CLUSIACEAE (GUTTIFERAE)

藤黄科 teng huang ke

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Trees, shrubs, or sometimes herbs containing resin or oil in schizogenous spaces or canals and sometimes black or red glands containing hypericin or pseudohypericin. Leaves simple, entire or rarely gland-fringed, opposite or sometimes whorled, nearly always estipulate. Flowers bisexual or unisexual, regular, hypogynous, solitary or in cymes or thyrses; bracteoles often inserted just beneath calyx and then not always easily distinguishable from sepals. Sepals (2–)4 or 5(or 6), imbricate or decussate or rarely wholly united in bud, inner ones sometimes petaloid. Petals [3 or]4 or 5[or 6], free, imbricate or contorted in bud. Stamens many to rarely few (9), in [3 or]4 or 5 bundles (fascicles) that are free and antipetalous or variously connate, with filaments variously united or apparently free and then sometimes sterile (staminodes); anther dehiscence longitudinal. Staminode bundles (fasciclodes) 3–5, free and antisepalous or variously connate or absent. Ovary superior, with 2–5(–12) connate carpels, 1–12-loculed, with axile to parietal or basal placentation; ovules 1 to many on each placenta, erect to pendulous; styles 1–5[–12], free or ± united or absent; stigmas 1–12, punctiform to peltate or, when sessile, radiate, surface papillate or smooth. Fruit a septicidal or septifragal, rarely loculicidal, capsule, berry, or drupe; seeds 1 to many, without or almost without endosperm [sometimes arillate].

About 40 genera and 1200 species: mainly in tropical regions, except *Hypericum* and *Triadenum*, which are both mainly temperate in distribution; eight genera (one endemic) and 95 species (48 endemic, one introduced) in China.

The Clusiaceae are here treated sensu lato. Some authors treat Hypericaceae (genera nos. 1–4 in this treatment: *Hypericum*, *Lianthus*, *Triadenum*, and *Cratoxylum*) separately from Clusiaceae sensu stricto (genera nos. 5–8: *Mesua*, *Calophyllum*, *Mammea*, and *Garcinia*).

The Clusiaceae are a rather economically important family. Many species, such as *Mesua ferrea* and *Garcinia paucinervis*, have hard wood. Numerous species in *Calophyllum*, *Clusia* Linnaeus, and *Garcinia* produce valuable commercial resin or gum. Gamboge is produced from *Garcinia morella* Desrousseaux and other species. *Garcinia mangostana* and *Mammea americana* Linnaeus produce well-known edible fruits. Other species, such as *Calophyllum inophyllum* and *Garcinia indica* Choisy, have oily seeds. *Hypericum* is important in horticulture and medicine.

Garcinia schefferi Pierre and *Pentadesma butyracea* Sabine are cultivated only to a minor degree in China and are therefore not treated here.

Li Xiwen & Li Yan-hui. 1990. Guttiferae. *In:* Li Hsiwen [Xiwen], ed., Fl. Reipubl. Popularis Sin. 50(2): 1–112.

1a. Fruit indehiscent.
  2a. Flowers bisexual; styles elongate (1–1.8 cm) ..... 6. *Calophyllum*
  2b. Flowers polygamous or unisexual; styles very short (to 3 mm) or absent.
    3a. Sepals completely united in bud, splitting into 2 at anthesis; stamens free or all basally united; fasciclodes absent; ovary 2-loculed, each locule 2-ovuled; leaf venation densely and prominently reticulate with translucent gland dots in areoles ..... 7. *Mammea*
    3b. Sepals free; stamens fascicled or united in central mass or sterile (female flowers); fasciclodes often present, free or variously united; ovary (1 or)2–12-loculed, each locule 1-ovuled; leaf venation dense to lax, but not or scarcely prominent, with brownish glandular canals beneath crossing the veins obliquely ..... 8. *Garcinia*
1b. Fruit completely dehiscent, capsular.
  4a. Capsule loculicidal, seeds with large wing; stamen fascicles with many filaments united above middle ..... 4. *Cratoxylum*
  4b. Capsule septicidal, seeds usually unwinged, or with keel or small; stamens free, or fascicles with filaments free nearly to base, or if up to 2/3 united, then stamens 3.
    5a. Trees; stamens free; capsule with up to 4 seeds, at least 2 cm across ..... 5. *Mesua*
    5b. Shrubs or herbs; stamens fasciculate; capsule with many seeds, less than 1 cm across.
      6a. Petals yellow, sometimes tinged red abaxially; fasciclodes (sterile stamen fascicles) absent; stamen fascicles [4 or]5, free or 1 or 2 pairs united (i.e., fascicles apparently 4 or 3); filaments united at base or apparently free; dark (black or red) glands sometimes present ..... 1. *Hypericum*
      6b. Petals pink or white; fasciclodes 3, between fascicles; stamen fascicles 3; filaments united at base or to 1/2 to 2/3; dark glands absent.
        7a. Plant a suffrutex; stamens 11–15, filaments united at base; petals white; leaves with glandular dots and parallel lines ..... 2. *Lianthus*
        7b. Plant a rhizomatous herb; stamens 9 (3 per fascicle), filaments united for 1/2 or 2/3 of their length; petals white or pink; leaves with glandular dots only ..... 3. *Triadenum*

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1. HYPERICUM Linnaeus, Sp. Pl. 2: 783. 1753.

金丝桃属 jin si tao shu

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Sarothra Linnaeus.

[Trees or] shrubs, subshrubs, or perennial herbs, glabrous or with simple hairs, with translucent (“pale”) and often opaque, black or reddish (“dark”) glands, laminar (immersed and sometimes abaxial) and marginal or intramarginal. Leaves opposite [or whorled], sessile or short petiolate, venation pinnate to palmate [or rarely dichotomous], margin entire or gland-fringed. Inflorescence cymose. Flowers bisexual, homostylous [or heterostylous], stellate or cupped. Sepals 5 and quincuncial or rarely 4 and decussate, unequal or equal, free or partly united. Petals (4 or)5, contorted, golden to lemon yellow [or rarely white], abaxially sometimes tinged or veined red, persistent or deciduous after anthesis, usually asymmetric. Stamens in [4 or]5 fascicles, free and antipetalous, or some united to form apparently 4 or 3 fascicles with compound fascicle(s) antisepalous, or irregular and apparently not fasciculate, persistent or deciduous, each single fascicle with up to 70[–120] stamens; filaments slender, free from nearly base [or to 2/3 united] or apparently completely free; anthers small, dorsifixed or ± basifixed, dehiscing longitudinally, with gland on connective; sterile fascicles (fasciclodes) absent [very rare]. Ovary 3–5-loculed with axile placentae or ± completely 1-loculed with (2 or)3[–5] parietal placentae, each placenta with [2 or] few to many ovules; styles (2 or)3–5, free or partly to completely united, ± slender; stigmas small or ± capitate. Fruit a septicidal capsule or rarely ± indehiscent, valves often with oil-containing vittae or vesicles. Seeds small, often carinate or narrowly unilaterally winged; testa variously sculptured, not arillate [very rarely carunculate]; embryo slender, straight, with distinct slender cotyledons.

About 460 species: almost cosmopolitan except for arctic and desert areas and most of the lowland tropics; 64 species (33 endemic) in China.

Species of *Hypericum* are distributed nearly throughout China but are most abundant in the southwest and rare in Xinjiang.

In addition, *Hypericum prolificum* Linnaeus, a North American species in *H.* sect. *Myriandra* (Spach) R. Keller, has been recorded (as *H. densiflorum* Pursh) from Jiangxi (Lushan).

1a. Petals and stamens deciduous after anthesis (rarely tardily); shrubs or rarely subshrubs; plant always without dark glands.
2a. Styles completely united; anthers ± basifixed.
3a. Sepals 1–3 mm, mostly broadly ovate to oblong, usually obtuse to rounded, without distinct midvein .... 33. *H. geminiflorum*
3b. Sepals 3.5–10 mm, mostly lanceolate or narrowly elliptic to linear, acute to subacute (or rarely rounded), often with distinct midvein.
4a. Stems 4-angled or 4-winged when mature; leaves usually narrowly elliptic to lanceolate, acute to subacute ..... 34. *H. subalatum*
4b. Stems terete when mature; leaves ovate to elliptic or obovate, subacute to rounded.
5a. Sepals obovate to lanceolate, 7–10 mm, ascending in fruit; petals 10–20 mm; leaves ovate to elliptic ..... 31. *H. formosanum*
5b. Sepals linear-lanceolate, 3.5–8 mm, reflexed in fruit; petals 20–28 mm; leaves elliptic to obovate ..... 32. *H. nakamurae*
2b. Styles free or partly united; anthers markedly dorsifixed.
6a. Leaves (at least upper) sessile, thickly leathery, without visible reticulate venation abaxially; styles free ..... 1. *H. augustinii*
6b. Leaves all subsessile or short petiolate or, if sessile, then visibly ± densely reticulate-veined abaxially and/or with styles ± united.
7a. Stem prostrate to ascending or pendent, forming low mats or clumps; styles ca. as long as ovary ..... 2. *H. reptans*
7b. Stem erect to straggling, not mat-forming.
8a. Styles partly coherent or ± united, at least 1.4 × as long as ovary; leaves usually densely reticulate-veined abaxially (except in 8. *H. longistylum*).
9a. Styles coherent in lower half at first.
10a. Leaves sessile, blade ovate-oblong to ovate, venation densely reticulate ..... 3. *H. griffithii*
10b. Leaf petiole 1.5–2 mm, blade oblong to elliptic, venation laxly reticulate ..... 5. *H. cohaerens*
9b. Styles united nearly to apex; petiole absent or to 1.5 mm (except in 4. *H. monogynum*).
11a. Suffrutex; petals and stamens tardily deciduous ..... 7. *H. elatoides*
11b. Shrub; petals and stamens soon deciduous.
12a. Leaves without visible reticulate venation abaxially, 1–3.3 cm; inflorescence always 1-flowered ..... 8. *H. longistylum*
12b. Leaves densely reticulate-veined abaxially, (2–)3–11 cm; inflorescence 1–30-flowered, terminal on long shoots.
13a. Leaves with base cuneate to rounded, or if cordate then apex rounded; leaf blade usually broadest at or above middle ..... 4. *H. monogynum*

13b. Leaves with base cordate-amplexicaul, apex acute to acuminate; leaf blade elliptic-ovate to broadly ovate ..... 6. *H. prattii*

8b. Styles free, usually less than 1.4 × as long as ovary; leaves usually laxly or not visibly reticulate-veined abaxially.

14a. Leaves sessile, densely reticulate-veined ..... 3. *H. griffithii*

14b. Leaves subsessile or petiolate, laxly or not visibly reticulate-veined.

15a. Petals waxy, golden yellow; stamens 0.25–0.35 × as long as petals, densely crowded.

16a. Sepals spreading-incurved in bud and in fruit, often becoming markedly ribbed; capsule ovoid to ovoid-conic ..... 11. *H. hookerianum*

16b. Sepals erect to spreading in bud, spreading to recurved in fruit, not ribbed; capsule narrowly ovoid-cylindric to narrowly ellipsoid-cylindric.

17a. Leaves narrowly ovate to lanceolate, base rounded, with dense abaxial glands and short laminar glandular streaks; sepals spreading in bud, reflexed in fruit ..... 9. *H. fosteri*

17b. Leaves narrowly lanceolate, base cuneate, without abaxial glands, with long laminar glandular streaks; sepals erect in bud, spreading in fruit ..... 10. *H. wardianum*

15b. Petals not waxy, golden to pale yellow; stamens longer than 0.35 × as long as petals or, if equal or shorter, then not densely crowded.

18a. Sepals spreading to recurved at anthesis and in fruit; leaf venation often markedly reticulate or at least conspicuous abaxially (except in 13. *H. acmosepalum*).

19a. Leaves elliptic to oblong or (lower) oblanceolate (broadest at or above middle), never triangular; sepals deciduous or outcurving.

20a. Leaves subsessile, narrowly elliptic, markedly reticulate-veined; sepals deciduous, spreading, ovate to elliptic, often leaflike; capsule 16–21 mm, purplish red when maturing ..... 12. *H. subsessile*

20b. Leaves petiolate (0.5–1.5 mm), narrowly elliptic to oblong, not reticulate-veined but with conspicuous intramarginal vein; sepals persistent, ovate to narrowly lanceolate, not leaflike; capsule 9–15 mm, bright red at first when maturing ..... 13. *H. acmosepalum*

19b. Leaves ovate or lanceolate to oblong-lanceolate (broadest below middle), sometimes triangular; sepals persistent, spreading to recurved.

