobed. Stamens 5, as long as perianth; filaments linear, circinate incurved; anthers ovoid, 2-celled, longitudinally dehiscent. Ovary obconic, glabrous. Style as long as perianth or longer; stigma lobed. Fruit black, ellipsoid or ovoid, ca. 5 mm. Fl. and fr. Aug–Oct.

- Thickets, grasslands, dry and warm river valleys, riversides,

rock crevices, rock walls; 700–2700(–3400) m. SW Gansu, S Shaanxi, N Sichuan, Xizang, NW Yunnan.

This species is interesting, being the only Old World representative of an otherwise entirely New World genus. *Oxybaphus himalaicus* var. *himalaicus* occurs in N India and usually has four (not five) stamens. Wu Zhengyi (editor's note) adds that var. *himalaicus* has also been recorded from S Xizang (in Fl. Xizang).

The roots are used medicinally.

5. BOERHAVIA Linnaeus, Sp. Pl. 1: 3. 1753.

黄细心属 huang xi xin shu

Herbs annual or perennial, erect, ascending, or procumbent. Stems sometimes glandular. Leaves opposite, often unequal, petiolate, margin entire or sinuate. Inflorescences usually terminal, sometimes apparently axillary, of small umbels, often irregular, rarely 1-flowered, grouped into cymose panicles. Flowers bisexual, small; bracteoles minute, often deciduous. Perianth constricted beyond the ovary, limb campanulate, apex 5-lobed, truncate, or plicate, caducous. Stamens 1–5, included or shortly exerted; filaments connate at base. Ovary oblique, stipitate. Stigma peltate or capitate. Fruit obovoid, turbinate, clavate, or terete, small, 5-ribbed or deeply 5-angled, often rough, with sessile, sticky glands. Seed: embryo curved, cotyledons thin, broad, enclosing the thin endosperm.

Between 20 and 40 species: widespread in tropical and subtropical regions; four species in China.

All species occur in disturbed, often sandy, habitats. *Boerhavia coccinea*, *B. diffusa*, and *B. repens* have been much confused. This is partly because of problems with typification: the type collection of *B. repens*, in particular, is very far from adequate, partly because the boundaries between these rather plastic weeds are not as clearly defined as one would like them to be. It is worth noting that as early as 1849, Choisy noted five different usages of *B. diffusa*. Published records from China need to be treated with caution. A record of the Indian species *B. crispa* Heyne ex J. D. Hooker from Taiwan seems to be based on a misidentification.

- 1a. Stems prostrate to weakly ascending, most parts hairy; flowers in axillary umbels or cymes, or in ill-defined terminal panicles with lower branches subtended by well-developed leaves.
 - 2a. Stems prostrate on ground or nearly so; inflorescences mostly axillary, umbels or cymes; most parts eglandular-puberulent 1. *B. repens*
 - 2b. Stems sprawling to ascending; inflorescences mostly terminal, upper leaves reduced to form ill-defined ascending panicles; most parts glandular-pubescent 2. *B. coccinea*
- 1b. Stems trailing, ascending to erect, upper parts glabrous; flowers in well-defined leafless terminal panicle.
 - 3a. Leaf margin with unicellular hairs; perianth limb white, red, or pink; anthocarp glabrous, tip sharply angular 3. *B. erecta*
 - 3b. Leaf margin with stout, multicellular hairs, at least when young; perianth limb bright purple or purple-red; anthocarp glandular-hairy, tip ± rounded 4. *B. diffusa*

1. *Boerhavia repens* Linnaeus, Sp. Pl. 1: 3. 1753.

匍匐黄细心 pu fu huang xi xin

Boerhavia diffusa Linnaeus var. *minor* (Delile) Cufodontis; *B. repens* var. *minor* Delile.

Herbs ephemeral to perennial. Stems prostrate, radiating from taproot, to 50 cm, most parts eglandular-puberulent. Petiole to 1 cm; leaf blade 1–2.5 × 0.4–1.5 cm, abaxially conspicuously pale, base rounded to cuneate, margin entire, apex rounded to subacute. Inflorescences mostly axillary, 2–5-flowered umbels, sometimes gathered into cymes, to 2 cm. Pedicel to 1 mm. Perianth limb white, pink, or pale purple, to 1 mm. Stamens (1 or)2(or 3). Anthocarp clavate, 3–3.5 mm, 5-ribbed, sparsely puberulent, sometimes with ± sessile glands.