21a. Sepals elliptic to oblong or foliose; leaves lanceolate to ovate-lanceolate, ± triangular, with venation (secondary and sometimes tertiary) conspicuous.

22a. Petals obovate-oblanceolate, flowers stellate; stamens ca. 3/5 as long as petals; styles 0.85–1 × as long as ovary; leaves densely glaucous abaxially, petiole 0.5–2 mm ..... 14. *H. maclarenii*

22b. Petals broadly obovate to obovate-suborbicular, flowers shallowly to deeply cupped; stamens 0.35–0.4 × as long as petals; styles 0.35–0.7 × as long as ovary; leaves thinly or not glaucous abaxially, petiole 2–4 mm ..... 15. *H. choisyanum*

21b. Sepals lanceolate-elliptic to lanceolate (or rarely leaflike); leaves lanceolate to oblong or ovate, not triangular, usually without conspicuous venation.

23a. Styles shorter than ovary; inflorescence 1(–3)-flowered; leaves triangular-lanceolate to triangular-ovate ..... 18. *H. curvisepalum*

23b. Styles ca. as long as ovary or more; inflorescence (1–)3–14-flowered; leaves oblong-lanceolate or lanceolate to narrowly ovate.

24a. Styles outcurved distally; inflorescence branches usually relatively stout; leaf abaxial glands usually few or none ..... 16. *H. lancasteri*

24b. Styles straight or flexuous; inflorescence branches relatively slender; leaf abaxial glands dense ..... 17. *H. stellatum*

18b. Sepals erect and outcurving or appressed in flower and fruit; leaf venation neither visibly reticulate nor conspicuous.

25a. Sepals with broad hyaline margin; stems erect to arching with ± numerous lateral branches, often frondose, markedly ancipitous (2-edged) when young.

26a. Sepals entire, at least outer broadly elliptic or broadly oblong to circular, obtuse to rounded; stems erect, not frondose ..... 19. *H. henryi*

26b. Sepals eroded-denticulate or, if entire, then elliptic or narrowly oblong to oblanceolate, rounded to acute; stems erect or spreading, sometimes frondose.

27a. Sepals eroded-denticulate to subentire, usually apiculate, broadly elliptic to broadly ovate; leaf apex usually apiculate-obtuse to rounded.

28a. Stems erect to arching or rarely divaricate, not frondose, ± persistently 4-lined; leaf-apex acute to rounded but rarely apiculate; capsule 10–14 mm ..... 19. *H. henryi*

28b. Stems spreading, sometimes frondose, soon 2-lined; leaf-apex obtuse to rounded, always apiculate; capsule 9–11 mm ..... 20. *H. patulum*

27b. Sepals entire, rarely apiculate, elliptic to narrowly oblong or obovate-spatulate; leaf apex acute to rounded-apiculate.
29a. Flower buds acute to obtuse; sepals subacute to rounded; stems erect or arching, not or only distally frondose ..... 19. *H. henryi*
29b. Flower buds obtuse to rounded; sepals rounded; stems arching, often frondose ..... 21. *H. uralum*
25b. Sepals without or with a very narrow hyaline margin; stems erect to spreading but not frondose, not or scarcely ancipitous (2-edged) when young.
30a. Stems slender, spreading especially when young; capsules lobed or grooved.
31a. Styles 0.5–0.85 × as long as ovary; sepals with inconspicuous midvein, outcurving in fruit; flower buds ovoid to ovoid-pyramidal, obtuse to acute ..... 22. *H. lagarocladum*
31b. Styles 1.5–1.8 × as long as ovary; sepals with conspicuous midvein, erect in fruit; flower buds narrowly ovoid, acute to acuminate ..... 23. *H. wilsonii*
30b. Stems stout, erect to arching but not spreading; capsules not lobed or grooved.
32a. Styles 1.2–1.35 × as long as ovary; petals spreading to reflexed, apiculus acute; sepals acute, spreading in fruit ..... 28. *H. kouytchense*
32b. Styles 0.6–1.1 × as long as ovary; petals incurved to spreading, apiculus obtuse to rounded; sepals acute to rounded, spreading to erect in fruit.
33a. Sepals ± spreading in bud and sometimes in fruit; ovary and capsule narrowly cylindric-ellipsoid to broadly pyramidal-ovoid; leaf apex acute to rounded-apiculate ..... 24. *H. beanii*
33b. Sepals erect in bud and erect or incurved in fruit; ovary and capsule ovoid to subglobose or pyramidal-ovoid; leaf apex obtuse to rounded.
34a. Leaves broadly elliptic or very broadly elliptic-oblong to orbicular, margin plane ..... 24. *H. beanii*
34b. Leaves lanceolate to broadly ovate or, if circular, then margin undulate.
35a. Branches spreading; sepals acute to rounded-apiculate; stamens ca. 0.4 × as long as petals; leaves with lower 1 or 2 pairs of main lateral veins usually free ..... 25. *H. addingtonii*
35b. Branches erect to arching; sepals acute to rounded; stamens ca. 0.5 × as long as petals or more, or, if relatively shorter, then sepals rounded; leaves with all main lateral veins incurved to join next upper vein.
36a. Ovary and capsule subglobose to broadly or narrowly ovoid; leaves lanceolate to ovate, rhombic, or subcircular; sepal margin not or scarcely hyaline.
37a. Sepals ovate to broadly elliptic, obtuse or apiculate to rounded; capsule broadly ovoid; flowers 4–6 cm in diam.; stamens (0.5–)0.6–0.7 × as long as petals; leaf ratio (l:w) = 1.8–2.5, base cuneate to rounded, margin plane ..... 26. *H. latisepalum*
37b. Sepals narrowly elliptic or oblong to obovate, usually rounded; capsule narrowly ovoid; flowers 2.5–3.5 cm in diam.; stamens 0.35–0.45(–0.6) × as long as petals; leaf ratio (l:w) = 1.1–1.6, base truncate to subcordate or, if cuneate, then margin undulate ..... 27. *H. bellum*
36b. Ovary and capsule pyramidal-ovoid; leaves triangular-lanceolate or lanceolate-oblong to ± broadly triangular-ovate; sepal margin distinctly hyaline.
38a. Sepals acute to obtuse, outcurved in fruit; stems ± persistently 4-lined; leaves usually lanceolate or lanceolate-oblong to ovate-oblong; petals spreading to reflexed; flower buds subacute to apiculate ..... 29. *H. pseudohenryi*
38b. Sepals rounded or rarely apiculate, erect in fruit; stems soon terete; leaves triangular-ovate or, more rarely, lanceolate or ± broadly ovate; petals incurved; flower buds rounded ..... 30. *H. forrestii*

1b. Petals and stamens persistent after anthesis; herbs; plant very often with dark glands.
39a. Styles (4 or)5; stamen fascicles 5, free; dark glands absent.
40a. Leaf apex acute to obtuse, blade mostly lanceolate to elliptic-oblong or linear; mature stem internodes sharply 4-lined to narrowly 4-winged ..... 35. *H. ascyron*
40b. Leaf apex rounded to shallowly retuse, blade oblong to oblong-lanceolate, oblong-ovate, or triangular-oblong; mature stem internodes partially 2- or 4-lined or terete ..... 36. *H. przewalskii*
39b. Styles (2 or)3(or 4); stamen fascicles usually apparently 3 or stamens irregularly arranged; dark glands usually present.
41a. Dark glands absent; stem internodes 4-lined or narrowly 4-winged; stamens irregularly arranged.
42a. Stamens 30–40, styles 0.7–1.8 mm; stems branching strictly from base or unbranched, not rooting; leaves ovate-lanceolate to linear (l:w = 3–5) ..... 63. *H. gramineum*
42b. Stamens 5–30, styles 0.4–1 mm; stems usually branching ± widely along most of stem, rooting at base; leaves usually ovate or triangular-ovate to oblong or elliptic (l:w = 1.5–2.5) ..... 64. *H. japonicum*

41b. Dark (black or reddish) glands present on at least sepals and/or anthers or leaves; stem internodes 2-lined or terete; stamens usually apparently 3(or 4)-fascicled.
43a. Anther gland amber; dark glands sometimes present on leaves but not forming inframarginal row; seeds with testa ± markedly papillose.
44a. Stem and leaves pubescent; inflorescence usually pyramidal; sepals gland-fringed; stems creeping and rooting ..... 62. *H. hirsutum*
44b. Stem and leaves glabrous; inflorescence ± cylindric or flat-topped; sepal margin with few or no glands; stems not creeping or rooting.
45a. Inflorescence ± cylindric; stem smooth ..... 60. *H. elongatum*
45b. Inflorescence flat-topped; stem scabrid with red-gland-tipped emergences ..... 61. *H. scabrum*
43b. Anther gland dark; dark glands nearly always forming inframarginal row on leaves; seeds with testa reticulate to foveolate.
46a. Stem internodes markedly 2(or 4)-lined.
47a. Capsule valves with central linear and lateral vesicular glands; stems much branched distally with branching divergent-ascending and black glands confined to lines ..... 57. *H. perforatum*
47b. Capsule valves with linear glands only; stems sparingly branched below inflorescence with branching virgate and black glands not confined to lines or completely absent.
48a. Stems with dark glands, erect; capsule broadly ovoid to narrowly conic; stamens apparently 3-fascicled ..... 56. *H. attenuatum*
48b. Stems without dark glands, suberect to ascending; capsule broadly to narrowly ovoid; stamens irregularly arranged.
49a. Sepals without dark laminar streaks or, if present, then apex obtuse; leaves variable in size and shape but, if less than 15 mm, then narrow (l:w = 4–12) ..... 58. *H. nagasawae*
49b. Sepals with dark laminar streaks, apex acute to subacuminate; leaves short (4–12 mm) and broad (l:w = 2–3.1) ..... 59. *H. nokoense*
46b. Stem internodes terete or rarely 2–4(–6)-lined when stems weak or slender.
50a. Leaf pairs perfoliate; capsule valves with vesicular glands only ..... 37. *H. sampsonii*
50b. Leaf pairs free; capsule valves with longitudinal vittae only.
51a. Leaves and sometimes sepals and petals with laminar glands dark only.
52a. Sepals entire, sepals and petals 5.
53a. Leaves sessile, triangular-ovate to narrowly elliptic, not minutely papillose; stems usually unbranched below inflorescence ..... 55. *H. erectum*
53b. Leaves petiolate, oblong to obovate, adaxially minutely papillose; stems branching from most nodes ..... 53. *H. enshiense*
52b. Sepals glandular-ciliate or, if entire, then sepals and petals 4.
54a. Styles 4–5 mm; capsule broadly ovoid; uppermost leaf pair bracteose; sepals and petals 5 ..... 47. *H. trigonum*
54b. Styles 1.5–3 mm; capsule globose; uppermost leaf foliar; sepals and petals 4 ..... 50. *H. monanthemum*
51b. Leaves, sepals, and petals with laminar glands (if present) partly or completely pale.
55a. Sepals entire, oblong to ovate-oblong, obtuse (or rarely acute) to rounded, not leaflike.
56a. Leaf laminar glands mostly black ..... 53. *H. enshiense*
56b. Leaf laminar glands all or mostly pale or absent.
57a. Leaves without or rarely with a few large pale or pale and dark laminar glands, main lateral veins 2- or 3-paired ..... 52. *H. faberi*
57b. Leaves with dense small pale laminar glands; main lateral veins 3–4-paired ..... 54. *H. taihezanense*
55b. Sepals dark-gland-fringed or, if entire, then acute or leaflike.
58a. Leaves with laminar glands large, prominent, dense; leaf blade usually lanceolate or narrowly elliptic to linear or obovate; marginal glands round-topped.
59a. Sepals entire or occasionally with few glandular cilia; bracts without or with short glandular auricles; leaves entire.
60a. Leaves with petiole 1–10 mm, base usually cuneate to angustate; sepals with few irregularly spaced marginal glands or none; styles 1–2.5 mm, 0.7–1.3 × as long as ovary ..... 39. *H. petiolulatum*
60b. Leaves sessile or with broad petiole to 1 mm, base subcordate-amplexicaul to cuneate; sepals with marginal glands in ± regular row; styles 2.5–10 mm, 1.5–3 × as long as ovary.
61a. Leaves oblong-lanceolate to narrowly oblong, 5–13 mm wide; sepal and petal laminar glands pale ..... 38. *H. seniawinii*
61b. Leaves oblong-ovate, 10–16 mm wide; sepal and petal laminar glands black ..... 40. *H. hubeiense*
59b. Sepals regularly glandular-ciliate; bracts and sometimes upper leaves glandular-ciliate and with glandular-ciliate auricles.

62a. Leaves broadly ovate-oblong or broadly elliptic to suborbicular, 6–14 mm, entire, apex rounded, without glandular auricles ..... 44. *H. kingdonii*
62b. Leaves lanceolate to oblong-lanceolate or linear, 1–6 cm, sometimes glandular-ciliate, apex acute to obtuse, the upper with glandular auricles.
63a. Styles ca. 1.7 mm, shorter than ovary; sepals ovate, 3–5 mm; leaves ternate .... 43. *H. austroyunnanicum*
63b. Styles 3–18 mm, longer than ovary; sepals lanceolate to oblong, 5–9 mm; leaves paired.
64a. Styles 3–7 × as long as ovary, 6–18 mm; pedicels 0.5–3(–6) mm; petal laminar glands pale ..... 41. *H. hengshanense*
64b. Styles ca. 2 × as long as ovary, 3–8 mm; pedicels 3–12 mm; petal laminar glands all or mostly dark ..... 42. *H. elodeoides*
58b. Leaves with laminar glands small, not prominent, often sparse, or absent; leaf blade ovate or triangular-ovate to elliptic, oblong, or circular; marginal glands flat-topped.
65a. Leaves elliptic-oblong to lanceolate and/or with glandular-ciliate margin and auricles.
66a. Ovary and capsule ellipsoid to cylindric-ellipsoid; leaves all sessile, entire; sepals lanceolate to narrowly oblong-elliptic, acute, glandular-ciliate ..... 45. *H. daliense*
66b. Ovary and capsule ovoid to globose; leaves (at least upper) glandular-ciliate, lower often petiolate; sepals broadly oblong or ± broadly elliptic, acute to obtuse, glandular-ciliate to -laciniate ..... 46. *H. wightianum*
65b. Leaves (triangular-)ovate to elliptic or oblong or obovate to oblanceolate, entire (uppermost pair sometimes bracteose).
67a. Ovary and capsule ovoid (or ovary ellipsoid) to subglobose; styles 1.5–3 mm; uppermost leaf pair leaflike.
68a. Leaves (at least uppermost) sessile; sepals with pale laminar glandular lines or, if dark, then margin glandular-ciliate; ovary ovoid to subglobose ..... 50. *H. monanthemum*
68b. Leaves all short petiolate; sepals all with dark linear laminar glands, entire; ovary ellipsoid ..... 51. *H. subcordatum*
67b. Ovary and capsule ± ellipsoid or, if ovoid-ellipsoid to broadly ovoid, then styles 4–5 mm; uppermost leaf pair bracteose.
69a. Styles 4–5 mm; capsule broadly ovoid; leaves all sessile, blade oblong to triangular-ovate ..... 47. *H. trigonum*
69b. Styles 2–3 mm; capsule ± ellipsoid; some or all leaves petiolate, blade triangular-ovate to elliptic or oblanceolate to obovate.
70a. Stem unbranched below apical node or with a few short suberect branches; styles usually longer than ovary; sepals usually without dark laminar glands ..... 48. *H. ludlowii*
70b. Stem nearly always with long ± spreading branches from up to 5 nodes; styles usually (?always) ca. as long as ovary or less; sepals usually with dark laminar glands ..... 49. *H. himalaicum*

1. Hypericum sect. **Ascyreia** Choisy, Prodr. Monogr. Hypéric. 37. 1821.

金丝桃组 jin si tao zu

Norysca Spach.

Shrubs or subshrubs, glabrous, without dark glands or very rarely with sepals reddish glandular-ciliate (species no. 6). Leaves usually with abaxial glands. Sepals nearly always free, margin entire or denticulate (very rarely glandular). Petals and stamens deciduous after anthesis (rarely tardily); petal apiculus usually present. Stamen fascicles 5, free (or very rarely apparently 4), anthers dorsifixed. Styles (4 or)5, free or partly united. Capsule valves smooth. Seeds often carinate or ± winged.

Forty-seven species: Bulgaria and Pontic Turkey, from Pakistan to China and N Vietnam, and in S India, Sri Lanka, and SE Asia to Flores and Sulawesi; 30 species (20 endemic) in China.

1. Hypericum augustinii N. Robson, J. Roy. Hort. Soc. 95: 495. 1970.

无柄金丝桃 wu bing jin si tao

Shrubs, ca. 1 m tall; stems few, erect or arching, without or with few short lateral branches. Stems 4-lined and ancipitous when young, eventually terete; internodes 2.5–7 cm, mostly exceeding leaves. Leaves all sessile or lower (rarely all but uppermost) with flat petiole to 1.5 mm; blade oblong-lanceolate or oblong-ovate to broadly ovate, (3–)3.7–7.5 × (1–)1.5–4.4 cm, leathery, abaxially paler, both sides glaucous; laminar glands long streaks and dots; abaxial glands dense; main lateral veins 3-paired, without visible tertiary reticulation; base rounded to subcordate, apex acute to rounded-apiculate; upper ones subamplexicaul. Inflorescence (1–)3–13-flowered, from 1 or 2 nodes, nearly flat-topped, with short or very short terminal internode; bracts on main stem broadly ovate, usually forming a pseudo-whorl, others reduced, broadly ovate to lanceolate, deciduous. Pedicels 6–12 mm. Flowers 4–6.6 cm in diam., stellate to shallowly cupped; buds broadly ovoid, apex obtuse. Sepals

erect, broadly oblong to broadly elliptic or ovate, equal to subequal, (0.7–)1–1.5 cm × 4–9 mm; laminar glands lines to dots, margin entire or slightly eroded toward apex, apex subapiculate or obtuse to rounded. Petals pale to bright golden yellow, obovate, 2–3.6 × 1.4–2.6 cm, 2.5–3 × as long as sepals; margin entire or very minutely denticulate, eglandular; apiculus rounded or nearly absent. Stamen fascicles each with 60–70 stamens, longest 1–2 cm, ca. 1/2 as long as petals. Ovary broadly ovoid, 5–6 × 4–5 mm; styles 6–8 mm, ca. 1.2 × as long as ovary, free, erect to gradually divergent. Capsule broadly ovoid, 1–1.2 cm × 9–10 mm. Seeds dark reddish brown, ca. 1.5 mm, not or scarcely carinate; testa linear-reticulate. Fl. Sep–Oct, fr. Nov. 2*n* = ?54 (48–55)*.

● River banks, mountain slopes, open roadsides; 1200–1700 m. SW Guizhou (Anlong), S Yunnan (Jinghong, Shiping).

Hypericum augustinii is a stout plant with large, leathery leaves; characters that may be related to its degree of polyploidy (?6x).

2. Hypericum reptans J. D. Hooker & Thomson ex Dyer in J. D. Hooker, Fl. Brit. India 1: 255. 1874.

匍枝金丝桃 pu zhi jin si tao

Shrublets, prostrate or ascending, to 0.3 m tall, forming clumps or mats to 1 m in diam., sometimes pendent from rocks; stems branching pinnately, rooting. Stems 4-lined and ancipitous when young, eventually 4-lined to subterete; internodes 0.5–1.4 cm, shorter than to exceeding leaves. Leaves with petiole 0.5–1.5 mm; blade elliptic or elliptic-oblong to oblanceolate or more rarely obovate, 0.7–1.6(–2) cm × 2–9 mm, increasing in size and relative width up stem, thickly papery, abaxially paler or ± glaucous; laminar glands medium to short streaks and dots; abaxial glands absent; main lateral veins 1–2(–3)-paired, tertiary reticulation dense, often obscure; base cuneate, apex obtuse to rounded. Inflorescence 1-flowered; flowering branches from middle and upper part of current stem; bracts (uppermost leaf pair) leaflike, persistent. Pedicels 4–8 mm. Flowers 2–3 cm in diam., ± deeply cupped; buds ovoid-ellipsoid, apex rounded. Sepals reflexed in bud, spreading in fruit, oblong to obovate or oblanceolate, unequal, 0.6–1.4 × 2.5–6.5 cm; laminar glands distal, streaks and dots, relatively few, margin entire, apex obtuse or rarely apiculate to rounded. Petals deep golden yellow, sometimes tinged red, broadly obovate, 1.1–1.8 cm × 7–12 mm, 1.3–1.9 × as long as sepals; margin entire, eglandular; apiculus rounded, nearly absent. Stamen fascicles each with 20–30 stamens, longest 4.5–6 mm, 0.25–0.35 × as long as petals. Ovary globose, 3–4 × 3–5 mm; styles (2.5–)3–4(–4.5) mm, ca. as long as ovary, free, erect, ± sharply outcurved near apex. Capsule globose to depressed-globose, 6–10 mm and wide, indehiscent, ± baccate, brick-colored when ripe. Seeds dark reddish brown, 0.6–0.7 mm, narrowly carinate; testa linear-foveolate. Fl. Jul–Aug, fr. Sep–Oct.

Grassy slopes, rocky places, streamsides at forest edges; 2500–3500 m. SE Xizang, NW Yunnan [NE India, N Myanmar, Nepal].

3. Hypericum griffithii J. D. Hooker & Thomson ex Dyer in J. D. Hooker, Fl. Brit. India 1: 253. 1874.

藏东南金丝桃 zang dong nan jin si tao

Shrubs 0.9–3 m tall, deciduous, with branches erect. Stems 2-lined and ancipitous when young, soon terete; internodes 2–3.5 cm, shorter than leaves. Leaves sessile; leaf blade ovate-oblong to ovate, (4–)4.5–11.7 × (2.7–)3.7–6 cm, thickly papery, abaxially not or scarcely paler, not glaucous; laminar glands large and small dots, abaxial glands absent; main lateral veins (6 or)7- or 8(or 9)-paired, uniting with midvein branches to form arched intramarginal vein, tertiary reticulation very dense, prominent adaxially at least, conspicuous; base cordate, apex obtuse-apiculate (or rarely acute) to rounded. Inflorescence 5–20-flowered, from apical node, round-topped, sometimes also from second node and on lower short lateral shoots, the whole then pyramidal; bracts caducous, lanceolate, small. Pedicels 0.8–2 cm. Flowers ca. 3.5 cm in diam., stellate; buds conic, apex acute. Sepals erect to outcurved in bud, ± spreading in fruit, ovate to lanceolate or oblong-elliptic, subequal, 2.5–5 × 1.5–2 mm, laminar glands few, streaks to dots, margin entire, apex acute to apiculate. Petals golden-yellow, obovate to oblanceolate, (1.3–)1.5–2 × 0.6–1 cm, 5–6 × as long as sepals; margin entire, eglandular; apiculus lateral, acute. Stamen fascicles each with 20–25 stamens, longest (0.8–)1.2–1.5 cm, 0.7–0.8 × as long as petals. Ovary narrowly ovoid to ovoid-ellipsoid, 4–5 × ca. 2.5 mm; styles erect, apically sometimes slightly spreading, 8–10 mm, 1.4–2 × as long as ovary, free but sometimes coherent in lower half. Capsule narrowly ovoid to ellipsoid, 9–10 × ca. 7 mm. Seeds dark reddish brown, ca. 0.9 mm, narrowly carinate; testa linear-foveolate to ribbed-scalariform. Fl. Mar–Apr, fr. Jun–Aug.

● Scrub in dry valleys; 1100–2000 m. SE Xizang.

4. Hypericum monogynum Linnaeus, Sp. Pl., ed. 2, 2: 1107. 1763.

金丝桃 jin si tao

Hypericum chinense Linnaeus, Syst. Nat., ed. 10, 2: 1184. 1759, not Osbeck (1757), nor Retzius (1788); *H. chinense* subsp. *latifolium* Kuntze; *H. chinense* subsp. *obtusifolium* Kuntze; *H. chinense* subsp. *salicifolium* (Siebold & Zuccarini) Kuntze; *H. chinense* var. *salicifolium* (Siebold & Zuccarini) Choisy; *H. monogynum* var. *salicifolium* (Siebold & Zuccarini) André; *H. salicifolium* Siebold & Zuccarini; *Komana salicifolia* (Siebold & Zuccarini) Y. Kimura ex Honda; *Norysca chinensis* (Linnaeus) Spach; *N. chinensis* var. *salicifolia* (Siebold & Zuccarini) Y. Kimura; *N. salicifolia* (Siebold & Zuccarini) K. Koch.