Sunny sites in disturbed areas. Fujian, Guangdong [widespread in Africa, America, Asia, etc.].

This species is often confused with *Boerhavia diffusa*. It can be most readily distinguished by the lack of multicellular hairs along the leaf margins, consistently pedicellate flowers, and much paler perianth. It differs from *B. erecta* by the very differently shaped fruit. This is a pantropical, ruderal weed, mainly growing in dry areas.

2. *Boerhavia coccinea* Miller, Gard. Dict., ed. 8, *Boerhavia* no. 4. 1768.

红细心 hong xi xin

Herbs annual or perennial. Stems sprawling to ascending, most parts glandular-pubescent, sometimes conspicuously so, occasionally apparently eglandular. Petiole well defined, to 3 cm; leaf blade very variable, lanceolate to suborbicular, to 1.8–6 × 1–5.5 cm, base cuneate to shallowly cordate, margin obscurely sinuate, apex rounded to acute. Inflorescences mostly terminal and subterminal, upper leaves reduced to form ascending panicle, 2–8-flowered clusters. Pedicel to 1 mm. Perianth limb white, pink, or mauve, rarely purplish red, to 2(–2.5) mm. Stamens (1–)3(–4), 1.5–4.5 mm. Anthocarp fusiform, 3–3.5(–4) mm, obviously 5-ribbed, usually glandular hairy.

Sunny sites in disturbed areas. ?Hainan [Africa, America].

The record from Hainan is as yet unconfirmed. It has been included on the basis that the occurrence of this pantropical species in China will likely be confirmed at some time.

3. *Boerhavia erecta* Linnaeus, Sp. Pl. 1: 3. 1753.

直立黄细心 zhi li huang xi xin

Herbs. Stems erect or decumbent at base, 20–80 cm, puberulous or glabrescent. Petiole 1.5–4 cm; leaf blade ovate, oblong, or lanceolate, 1.5–3.5 × 1–2.5 cm, abaxially white-gray, with sunken glands, base rounded or cuneate, margin with unicellular hairs, apex acute, rarely obtuse. Inflorescences mostly axillary, cymose panicles close together; peduncle to 2 cm. Pedicel 0.5–5 mm, with 1 or 2 lanceolate bracteoles. Perianth limb white, red, or pink, 1.5–2 mm. Stamens 2 or 3, slightly exerted. Anthocarp obconic, ca. 3 mm, glabrous, 5-ribbed, groove between ribs somewhat undulate, apex truncate, angular. Fl. and fr. summer.

Open sandy areas. Hainan (Xisha Qundao) [Indonesia, Malaysia, Singapore, Thailand, and probably elsewhere in SE Asia; Pacific Islands].

4. *Boerhavia diffusa* Linnaeus, Sp. Pl. 1: 3. 1753.

黄细心 huang xi xin

Boerhavia diffusa var. *mutabilis* R. Brown; *B. repens* var. *diffusa* (Linnaeus) Heimerl ex J. D. Hooker.

Herbs perennial. Stems trailing, to 200 cm; stems glabrous or sparsely pubescent. Roots thick, fleshy. Petiole 0.4–2 cm; leaf blade ovate, 1–5 × 1–4 cm, both surfaces sparsely pubescent, abaxially gray-yellow, wrinkled when dry, base rounded or cuneate, margin undulate, with stout, multicellular hairs, apex obtuse or acute. Inflorescences terminal, capitate-cymose panicles; peduncle slender, sparsely pubescent. Pedicel short to almost absent. Bracts small, lanceolate, pubescent. Perianth limb bright purple or purple-red, 1.5–2 mm. Stamens 1–3(–5), slightly exerted or included. Anthocarp clavate, 3–3.5 mm, 5-ribbed, with viscid glands and sparse pubescence, apex rounded. Fl. and fr. spring–autumn.

Open places near sea, dry and warm river valleys; 100–1900 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Sichuan, S Taiwan, Yunnan [Cambodia, India, Indonesia, Japan (Ryukyu Islands), Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam; Africa, America, Australia, Pacific Islands].

The plants are used medicinally.

6. COMMICARPUS Standley, Contr. U. S. Natl. Herb. 12: 373. 1909.

粘腺果属 nian xian guo shu

Herbs perennial or subshrubs, ascending or procumbent, sometimes climbing, with lower branches ± woody, sometimes glandular. Leaves opposite, subequal, often fleshy, margin entire or undulate. Inflorescences terminal or axillary, pedunculate, umbels or verticils, sometimes grouped into panicles. Flowers bisexual. Perianth constricted beyond the ovary, limb funnellform, white, pink, or purple, 5-lobed. Stamens (2–)3(–6), often long exerted; filaments linear, unequal, connate at base. Ovary stipitate. Style linear, exerted; stigma peltate. Fruit clavate or obconic, 10-ribbed, with large, raised, wartlike sticky glands. Seed erect; embryo curved; cotyledons enclosing the scanty endosperm.

About 25 species: tropical and subtropical regions, mostly in Africa and S Arabia; two species (one endemic) in China.

- 1a. Herbs perennial; leaf blade 3–6 × 2.5–5 cm, base truncate or subcordate, margin undulate; petiole 1–3 cm; flowers pink; fruit obconic, with minute glands 1. *C. chinensis*
- 1b. Subshrubs; leaf blade 1–2.7 × 1–2.5 cm, base cuneate, margin entire; petiole 0.5–1.3 cm; flowers purple-red; fruit clavate, with wartlike glands 2. *C. lantsangensis*

1. *Commicarpus chinensis* (Linnaeus) Heimerl in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 16c: 117. 1934.

中华粘腺果 zhong hua nian xian guo

Valeriana chinensis Linnaeus, Sp. Pl. 1: 33. 1753; *Boerhavia chinensis* (Linnaeus) Rottbøll; *B. repanda* Willdenow.

Herbs perennial. Stems thick, branches spreading, to 1 m, glabrous or sparsely pubescent. Petiole 1–3 cm, pubescent; leaf blade triangular-ovate or cordate-ovate, 3–6 × 2.5–5 cm, chartaceous, glabrous or abaxially strigose, veins 3–4 pairs, base truncate or subcordate, margin undulate, apex acuminate or acute. Umbels axillary or terminal; peduncle 2–4 cm. Pedicel 3–7 mm. Perianth tube ca. 2 mm, with few protuberances; Perianth limb pink, funnellform, 6–8 mm, deciduous. Stamens 2–4. Ovary elliptic. Stigma peltate. Fruit obconic, 6–7 mm, longitudinally 10-ribbed, with minute glands. Fl. and fr. Jun–Sep.

Open places, forests. Hainan (including Xisha Qundao) [India, Indonesia, Malaysia, Myanmar, Pakistan, Thailand, Vietnam].

2. *Commicarpus lantsangensis* D. Q. Lu, Acta Bot. Boreal.-Occid. Sin. 8: 126. 1988.

澜沧粘腺果 lan cang nian xian guo

Subshrubs, 40–70 cm tall. Branches terete, strict, bark whitish; young shoots finely striate, glandular pubescent, brownish or with black points, internode long. Petiole 0.5–1.3 cm; leaf blade triangular broad ovate, 1–2.7 × 1–2.5 cm, slightly fleshy, abaxially white-gray, glabrescent, rarely glandular pubescent along vein, veins clear, base cuneate, margin entire, apex acute. Umbels axillary or terminal, (1–)4–6-flowered; peduncle strict, red-purple, 1–4 cm; pedicel strict, 0.5–1.5 cm. Perianth tube 3–5 mm, enclosing ovary, limb purple-red, funnellform, 6–10 mm, apex 5-lobed, lobes triangular. Stamens 3; filaments 1.5 cm, base broad, connate; anthers globose. Ovary fusiform. Stigma peltate. Fruit nodding after maturity, clavate, ca. 7 mm, longitudinally 10-ribbed, apex truncate, with wartlike glands on rib; carpopodium 0.5–1.5 cm. Fl. Jun, fr. Aug.

• Dry, warm river valleys, roadsides, stone crevices; 2300–3000 m. Sichuan, SE Xizang, N Yunnan.

NYCTAGINACEAE