Shrubs, 0.5–1.3 m tall, bushy or usually with branches lax, spreading. Stems 2(–4)-lined and ancipitous when young, soon terete; internodes 1–5 cm, shorter than leaves. Leaves with petiole 1.5–2 mm; blade oblong to elliptic, 2.5–5 × 1.2–2.3 cm, thickly papery, abaxially paler but not glaucous; laminar glands very small dots; abaxial glands absent; main lateral veins 2- or 3-paired, all or upper sometimes uniting with midvein branches to form ± arched intramarginal vein, tertiary reticulation very dense, not very conspicuous; base cuneate to subangustate, apex acute to rounded. Inflorescence 1–15(–30)-flowered, from apical node, lax, shallowly round-topped, sometimes also from uppermost 1–3 nodes, rarely with 1 or 2 pairs of flowering branches; bracts caducous, linear-lanceolate, small. Pedicels 0.8–2.8(–5) cm. Flowers 3–6.5 cm in diam., stellate; buds ovoid, apex subacute to obtuse. Sepals ± spreading, broadly to

narrowly elliptic or oblanceolate, equal to unequal, 4.5–13 × 1.5–6 mm; laminar glands basally lines to streaks, dots toward apex, margin entire, apex acute to rounded. Petals golden yellow to lemon yellow, triangular-obovate, 2–3.4 × 1–2 cm, 2.5–4.5 × as long as sepals; margin entire, eglandular; apiculus lateral, acute to rounded or obsolete. Stamen fascicles each with 25–35 stamens, longest 1.8–3.2 cm, ca. as long as petals. Ovary ovoid or ovoid-conic to subglobose, 2.5–5 × 2.5–3 mm; styles 1.2–2 cm, 3.5–5 × as long as ovary, united nearly to apices then outcurved or very rarely to half free. Capsule broadly ovoid or rarely ovoid-conic to subglobose, 6–10 × 4–7 mm. Seeds dark reddish brown, ca. 2 mm, narrowly carinate; testa linear-reticulate. Fl. May–Aug, fr. Aug–Sep. 2*n* = 42*.

● Mountain slopes, roadsides, thickets in dry habitats; sea level to 200 m in lowland provinces, but up to 1500 m in Sichuan. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Zhejiang [Japan (naturalized); widely cultivated in S Africa, E and S Asia, Australia, Central America, N and W Europe, Mauritius, and the West Indies].

Hypericum monogynum is very variable, but there are no gaps in the variation that would allow infraspecific classification. Four main forms can be recognized:

(i) Leaves elliptic to oblanceolate, base cuneate, apex acute; inflorescence very lax; sepals narrowly elliptic, apex acute (*"salicifolium"*). W Hubei, Shaanxi, Sichuan.

(ii) Leaves narrowly oblong to lanceolate, base usually rounded, apex obtuse to rounded; inflorescence less lax; sepals narrowly oblong, obtuse (*"obtusifolium"*). E Hubei and Jiangxi southward and eastward to the coast; Taiwan, where the leaves are oblanceolate.

(iii) Leaves broadly oblong to broadly elliptic or lanceolate, base cuneate to cordate, apex acute to rounded; sepals broadly elliptic to broadly oblong or leaflike (*"latisepalum"*). W Hubei, Sichuan; also Guizhou and Shandong (probably introduced).

(iv) Leaves broadly elliptic-oblong to triangular-ovate or ovate, base broadly cuneate to rounded, apex obtuse to rounded; sepals narrowly elliptic, apex acute (*"ovatum"*). Sichuan.

5. Hypericum cohaerens N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 235. 1985.

连柱金丝桃 lian zhu jin si tao

Shrubs, height unrecorded; branches spreading. Stems 4-lined and ancipitous when young, soon terete; internodes 1.5–2.3 cm, shorter than leaves. Leaves with petiole 1.5–2 mm; blade oblong to elliptic, 2.5–5 × 1.2–2.3 cm, thickly papery, abaxially paler but not glaucous; laminar glands very small, dots; abaxial glands absent; main lateral veins 2- or 3-paired, all or the upper sometimes uniting with midvein branches to form ± crenate intramarginal vein, tertiary reticulation very dense, not very conspicuous; base cuneate to subangustate, apex acute to rounded. Inflorescence 1–7-flowered, from apical node, lax, shallowly round-topped; bracts caducous, linear. Pedicels 8–11 mm. Flowers 3.5–5 cm in diam., stellate; buds ovoid, apex subacuminate. Sepals spreading, narrowly lanceolate to linear, equal, 0.9–1.2 cm × 1.5–3 mm; laminar glands lines, margin entire, apex acute. Petals golden yellow, oblanceolate, 1.6–2.5 × 0.8–1.3 mm, ca. 2 × as long as sepals; margin entire, eglandular; apiculus acute. Stamen fascicles each with ca. 30 stamens, longest 1.6–2 cm or more, 0.8–0.95 × as long as petals. Ovary ovoid to subglobose, 4–5 × 3–4 mm; styles 1–1.2 cm, 2.2–2.5 × as long as ovary, at first up to half coherent but becoming free, straight. Capsule and seeds unknown. Fl. May–Jul.

● Thickets on rocky slopes; 1400–2000 m. NE Guizhou (Fanjing Shan), NE Yunnan (Daguan).

The styles in this species are almost certainly secondarily free; its nearest relatives would seem to be *Hypericum monogynum* forms (iii) and (iv).

6. Hypericum prattii Hemsley, J. Linn. Soc., Bot. 29: 303. 1892.

大叶金丝桃 da ye jin si tao

Shrubs, 0.75–1 m tall; branches spreading. Stems 4-lined and ancipitous when young, soon terete; internodes 1–5.5 cm, shorter than leaves. Leaves sessile; blade broadly ovate to elliptic-ovate, 4–11(–14.5) × 2–5.1(–7) cm, thickly papery, abaxially rather paler but not glaucous; laminar glands dots, very small; abaxial glands absent; main lateral veins 4- or 5-paired, tertiary reticulation dense, conspicuous especially abaxially; base cordate-amplexicaul or (uppermost) rounded, apex acute to short acuminate. Inflorescence 3–10(–24)-flowered, from apical node, lax, flat-topped; bracts caducous, linear, small. Pedicels 3–10(–25) mm (to 6.6 cm in fruit). Flowers 3.5–5.5 cm in diam., stellate; buds ovoid, apex obtuse to rounded. Sepals erect in bud (?and in fruit), lanceolate to broadly ovate-cordate (leaflike), subequal to unequal, 0.9–1.7(–1.9) cm × 3–9(–11) mm; laminar glands basally lines, distally dots, margin entire, apex rounded. Petals golden yellow, obovate to oblanceolate, 2–2.6 × 0.9–1.8 cm, 1.5–2.3 × as long as sepals; margin entire, eglandular; apiculus rounded or obsolete. Stamen fascicles each with 30–40 stamens, longest 1.8–2.4 cm, nearly as long as petals. Ovary ovoid, 4–6 × 2.5–4.5 mm; styles 1.1–1.9 cm, 3–3.5 × as long as ovary, united nearly to apices then spreading. Capsule and seeds not seen. Fl. Jun–Jul.

● Mountain slopes; (300–)800–3000 m or ?higher. Hubei, Sichuan.

7. Hypericum elatoides R. Keller, Bot. Jahrb. Syst. 33: 549. 1904.

岐山金丝桃 qi shan jin si tao

Hypericum ascyron Linnaeus var. *punctatostriatum* R. Keller; *H. monogynum* Linnaeus var. *franchetii* Baroni.

Suffrutex, 35–82 cm tall; stems solitary or few, usually slender, erect from ascending or creeping, branching and rooting base, unbranched below inflorescence. Stems shallowly 4-lined below nodes, sometimes 2-lined below or becoming nearly terete; internodes (3–)4.5–10.5 cm, shorter than leaves. Leaves sessile or with petiole to 1.5 mm; blade oblong or oblong-triangular to broadly ovate, 4.4–11 × 1.8–5 cm, thinly papery, abaxially rather paler, not glaucous; laminar glands, very small, streaks to dots; abaxial glands absent; main lateral veins 4- or 5-paired, main midvein branches nearly equally strong, tertiary reticulation dense and abaxially prominent; base cordate-amplexicaul to truncate, apex obtuse to short apiculate

or rounded. Inflorescence (1–)5–13-flowered, from 1 or 2 nodes, rarely with flowering branches from one node below, the whole lax, flat-topped; bracts and bracteoles linear-lanceolate to linear-elliptic, persistent. Pedicels (0.3–)1–5 cm. Flowers 4–8 cm in diam., stellate, with petals becoming reflexed, tardily deciduous; buds narrowly ovoid, apex ± acute. Sepals free or to 1/4 united, erect to suberect, ovate to triangular-ovate, equal, 3–5(–7) × 1.5–3(–5) mm, laminar glands lines with the outer interrupted, marginal glands reddish or absent, margin entire or occasionally minutely irregularly reddish glandular-ciliate, apex obtuse to acute. Petals bright yellow, 2.5–4 cm × 7–10(–15) mm, 6–8 × as long as sepals, oblanceolate; margin entire, eglandular; apiculus absent. Stamen fascicles each with 45–60 stamens, longest 1.5–2.5 cm, 0.5–0.65(–0.8) × as long as petals. Ovary ± broadly ovoid, 4–6(–7) × 3.5–4.5 mm; styles 1.3–1.9 cm, 2.3–4.5 × as long as ovary, united nearly to apices then outcurved. Capsule broadly to narrowly ovoid or ovoid-conic, 0.9–1.6 cm × 6–11 mm. Seeds dark reddish brown, 1.1–1.5 mm, very shallowly carinate; testa densely reticulate. Fl. May–Jul, fr. Jul–Aug.

● Damp places in open woodlands and open grasslands; 800–1000 m. Gansu, Henan, Shaanxi, Shanxi.

Hypericum elatoides is most closely related to *H. monogynum*, in particular to an ovate- to oblong-leaved form from Jiangsu belonging to form (iii). It is rather similar to *H. prattii* (from Sichuan), but differs from it by the apically obtuse to rounded (not acute to apiculate), relatively narrower leaves and the small, triangular-ovate, often minutely reddish-glandular-ciliate sepals. In *H. prattii*, the sepals are large and ovate-lanceolate to elliptic with an entire margin.

The tardily deciduous petals and stamens, suffruticose habit, and sometimes gland-margined sepals make this species anomalous in *Hypericum* sect. *Ascyreia*, but it is better placed there than in a separate section. With these characters, in fact, it forms a link between *H.* sect. *Ascyreia* and the Caucasian *H.* sect. *Bupleuroides* Stefanoff.

8. Hypericum longistylum Oliver, Hooker's Icon. Pl. 16: t. 1534. 1886.

长柱金丝桃 chang zhu jin si tao

Shrubs, ca. 1 m tall, with divaricate long branches bearing short pinnately arranged ones. Stems 2–4-lined and ancipitous when young, eventually terete; internodes 1–3 cm, shorter than to exceeding leaves. Leaves subsessile or with petiole to 1 mm; blade narrowly oblong to elliptic or subcircular, 1–3.1 × 0.6–1.6 cm, thickly papery, abaxially ± densely glaucous; laminar glands small to very small dots; abaxial glands absent; main lateral veins faint, ca. 3-paired, without or with very faintly visible tertiary reticulation; base cuneate to short angustate, apex subapiculate to rounded. Inflorescence 1-flowered, terminal and on short lateral branches; bracts leaflike, persistent. Pedicels 0.8–1.2 cm. Flowers 2.5–4.5(–5) cm in diam., stellate; buds narrowly ellipsoid, apex acute. Sepals free or united at base, spreading or recurved, linear or rarely elliptic, equal to subequal, 3–6(–10) × 0.5–2 mm; laminar glands ca. 4, basally lines, distally dots, margin entire, apex acute. Petals golden yellow to ?orange, oblanceolate, (1.1–)1.5–2.2(–2.4) cm × 4–8(–10) mm, 2.5–3.5 × as long as sepals; margin entire, eglandular; apiculus absent or nearly so. Stamen fascicles each with 15–25 stamens, longest 1.5–2.5 cm, 1–1.2 × as long as petals. Ovary ellipsoid to globose, 3–4 × 2–3 mm, sometimes substipitate; styles 1–1.8 cm, 3.5–6 × as long as ovary, united nearly to apices then spreading. Capsule ovoid, (4–)6–12 × 4–5 mm, sometimes substipitate. Seeds not seen. Fl. May–Jul, fr. Aug–Sep.

● Open sunny places, cliffs, dry banks and slopes, streamsides; 200–2100 m. Anhui, Gansu, Henan, Hubei, Hunan, Shaanxi.

The fruit of *Hypericum longistylum* is used medicinally. Two subspecies have been recognized.

1a. Ovary and capsule ellipsoid, usually stipitate ..... 8a. subsp. *longistylum*
1b. Ovary and capsule globose, sessile ..... 8b. subsp. *giraldii*

8a. Hypericum longistylum subsp. **longistylum**

长柱金丝桃(原亚种) chang zhu jin si tao (yuan ya zhong)

Hypericum longistylum var. *silvestrii* Pampanini; *Norysca longistyla* (Oliver) Y. Kimura.

Sepals 3–6 mm. Ovary and capsule ellipsoid, usually stipitate.

● Open sunny places, streamsides; 200–1200 m. Anhui, Henan, Hubei, Hunan.

8b. Hypericum longistylum subsp. **giraldii** (R. Keller) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 239. 1985.

圆果金丝桃 yuan guo jin si tao

Hypericum giraldii R. Keller, Bot. Jahrb. Syst. 33: 548. 1904; *H. longistylum* var. *giraldii* (R. Keller) Pampanini.

Sepals 5–7 mm. Ovary and capsule globose, sessile.

● Dry slopes; 1900–2100 m. Gansu, Hubei, Shaanxi.

9. Hypericum fosteri N. Robson, Acta Phytotax. Sin. 43: 271. 2005.

楚雄金丝桃 chu xiong jin si tao

Shrubs to ca. 1.5 m tall; branches erect to spreading. Stems 4-lined when young, soon terete; internodes 2–4 cm, shorter than leaves. Leaves with petiole 1–2 mm; blade narrowly ovate to lanceolate, 3.5–5 × 1.3–2.2 cm, abaxially paler; laminar glands short streaks to dots; abaxial glands dense; main lateral veins 4(or 5)-paired, without visible tertiary reticulation; base rounded, apex obtuse to rounded. Inflorescence 1- or 2-flowered, from apical node; bracts deciduous, linear. Pedicels 5–7 mm. Flowers 4–4.5 cm in diam., ± deeply cupped; buds not recorded. Sepals spreading, recurved in fruit, oblong to elliptic-oblong, subequal, 10–11 × 4.5–5 mm; laminar glands lines becoming streaks near apex, not becoming impressed (sepals not apparently ribbed) margin entire, apex broadly obtuse or apiculate-obtuse. Petals golden-yellow, broadly obovate, 2–2.5 × 1.5–2 cm, 2–2.5 × as long as sepals; margin entire, eglandular; apiculus rounded. Stamen fascicles each with ca. 75 stamens, longest ca. 8 mm, 0.35–0.4 × as long as petals. Ovary narrowly ovoid, ca. 8 × 5 mm; styles spreading-outcurved, 4–5 mm, 0.5–0.65 × as long as ovary, free. Capsule narrowly ovoid-cylindric, 1.8–2.3 × 1–1.2 cm. Seeds reddish brown, 0.8–1 mm, scarcely carinate; testa linear-reticulate. Fl. May–?Jul, fr. Aug.

● Evergreen forest understories; ca. 2400 m. C Yunnan (Chuxiong).

Hypericum fosteri is related to the widespread *H. hookerianum* and the N Thailand endemic *H. siamense* N. Robson. It differs from the former in the oblong to oblanceolate-spatulate, spreading-outcurved sepals, which are not ribbed, and in the elongate (not ovoid) capsule.

10. Hypericum wardianum N. Robson, Acta Phytotax. Sin. 43: 273. 2005.

漾濞金丝桃 yang bi jin si tao

Shrubs to ca. 1.5 m tall; branches erect to spreading. Stems 2–4-lined when young, soon terete; internodes 2–5 cm, shorter than leaves. Leaves with petiole 1.5–2.5 mm; blade lanceolate, 3.5–7 × (1–)1.4–2.2 cm, abaxially paler; laminar glands long streaks to dots; abaxial glands absent; main lateral veins 3-paired, without or with lax reticulate venation; base broadly to narrowly cuneate, apex rounded to apiculate-obtuse. Inflorescence 1–4-flowered, from apical node; bracts deciduous, linear. Pedicels 5–10 mm. Flowers 3–3.5 cm in diam., ± deeply cupped; buds subglobose, apex broadly obtuse to rounded. Sepals erect in bud, erect to subspreading in fruit, oblong to elliptic or oblanceolate-spatulate, subequal, 6–9 × 2–4 mm; laminar glands lines to distally dots, not becoming impressed (sepals not apparently ribbed) margin entire or finely eroded-denticulate, apex apiculate-obtuse to rounded. Petals golden-yellow, broadly obovate, 1.5–2 × 1–1.5 cm, 2–2.5 × as long as sepals; margin entire, eglandular; apiculus rounded. Stamen fascicles each with ca. 70 stamens, longest 8–9 mm, ca. 0.5 × as long as petals. Ovary narrowly ellipsoid, ca. 7 × 4 mm; styles spreading-outcurved, 4–5 mm, ca. 0.8 × as long as ovary, free. Capsule narrowly cylindric-ellipsoid to ± broadly ellipsoid, (12–)15–16 × 7–10 mm. Seeds reddish brown, 0.7–0.9 mm, not or scarcely carinate; testa linear-reticulate. Fl. May–?Jul, fr. Aug–Oct.

Clearings and understories of broad-leaved evergreen forests; 2600–3000 m. W Yunnan (Yangbi) [NE Myanmar].

Hypericum wardianum is closely related to *H. fosteri*, but differs in the narrower, cuneate-based leaves without abaxial glands but with more elongate, laminar, glandular streaks, and in the smaller flowers with sepals erect in bud and spreading rather than reflexed in fruit and sometimes with the margin eroded-denticulate. Both species differ from *H. hookerianum* in having unribbed sepals and elongate capsules, although the elongation is less marked in the type specimen (from NE Myanmar) than in plants grown from its seeds.

11. Hypericum hookerianum Wight & Arnott, Prodr. Fl. Ind. Orient. 1: 99. 1834.

短柱金丝桃 duan zhu jin si tao

Hypericum patulum Thunberg var. *hookerianum* (Wight & Arnott) Kuntze; *Norysca hookeriana* (Wight & Arnott) Wight.

Shrubs, to 1.75 m tall, bushy, round-topped; branches erect to spreading. Stems 4-lined and ancipitous when young or always terete; internodes 1.2–6 cm, shorter than to exceeding leaves. Leaves with petiole 1–4 mm; blade narrowly lanceolate to oblong-lanceolate or broadly ovate, (1.7–)2.5–7.8 × (0.7–)1–3.2 cm, abaxially paler or ± glaucous; laminar glands short streaks to dots; abaxial glands dense to sparse or absent; main lateral veins (2 or)3- or 4-paired, without visible tertiary reticulation; base narrowly cuneate to subcordate, apex acute to rounded. Inflorescence 1–5-flowered, from apical node, nearly round-topped; bracts deciduous, lanceolate or narrowly oblong to obovate-spatulate. Pedicels 3–16 mm. Flowers 3–6 cm in diam., ± deeply cupped; buds broadly ovoid to subglobose, apex broadly obtuse to rounded. Sepals spreading-incurved, obovate or obovate-spatulate to subcircular or elliptic or oblong-elliptic, subequal, 5–10 × 4–8 mm; laminar glands lines, sometimes interrupted near apex, often becoming impressed (sepals apparently ribbed) margin entire or rarely very finely eroded-denticulate, apex rounded or rarely rounded-apiculate to obtuse. Petals deep golden to pale yellow, broadly obovate to subcircular, 1.5–3 × 1.5–2.5 cm, ca. 3 × as long as sepals; margin entire, eglandular; apiculus obtuse to rounded or absent. Stamen fascicles each with 60–80 stamens, longest 5–9 mm, 0.25–0.35 × as long as petals. Ovary broadly ovoid, 5–7(–8) × 4–5(–6) mm; styles 2–4(–7) mm, 0.35–0.7(–0.9) × as long as ovary, free, gradually outcurved toward apex. Capsule ovoid to ovoid-conic, 0.9–1.7 cm × 7–12 mm. Seeds dark reddish brown, 0.7–1 mm, not or scarcely carinate; testa linear-reticulate. Fl. Apr–Jul, fr. Sep–Oct. 2*n* = ?20.

Thickets on slopes, forest margins; 1900–3400 m. S and SE Xizang (Yadong, Zayü) [Bangladesh, Bhutan, NE and S India, Myanmar, Nepal, N Thailand, N Vietnam].

Hypericum hookerianum is a widespread and variable species. The Xizang population, like those from adjacent (Himalayan) regions, has ovate leaves and rounded sepals. Plants in both areas, however, have the broad sepals with prominent, linear glands characteristic of the species.

12. Hypericum subsessile N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 239. 1985.

近无柄金丝桃 jin wu bing jin si tao

Shrubs, 1–1.5 m tall; branches erect to arching. Stems 4-angled and ancipitous when young, eventually terete; internodes 1–3 cm, shorter than leaves. Leaves subsessile; blade narrowly elliptic, 3.5–6.5 × 0.7–2(–2.7) cm, subleathery, abaxially paler to glaucous; laminar glands small dots and short streaks; abaxial glands dense to sparse; main lateral veins 3- or 4-paired, tertiary reticulation rather lax, often conspicuous; base cuneate, apex acute to rounded-apiculate. Inflorescence 1–8-flowered, from 1(or 2) nodes, rounded to flat-topped; bracts deciduous, small, lanceolate to large, leaflike. Pedicels 0.8–2 cm. Flowers 3.5–4.5 cm in diam., shallowly cupped to stellate; buds ovoid, apex acute. Sepals outcurved in bud, reflexed in fruit, narrowly elliptic to ovate or leaflike, unequal, 1–2 cm × 4–10 mm; laminar glands basally lines, toward apex dots, margin entire, apex acute or acuminate. Petals bright yellow, sometimes tinged red, oblanceolate-obovate, 1.7–2 × 0.9–1.1 cm, 1–2 × as long as sepals; margin entire, eglandular; apiculus acute. Stamen fascicles each with 40–60 stamens, longest 1.2–1.5 cm, ca. 0.7 × as long as petals. Ovary ovoid-conic, 6–8 × 4–6 mm; styles 5–6 mm, 0.8–0.9 × as long as ovary, free, suberect, outcurved near apex. Capsule narrowly ovoid-conic, (1.6–)1.8–2.1 × (0.7–)1–1.2 cm, turning purplish red when maturing. Seeds dark reddish brown, 1.1–1.5 mm, with terminal and lateral wing; testa linear-foveolate. Fl. Jul–Oct, fr. Aug–Oct.

● Thickets and open areas in mixed forest on mountain slopes; 2400–3000 m. C Sichuan (Hanyuan), W Yunnan (Dali).

Hypericum subsessile is a relict species that occurs in two widely separate localities. Its nearest ancestral relative is in N Thailand (*H. siamense* N. Robson).

13. Hypericum acmosepalum N. Robson, J. Roy. Hort. Soc. 95: 490. 1970.

尖萼金丝桃 jian e jin si tao

Shrubs, 0.6–2 m tall; branches erect to ascending. Stems 4-angled and ancipitous when young, eventually terete; internodes 1–5 cm, shorter than to exceeding leaves. Leaves with broad petiole 0.5–1(–1.5) mm; blade oblong or elliptic-oblong to narrowly elliptic, sometimes oblanceolate toward stem base, 1.8–4.2(–6) × 0.6–1.5(–2) cm, thickly papery to subleathery, abaxially ± densely glaucous; laminar glands small dots and sometimes short streaks; abaxial glands rather dense to sparse; main lateral veins 1- or 2-paired, the upper forming distinct often ± straight intramarginal vein, tertiary reticulation very obscure or not visible; base cuneate, apex obtuse or more rarely subacute to rounded-apiculate or rounded. Inflorescence 1–3(–6)-flowered, from apical node, nearly flat-topped; bracts lanceolate to leaflike, persistent. Pedicels 0.7–1.7 cm. Flowers 3–5 cm in diam., stellate; buds ovoid, apex acute to subapiculate. Sepals ± outcurved, ovate to narrowly lanceolate, subequal, (5–)6–9(–11) × 3–4(–6) mm; laminar glands lines, sometimes interrupted, margin subentire or minutely and ± irregularly denticulate (especially toward apex), apex acute to subacuminate. Petals deep yellow, sometimes tinged red, obovate, 1.6–2.5 × 1–1.5 cm, 2.5–3 × as long as sepals; margin entire or often minutely glandular-denticulate, especially around apiculus; apiculus subacute to obtuse. Stamen fascicles each with 40–65 stamens, longest (1–)1.5–1.8 cm, 0.75–0.85 × as long as petals. Ovary narrowly ovoid-conic, 5–7 × 3.5–4.5 mm; styles (3–)4–6(–8) mm, ca. as long as ovary or slightly longer, free, suberect, outcurved near apex. Capsule ovoid to narrowly ovoid-conic, 0.9–1.5 cm × 8–10 mm, turning bright red when maturing in open habitats. Seeds dark orange- to reddish brown, 1–1.1 mm, narrowly carinate with terminal expansion; testa linear-foveolate. Fl. May–Jul, fr. Aug–Sep.

● Forest glades, roadside banks, scrubby hillsides, open streamsides; 900–2700 m. NW and W Guangxi, NE and SW Guizhou, SW Sichuan, Yunnan.

Its usually oblong or elliptic, apically ± rounded leaves, glaucous abaxially and with a conspicuous intramarginal vein, enable *Hypericum acmosepalum* to be recognized even when sterile.

14. Hypericum maclarenii N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 270. 1985.

康定金丝桃 kang ding jin si tao

Shrubs, 0.75–1 m tall; branches erect to arching. Stems shallowly 4-lined and sometimes ancipitous when young, soon 2-lined to terete; internodes 1–2.5(–5.5) cm, usually shorter than leaves. Leaves with petiole 0.5–2 mm; blade narrowly triangular-lanceolate, 2.5–5.8 × 0.7–2.3 cm, thickly papery, abaxially ± densely glaucous; laminar glands long (in lower leaves) to short streaks; abaxial glands rather sparse; main lateral veins 2- or 3-paired, all branches clearly visible and forming undulating intramarginal vein, tertiary reticulation nearly invisible; base cuneate, apex acute to subacute. Inflorescence 1–4-flowered, from apical node, nearly flat-topped; bracts reduced, linear-lanceolate, persistent. Pedicels 7–10(–25) mm. Flowers 4–5 cm in diam., stellate; buds narrowly ovoid, apex subapiculate. Sepals ± outcurved in bud, spreading in fruit, narrowly elliptic, subequal to unequal, 7–11(–20) × 2.5–5(–8) mm; laminar glands lines, sometimes interrupted, margin entire, apex acute to acuminate. Petals golden yellow, sometimes tinged red, obovate-oblanceolate, 2–2.5 × 1.2–1.5 cm, (1.5–)2.5–3 × as long as sepals; margin entire, eglandular; apiculus acute to obtuse. Stamen fascicles each with ca. 50 stamens, longest 1.2–1.5 cm. ca. 3/5 as long as petals. Ovary ovoid-conic, 7–8 × 3.5–5 mm; styles 6–8 mm, 0.85–1 × as long as ovary, free, outcurved near apex. Capsule narrowly ovoid, 1.2–1.5 cm × 7–10 mm. Seeds dark brown, 1–1.5 mm, carinate; testa linear-reticulate to linear-foveolate. Fl. May–Jul, fr. Sep.

● Steep rocky banks; 1800–2900 m. W Sichuan.

Hypericum maclarenii is a local species that may be recognized by: (1) the narrow, apically acute leaves with looped venation clearly visible abaxially against a whitish background and (2) the narrow, apically acute, outcurving sepals.

15. Hypericum choisyanum Wallich ex N. Robson in Nasir & Ali, Fl. W. Pakistan 32: 6. 1973 [*"choisianum"*].

多蕊金丝桃 duo rui jin si tao

Shrubs, (0.3–)1–2 m tall, bushy; branches erect to arching. Stems 4-lined and ancipitous when young, eventually terete; internodes 1.5–5.5 cm, usually shorter than leaves. Leaves with petiole 2–4 mm; blade triangular-lanceolate or rarely triangular-ovate to ovate, 2.5–8.8 × 1–4.2 cm, thickly papery, abaxially paler but not glaucous; laminar glands streaks and dots; abaxial glands absent; main lateral veins 3–5-paired, lower pairs sometimes free, tertiary reticulation marked and rather dense to nearly invisible; base broadly cuneate to rounded or subcordate, apex acute or acuminate to obtuse or rarely rounded. Inflorescence 1–7-flowered, from apical node, nearly flat-topped; bracts narrowly elliptic to leaflike, persistent. Pedicels 3.5–11 mm. Flowers 4–7 cm in diam., shallowly to deeply cupped; buds ovoid, apex sharply acute to obtuse. Sepals spreading to recurved, unequal, narrowly to very broadly elliptic, 7–8 (or longer if markedly leaflike) × 2–10 mm; laminar glands lines, interrupted toward apex, margin entire, apex acute to apiculate or rarely obtuse. Petals deep golden yellow, sometimes tinged red, broadly obovate to obovate-circular, 1.6–3 × 1.5–2.2 cm, 1.7–2.2 × as long as sepals; margin entire, eglandular; apiculus rounded. Stamen fascicles each with 60–80 stamens, longest 6–10 mm, 0.35–0.4 × as long as petals. Ovary ± broadly ovoid, (5–)6–8(–9) × 3.5–5.5 mm; styles 3–5 mm, 0.35–0.7 × as long as ovary, free, outcurved near apex. Capsule ovoid-conic to subglobose, (0.9–)1.4–1.9 × 0.8–1.2 cm. Seeds dark brown, 0.7–1 mm, carinate or shallowly winged; testa linear-reticulate to linear-foveolate. Fl. Apr–Oct, fr. Aug–Oct.

Grassy or rocky slopes, cliffs, thickets, *Rhododendron* forests; 1600–2800 m (Yunnan), 3100–4800 m (Xizang). C and NW Yunnan (Gongshan, Jingdong), S Xizang [Bhutan, NE India (W Bengal, Sikkim), Myanmar, Nepal, Pakistan].

The populations of Yunnan and Myanmar are isolated from those of the main Himalayan range by a considerable distance. In the easternmost locality (Fengguan Shan), the leaves are nearly elliptic with a rounded apex.

16. Hypericum lancasteri N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 279. 1985.

展萼金丝桃 zhan e jin si tao

Shrubs, 0.3–1 m tall, branches suberect to spreading, young shoots purplish red. Stems 4-lined but scarcely ancipitous when young, soon 2-lined, eventually terete; internodes 1–4 cm, shorter than to exceeding leaves. Leaves with petiole 1–1.5 mm; blade oblong-lanceolate to lanceolate or rarely ovate, 3–6 × 0.9–3 cm, thickly papery, abaxially paler or sometimes ± densely glaucous; laminar glands dots and short streaks; abaxial glands usually sparse or absent, sometimes dense; main lateral veins 3- or 4-paired, without visible tertiary reticulation; base cuneate to rounded, apex acute to rounded or retuse. Inflorescence 1–11-flowered, from apical node or (in cultivation) sometimes 2 or 3 nodes, lax; branches relatively stout; bracts deciduous, leaflike, gradually reduced in successive nodes. Pedicels (0.8–)1.3–2.5(–3) cm. Flowers 3–5.5(–6.5) cm in diam., nearly stellate to shallowly cupped; buds narrowly to broadly ovoid, apex acute to apiculate. Sepals widely spreading to recurved, equal to subequal, narrowly oblong or narrowly oblong-lanceolate or rarely broader and leaflike, 8–11 × 3–4 mm; laminar glands lines or streaks, margin reddish and entire, apex acute to acuminate. Petals golden yellow, oblong-obovate, 1.7–2.8 × 1.3–1.8 cm, 2.5–3 × as long as sepals; margin entire, eglandular; apiculus acute to obtuse. Stamen fascicles each with 45–50 stamens, longest 1.1–1.6 cm, 0.6(–0.75) × as long as petals. Ovary ovoid, 5–6.5 × 3.5–5 mm; styles 5–7(–9) mm, ca. as long as to 1.25 × as long as ovary, free, outcurving distally, otherwise straight. Capsule ovoid, 1.3–1.7 cm × 8–10 mm. Seeds dark red-brown, 1–1.3 mm, incompletely or not carinate; testa laxly reticulate. Fl. May–Jul, fr. Aug–Oct.

● Dry banks, grassy slopes; 1700–2600 m. C Guizhou (Anshun), SW Sichuan (Huidong, Jinyang), NC and W Yunnan (Dali, Dongchuan, Kunming, Tengchong).

17. Hypericum stellatum N. Robson, J. Roy. Hort. Soc. 95: 493. 1970.

星萼金丝桃 xing e jin si tao

Shrubs, 1–2.5 m tall, branches spreading to subpendulous, young shoots purplish red. Stems 4-lined and ancipitous when young, soon 2-lined, sometimes becoming terete; internodes 1–3.1 cm, shorter than leaves. Leaves with petiole 1–2 mm; blade oblong-lanceolate or lanceolate to narrowly ovate, 2–5.5 × 1–2.2 cm, thickly papery, abaxially paler or sometimes ± densely glaucous; laminar glands dots and short streaks; abaxial glands dense; main lateral veins 3- or 4-paired, without visible tertiary reticulation; base cuneate to rounded, apex acute to obtuse or rounded-apiculate. Inflorescence 1–14-flowered, from apical node, lax; branches slender; bracts deciduous, narrowly lanceolate. Pedicels 1–1.5 cm. Flowers 2.5–4 cm in diam., stellate to shallowly cupped; buds ± broadly ovoid, apex apiculate to shortly acuminate. Sepals widely spreading to subrecurved, equal, ± narrowly lanceolate, 0.8–1.3 cm × 2–5 mm; laminar glands lines, margin entire or apically minutely denticulate with reddish margin, apex acute. Petals golden yellow, sometimes tinged red, obovate, 1.2–2 × 0.8–1.4 cm, ca. 1.5 × as long as sepals; margin entire or distally minutely denticulate, eglandular; apiculus acute. Stamen fascicles each with 30–55 stamens, longest 1–1.3 cm, ca. 0.6 × as long as petals. Ovary ovoid-conic to ovoid, 4–6 × 3–4 mm; styles 6–9.5 mm, 1.2–1.5 × as long as ovary, free, usually flexuous and ± twisted. Capsule ovoid, 1–1.5 cm × 6–8 mm. Seeds dark red-brown, ca. 1.1 mm, not carinate; testa laxly reticulate. Fl. May–Jul, fr. Aug–Sep.

● On slopes, thickets; 800–1400 m. Chongqing (Chengkou).

Hypericum stellatum is closely related to *H. lancasteri* but can be recognized by the more spreading habit, the more slender inflorescence, and the relatively longer, flexuous styles.

18. Hypericum curvisepalum N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 281. 1985.

弯萼金丝桃 wan e jin si tao

Shrubs, 0.3–1.2 m tall, branches arching to pendulous, young shoots purplish red. Stems 4-lined when young, soon terete; internodes 1–2.5 cm, shorter than leaves. Leaves with petiole 0.5–1 mm; blade triangular-lanceolate to triangular-ovate, 2–4 × 0.8–2 cm, thickly papery, abaxially ± glaucous; laminar glands streaks (occasionally elongate) and dots; abaxial glands dense; main lateral veins 3- or 4-paired, tertiary reticulation obscure or invisible; base rounded to shallowly cordate, apex acute or more rarely obtuse to rounded. Inflorescence 1(–3)-flowered from apical node; bracts linear or usually leaflike. Pedicels 6–10 mm. Flowers 2–4 cm in diam., deeply cupped; buds ovoid, apex acute to apiculate. Sepals outcurved or spreading, unequal, lanceolate or narrowly elliptic to ovate, 0.8–1.4 cm × 3–5 mm; laminar glands lines interrupted distally, margin entire and purplish in bud and fruit, apex subacute to acuminate or rarely apiculate-obtuse. Petals deep yellow, broadly obovate to subcircular, 1.2–2.2 × 0.8–1.7 cm, 1.1–1.5(–2) × as long as sepals; margin entire, eglandular; apiculus obtuse to rounded. Stamen fascicles each with ca. 60 stamens, longest 1–1.2 cm, 0.35–0.7 × as long as petals. Ovary ± broadly ovoid, 6–8 × 4.5–6 mm; styles 3–4 mm, ca. 0.5 × as long as ovary, free, outcurved near apex. Capsule ovoid-conic to broadly ovoid, (1.2–)1.4–1.7 cm × 8–10 mm. Seeds dark reddish brown, 0.8–1 mm, not or scarcely carinate; testa linear-foveolate. Fl. May–Jun, fr. Jul–Sep.

● Dry or rocky hillsides and open woodlands; 1800–3000 m. SW Guizhou (Pu'an), S Sichuan, C, N, and W Yunnan.

The distribution of *Hypericum curvisepalum* largely coincides with that of *H. lancasteri*, from which it has probably been derived. Indeed, these species may even occur in the same area and appear to have similar habitat requirements. The characters that distinguish them, however, are maintained in cultivation, so that their specific status would not appear to be in doubt.

19. Hypericum henryi H. Léveillé & Vaniot, Bull. Soc. Bot. France 54: 591. 1908.

西南金丝桃 xi nan jin si tao

Shrubs, 0.5–3 m tall, bushy; branches erect to arching, not

or weakly frondose. Stems 4-lined and ancipitous when young, usually eventually 2-lined or terete; internodes 1–2 cm, usually shorter than leaves. Leaves subsessile or with petiole to ca. 1 mm; blade narrowly elliptic or elliptic-oblong to lanceolate or ovate, 1–4 × 0.4–1.6 cm, thickly papery, abaxially densely glaucous; laminar glands streaks and dots; abaxial glands dense to sparse; main lateral veins 2- or 3(or 4)-paired, tertiary reticulation scarcely or not visible; base angustate or cuneate to rounded, apex acute to obtuse or more rarely rounded. Inflorescence 1–5(–7)-flowered, from 1 or 2 nodes, nearly flat-topped, usually with short terminal internode, sometimes with 1(or 2) flowering branches from middle region of stem; bracts deciduous, narrowly oblong to lanceolate. Pedicels 4–7 mm. Flowers 1.5–5.2 cm in diam., shallowly to deeply cupped; buds broadly ovoid to globose, apex subacute to rounded. Sepals erect, unequal, oblong or elliptic to obovate-spatulate or broadly ovate or circular, 4–9 × 2.5–6 mm; laminar glands lines to dots, margin entire or ± eroded-denticulate with narrow hyaline margin, apex acute (rarely) or apiculate to obtuse or rounded. Petals golden to pale yellow, sometimes tinged red, narrowly to broadly obovate, 0.8–2.5 × 0.6–1.5 cm, 2–4 × as long as sepals; margin entire with row of intramarginal gland-dots; apiculus rounded or obscure. Stamen fascicles each with (30–)40–60 stamens, longest 5–13 mm, ca. 1/2 as long as petals. Ovary ± broadly ovoid, ca. 3.5 × 7 mm; styles 2.5–6 mm, 0.7–1.2 × as long as ovary, free, erect, outcurved toward apex. Capsule narrowly ovoid-pyramidal to subglobose, 0.9–1.2(–1.4) cm × 8–10 mm. Seeds dark brown, 1–1.2 mm, not or scarcely carinate; testa linear-foveolate. Fl. Apr–Aug, fr. Jul–Nov.

Dry, usually open habitats such as slopes, thickets, open forests; 1300–3000 m. C and SW Guizhou, C and S Sichuan, Yunnan [Indonesia (Sumatra), Myanmar, Thailand, N Vietnam].

Hypericum henryi forms a complex with the following two species (*H. patulum* and *H. uralum*). It can be divided into three not easily separable subspecies, of which two (*H. henryi* subsp. *henryi* and *H. henryi* subsp. *uraloides*) tend to merge into *H. patulum* and *H. uralum*, respectively.

1a. Sepals entire, at least outer broadly elliptic; stems erect, not or weakly frondose ..... 19b. subsp. *hancockii*

1b. Sepals eroded-denticulate or, if entire, then elliptic or narrowly oblong to oblanceolate; stems erect to spreading, sometimes frondose.

2a. Sepals eroded-denticulate to subentire, usually apiculate, broadly oblong to broadly ovate; leaf apex usually apiculate-obtuse to rounded ..... 19a. subsp. *henryi*

2b. Sepals entire, rarely apiculate, elliptic to narrowly oblong or obovate-spatulate; leaf apex acute or rarely obtuse ..... 19c. subsp. *uraloides*

19a. Hypericum henryi subsp. **henryi**

西南金丝桃(原亚种) xi nan jin si tao (yuan ya zhong)

Stems erect to arching or divaricate, ± persistently 4-lined, not or weakly frondose. Leaves ovate-lanceolate or rarely elliptic to broadly ovate, base cuneate to rounded, apex acute to apiculate-obtuse or rounded. Inflorescence 1–7-flowered. Flowers 2–4 cm in diam. Sepals broadly oblong or broadly elliptic to broadly ovate or circular, margin subentire to eroded-denticulate, apex rounded-apiculate to rounded. Petals broadly ovate, 1–2.2 cm. Styles 4–5 mm, ca. 0.9 × as long as ovary. Capsule broadly ovoid.

● 1500–2600 m. C Guizhou (Guiyang, Pingba), S Sichuan ("Paiyentsing"), N Yunnan.

The locality in S Sichuan may be Baiyanjin, a small locality actually in Yanjin Xian in NE Yunnan, close to the Sichuan border.

19b. Hypericum henryi subsp. **hancockii** N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 261. 1985.

蒙自金丝桃 meng zi jin si tao

Stems erect, sometimes becoming 2-lined, rarely weakly frondose. Leaves narrowly elliptic or lanceolate to ovate-oblong, base angustate to rounded, apex acute to obtuse. Inflorescence 1–6-flowered. Flowers 2.5–5 cm in diam. Sepals (at least outer) broadly elliptic or broadly oblong to circular, margin entire, apex obtuse to rounded-apiculate. Petals 1.4–2.5 cm, narrowly to broadly obovate. Styles 4–6 mm, 0.8–1.2 × as long as ovary. Capsule narrowly ovoid-pyramidal to broadly ovoid.

1300–2000 m. S and SE Yunnan [Indonesia (Sumatra), Myanmar, Thailand, N Vietnam].

19c. Hypericum henryi subsp. **uraloides** (Rehder) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 263. 1985.

岷江金丝桃 min jiang jin si tao

Hypericum uraloides Rehder in Sargent, Pl. Wilson. 3: 452. 1917.

Stems erect to arching, ± persistently 4-lined, not or distally frondose. Leaves narrowly elliptic or narrowly lanceolate to ovate-lanceolate, base angustate to cuneate or rarely rounded, apex acute or rarely obtuse. Inflorescence 1–3-flowered. Flowers 1.2–4 cm in diam. Sepals elliptic to oblanceolate or narrowly oblong, subacute or apiculate-obtuse to rounded, entire. Petals 1–1.5 cm, broadly obovate. Styles 2–5 mm, 0.5–1 × as long as ovary. Capsule broadly ovoid-pyramidal to globose.

1700–3000 m. SW Guizhou (Pu'an), C and SW Sichuan (Min Jiang, Muli), S and W Yunnan [NW Myanmar].

20. Hypericum patulum Thunberg in Murray, Syst. Veg., ed. 14, 700. 1784.

金丝梅 jin si mei

Hypericum argyi H. Leveille & Vaniot; *Komana patula* (Thunberg) Y. Kimura ex Honda; *Norysca patula* (Thunberg) J. Voigt.

Shrubs, 0.3–1.5(–3) m tall, bushy; branches spreading, sometimes weakly frondose. Stems 4-lined or 4-angled when young, soon 2-lined, sometimes eventually terete; internodes 0.8–4 cm, usually shorter than leaves. Leaves with petiole 0.5–2 mm; blade lanceolate or oblong-lanceolate to ovate or oblong-ovate, 1.5–6 × 0.5–3 cm, thickly papery, abaxially rather glaucous; laminar glands short streaks and dots; abaxial glands ± dense; main lateral veins 3-paired, tertiary reticulation scarcely

visible; base narrowly or broadly cuneate to short angustate, apex obtuse-apiculate to rounded-apiculate. Inflorescence 1–15-flowered, from 1 or 2 nodes, flat-topped, sometimes with short terminal internode and/or with 1–3-flowered branches from middle of stem; bracts deciduous, narrowly elliptic to narrowly oblong. Pedicels 2–4(–7) mm. Flowers 2.5–4 cm in diam., ± deeply cupped; buds broadly ovoid, apex obtuse. Sepals erect, subequal to unequal, often reddish, broadly ovate or broadly elliptic or subcircular to oblong-elliptic or obovate-spatulate, 5–10 × 3.5–7 mm; laminar glands lines; margin eroded-denticulate to ciliolate with markedly hyaline margin, apex obtuse to rounded or retuse and usually apiculate. Petals golden yellow, not tinged red, oblong-obovate to broadly obovate, 1.2–1.8 × 1–1.4 cm, 1.5–2 × as long as sepals; margin entire or slightly eroded-denticulate with row of intramarginal gland-dots; apiculus rounded to obsolete. Stamen fascicles each with 50–70 stamens, longest 7–12 mm, 0.4–0.5 × as long as petals. Ovary ± broadly ovoid, 5–6 × 3.5–4 mm; styles 4–5.5 mm, 0.75–0.95 × as long as ovary, free, ± erect, outcurved toward apex. Capsule broadly ovoid, 0.9–1.1 cm × 8–10 mm. Seeds dark brown, 1–1.2 mm, not or scarcely carinate; testa linear-foveolate. Fl. May–Sep, fr. Jul–Oct. 2*n* = 20 (2*n* = 36 was based on a misidentification).

Open forests and thickets, cliffs, roadsides; (300–)450–2400 m. Native in N Guizhou, Sichuan; probably originally introduced into Anhui, Fujian, Guangxi, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Taiwan, Zhejiang [cultivated widely in gardens and naturalized in Japan, India, South Africa, and elsewhere].

Several gatherings from Yunnan approach *Hypericum patulum* in form, but they all have 4-lined or 4-angled stems and are therefore better placed in *H. henryi* subsp. *henryi*.

21. Hypericum uralum Buchanan-Hamilton ex D. Don, Bot. Mag. 50: t. 2375. 1823.

匙萼金丝桃 chi e jin si tao

Hypericum patulum Thunberg var. *attenuatum* Choisy; *H. patulum* var. *uralum* (Buchanan-Hamilton ex D. Don) Koehne; *Norysca urala* (Buchanan-Hamilton ex D. Don) K. Koch.

Shrubs, 0.3–2 m tall; branches arching, often frondose. Stems 4-lined or 4-angled and strongly ancipitous when young, eventually 2-lined or terete; internodes 0.5–2 cm, shorter than leaves. Leaves with flat petiole 0.5–1 mm; blade lanceolate or when older sometimes ovate, 1–4 × 0.4–2.4 cm, thickly papery, abaxially ± densely glaucous; laminar glands streaks (toward midvein) and dots; abaxial glands usually ± dense; main lateral veins 3-paired, tertiary reticulation scarcely visible; base narrowly or rarely broadly cuneate, apex acute to rounded-apiculate. Inflorescence 1–3(–10)-flowered, from 1 or 2 nodes, nearly flat-topped, with short terminal internode, often with 1–3-flowered branches from middle of stem; bracts deciduous, narrowly oblong. Pedicels 3–7 mm. Flowers 1.5–3 cm in diam., ± deeply cupped; buds broadly ovoid to globose, apex obtuse to rounded. Sepals erect, subequal to unequal, oblong or elliptic to oblong-spatulate, 3.5–6(–9) × (1–)2–5(–6.5) mm; laminar glands lines, margin entire with narrowly hyaline margin, apex rounded or very rarely obtuse. Petals golden to deep yellow, not tinged red, broadly obovate to subcircular, 0.9–1.8 cm × 5–12 mm, 2.5–3 × as long as sepals; margin entire, eglandular; apiculus rounded or obsolete. Stamen fascicles each with 40–60 stamens, longest 4–6(–8) mm, 0.25–0.5 × as long as petals. Ovary broadly ovoid to globose, 3–5 × 2.5–3 mm; styles 2.5–4.5 mm, 0.6–0.9(–1) × as long as ovary, free, erect and divergent toward apex or wholly outcurving. Capsule subglobose or more rarely broadly ovoid, 7–11(–13) × 7–11 mm. Seeds dark brown, 0.4–0.6 mm, scarcely carinate; testa linear-foveolate. Fl. Jul–Sep, fr. Aug–Oct. 2*n* = 20.

Dry open habitats, sometimes in thickets and by streams; 1500–3600 m. Xizang (Moindawang, Zayü), NW Yunnan [Bhutan, NE India, N Myanmar, Nepal, Pakistan].

Hypericum uralum is sometimes very similar to *H. henryi* subsp. *uraloides* but can usually be distinguished by the frondose stems and broader leaves and sepals.

22. Hypericum lagarocladum N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 247. 1985.

纤枝金丝桃 xian zhi jin si tao

Shrubs, 0.4–1.5(–3) m tall; branches arching to spreading, slender, often rather lanky. Stems 4-lined and ancipitous when very young, soon not ancipitous, sometimes becoming 2-lined or terete; internodes 1–4 cm, shorter than leaves. Leaves with petiole 1–1.5(–2) mm; blade narrowly elliptic or rarely lanceolate or lanceolate-elliptic to ± broadly oblong-elliptic or (on strong central shoots) ovate-elliptic to broadly oblong-ovate or broadly triangular-ovate, 1.8–5 × 0.6–4.5 cm, thickly papery, abaxially ± glaucous; laminar glands dots and very short streaks; abaxial glands dense to absent; main lateral veins 2–4-paired, tertiary reticulation lax, not or scarcely visible; base cuneate, apex acute or apiculate-obtuse to rounded. Inflorescence 1–10(–15)-flowered, from apical node, ± flat-topped; bracts reduced and narrowly elliptic to linear or leaflike, persistent. Pedicels 2–10 mm (to 1.5 cm in fruit). Flowers 3–5 cm in diam., substellate to shallowly cupped; buds narrowly to broadly ovoid, apex acute or apiculate to obtuse. Sepals erect or suberect in bud, suberect or outcurved in fruit, equal to subequal, sometimes leaflike, narrowly lanceolate to oblong-ovate or ovate, (6–)7–10 × 3–5.5 mm (enlarging in fruit to ca. 1.1 × 0.7 cm); laminar glands lines, sometimes distally interrupted; margin entire or apically minutely and ± irregularly denticulate, apex acute to obtuse. Petals golden yellow, narrowly to rather broadly obovate, 1.8–2.4 × 1–1.5(–1.8) cm, 2.5–3 × as long as sepals; margin entire or minutely glandular-denticulate; apiculus rounded or obsolete. Stamen fascicles each with 40–50 stamens, longest 1.2–1.8 cm, 0.6–0.7 × as long as petals. Ovary narrowly ovoid-conic to broadly ovoid, 5–8 × 3–5 mm; styles 4–7 mm, 0.5–0.7(–0.85) × as long as ovary, free, suberect to divergent, outcurved near apex. Capsule ovoid-conic to ovoid, 1–1.7 × 0.7–1.2 cm, shallowly 5-lobed. Seeds purplish brown, ca. 1.4 mm, shallowly carinate; testa linear-reticulate. Fl. Apr–Aug, fr. Jun–Nov.

● Thickets on slopes or in valleys, streamsides, roadsides; (400–)1500–2700 m. Guizhou, W Hunan, S and W Sichuan, NE Yunnan.

Hypericum lagarocladum has a spreading habit, at least when young; and even if it grows taller later on, the ends of the arching branches tend to be lanky. It exhibits a SE–NW trend in variation, the Hunan and Guizhou plants having a more erect habit and narrower

leaves and sepals, while in those from Sichuan and most of Yunnan the habit is spreading and the leaves and sepals are broader. Apart from a small area of overlap in variation in SW Sichuan and extreme NW Yunnan, the two ends of the trend seem to remain distinct and can be regarded as subspecies.

1a. Leaves broadly elliptic to broadly ovate, rounded to subretuse; sepals lanceolate to oblong-lanceolate or narrowly ovate; capsule ovoid to ovoid-conic; plant to 0.7(–1) m tall ..... 22a. subsp. *lagarocladum*

1b. Leaves narrowly elliptic, acute to obtuse; sepals lanceolate to narrowly elliptic; capsule narrowly ovoid-conic; plant to 1.2 m tall ..... 22b. subsp. *angustifolium*

22a. Hypericum lagarocladum subsp. **lagarocladum**

纤枝金丝桃(原亚种) xian zhi jin si tao (yuan ya zhong)

Plants 0.4–1 m tall; branches widely arching to spreading, forming wide hummock at first, later stems more narrowly arching. Stem internodes 1.8–4 cm. Leaves narrowly elliptic or ovate-elliptic to (on stronger stems) broadly oblong-ovate to broadly triangular-ovate, 1.8–6 × 0.6–3(–4.5) cm; abaxial glands absent, apex obtuse to rounded or retuse. Inflorescence 1–10(–14)-flowered. Sepals ovate-lanceolate to oblong-lanceolate, 4–5 mm wide, apex acute to obtuse. Capsule ovoid to ovoid-conic (4.5–6 mm wide).

● 1500–2700 m. S and W Sichuan, NE Yunnan.

22b. Hypericum lagarocladum subsp. **angustifolium** N. Robson, Acta Phytotax. Sin. 43: 276. 2005.

狭叶金丝桃 xia ye jin si tao

Plants to 1.2 m tall; branches arching to pendulous. Stem internodes 1–2.5 cm. Leaves narrowly elliptic to narrowly lanceolate, 2–4.5 × 0.8–1.1 cm; abaxial glands dense to absent, apex acute to obtuse. Inflorescence 1(or 2)-flowered. Sepals lanceolate, ca. 3 mm wide, apex acuminate. Capsule narrowly ovoid-conic (3–4.5 mm wide).

● 400–1400 m. Guizhou, W Hunan, E Yunnan.

23. Hypericum wilsonii N. Robson, J. Roy. Hort. Soc. 95: 492. 1970.

川鄂金丝桃 chuan e jin si tao

Shrubs, 0.5–1 m tall; branches spreading or pendulous to somewhat prostrate. Stems 4-lined and ancipitous when young, becoming 2-lined, eventually terete; internodes 1–4.5 cm, shorter than to ca. as long as leaves. Leaves with petiole 0.5–1.5 mm; blade elliptic or elliptic-lanceolate to lanceolate or ovate-lanceolate, 2.3–5.5(–6) × (0.6–)1.2–2.9 cm, thickly papery, abaxially paler or ± glaucous; laminar glands dots and short to longish streaks; abaxial glands sparse or absent; main lateral veins 4- or 5-paired, tertiary reticulation scarcely visible; base broadly cuneate to rounded, apex subacute or apiculate-obtuse to rounded. Inflorescence (1–)3- to ca. 22-flowered, from 1(or 2) nodes, nearly round-topped; bracts narrow lanceolate to leaflike, persistent. Pedicels 0.8–1.2 cm. Flowers 4–5(–6) cm in diam., stellate; buds narrowly ovoid-conic, apex acute to acuminate. Sepals ± erect, equal, lanceolate or narrowly elliptic, 7–10 × 2–4.5 mm, laminar glands lines, margin entire, apex acutely acuminate to short aristate. Petals golden yellow, obovate, 2–2.5 × 1.2–2 cm, 2.5–3 × as long as sepals; margin entire or distally minutely glandular-denticulate; apiculus acute. Stamen fascicles each with 30–35 stamens, longest 1–1.5 cm, 0.35–0.5 × as long as petals. Ovary ± broadly ovoid, 5–6 × 3–3.5 mm; styles 7–9 mm, 1.5–1.8 × as long as ovary, free, erect, outcurved at apex. Capsule shallowly 5-lobed, ovoid, 7–12 × 5–8 mm. Seeds dark reddish brown, ca. 1 mm, distally shallowly winged; testa linear-reticulate. Fl. Apr–Jul, fr. Aug–Sep.

● Open forests, thickets on slopes, grasslands; 1000–1800 m. W Hubei, ?Hunan.

Hypericum wilsonii takes further the trend toward a spreading habit described in *H. lagarocladum*, but in addition has acute to acuminate flower buds and relatively longer styles. The record from Hunan has not been substantiated, and one from SW Sichuan (Huidong) is erroneous.

24. Hypericum beanii N. Robson, J. Roy. Hort. Soc. 95: 490, excl. f. 235. 1970.

栽秧花 zai yang hua

Shrubs, 0.6–2 m tall, bushy; branches erect or arching. Stems 4-lined and ancipitous when young, sooner or later terete; internodes 1–6 cm, shorter than to exceeding leaves. Leaves with petiole 0.5–2(–2.5) mm; blade narrowly elliptic or elliptic-lanceolate or oblong-lanceolate to triangular-ovate, 2.5–6.5 × 1–3.5(–3.8) cm, thickly papery to subleathery, abaxially paler or glaucous; laminar glands dots to rather long streaks; adaxial glands dense or sparse (near midvein) or absent; main lateral veins 3–5-paired, sometimes prominent, tertiary reticulation lax, obscure; base cuneate to rounded-truncate, apex acute to apiculate-rounded. Inflorescence 1–11(–14)-flowered, from 1(or 2) nodes, nearly flat-topped; bracts narrowly lanceolate (upper) to leaflike (lower), persistent. Pedicels 4–10 mm (to 1.3 cm in fruit). Flowers 3–5 cm in diam., stellate to shallowly cupped; buds ovoid-conic to broadly ovoid, apex acute to obtuse. Sepals spreading to outcurving or erect, equal to subequal, narrowly to broadly ovate, 5–10 × 4–6 mm (enlarging in fruit to 1.4 × 1.2 cm), margin entire or distally minutely glandular-denticulate with hyaline margin, apex acute or apiculate to obtuse. Petals golden yellow, not or scarcely tinged red, broadly ovate to oblong, (1.5–)2–2.6 × 1.3–2.2 cm, 2–4.5 × as long as sepals, eglandular, margin entire or eroded-denticulate, apiculus obtuse to rounded or obsolete. Stamen fascicles each with 40–55 stamens, longest 1–1.7 cm, 0.5–0.7 × as long as petals. Ovary narrowly to broadly pyramidal-ovoid, 5.5–9 × 4–5 mm; styles 3.5–7 mm, 0.45–0.85 × as long as ovary, free, suberect, outcurved near apex. Capsule narrowly cylindric-ellipsoid to broadly ovoid, 1.5–2 × 0.8–1.2 cm. Seeds dark chestnut brown, 1–1.5 mm, distally winged, otherwise variably carinate; testa linear-reticulate. Fl. Mar–Jul(–Oct), fr. Jul–Oct. $2n = 36$*.

● Open forests, thickets, streamsides and grassy or stony slopes; 1500–2100 m. SW Guizhou (Anlong, Zhenfeng), C Sichuan (Hanyuan), E Yunnan.

Hypericum beanii, like *H. lagarocladum*, shows a marked trend in variation, in this case from south to north. From S Yunnan (Mengzi) to

the Kunming region, the leaves are mostly elliptic to lanceolate and acute and the main venation is not prominent, the flowers are stellate, the sepals spread in bud and fruit, and the ovary and capsule are cylindric-ellipsoid to narrowly ovoid; northward into Sichuan, the leaves become triangular-lanceolate to triangular-ovoid with rather prominent main venation, the flowers become cupped, the sepals become erect in bud and fruit, and the ovary and capsule become broadly pyramidal-ovoid. The transition, however, is gradual, so it is not possible to recognize two subspecies.

The easternmost population, in SW Guizhou (Anlong), is distinct in having broadly elliptic to oblong-ovate rounded leaves, sepals erect in fruit (flowering state not known), and ovoid capsules. It appears to represent a separate morphological trend and, when better known, may deserve taxonomic recognition (*Hypericum beanii* forma). In the key, this population runs down to lead 34a, not to lead 33a.

25. Hypericum addingtonii N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 251. 1985.

碟花金丝桃 die hua jin si tao

Shrubs, 1.5–2 m tall, spreading to 2.5 m wide; branches arching to spreading. Stems 4-angled but not ancipitous when young, soon terete; internodes 1–5 cm, shorter than leaves. Leaves with petiole 1–2.5 mm; blade elliptic-oblong to ovate-lanceolate or oblong-lanceolate, (2–)2.5–8.5 × 1–3.5 cm, thickly papery, abaxially paler but not glaucous; laminar glands dots and short streaks; adaxial glands absent or rarely sparse; main lateral veins 3- or 4(or 5)-paired, without visible tertiary reticulation; base cuneate, apex apiculate or obtuse to rounded. Inflorescence 1–3(–5)-flowered, from apical node, flat-topped; bracts lanceolate, persistent. Pedicels 2–10 mm. Flowers (3–)5–6.5 cm in diam., shallowly cupped; buds ovoid, apex obtuse. Sepals erect, subequal, ovate to oblong-ovate or oblong-spatulate, 7–10 × 4.5–6.2 mm; laminar glands lines, sometimes interrupted; margin entire or minutely denticulate and sometimes with narrowly hyaline margin, apex acute or apiculate to obtuse. Petals golden yellow, broadly obovate to subcircular, (2–)2.5–3.2 × (1.2–)1.5–3.2 cm, 3–4 × as long as sepals, eglandular, margin entire or eroded-denticulate, apiculus rounded. Stamen fascicles each with 40–45 stamens, longest 1.2–1.5 cm, ca. 2/5 as long as petals. Ovary ovoid, 5–7 × 3–5 mm; styles 4.5–5(–7) mm, 0.7–0.8(–1) × as long as ovary, free, suberect, outcurved near apex. Capsule ovoid to cylindric-ovoid, ca. 2 × 1–1.2 cm. Seeds dark reddish brown, 1–1.2 mm, not or scarcely carinate; testa linear-foveolate. Fl. Apr–Jul, fr. Oct.

● Bamboo scrub, thickets on grassy slopes, *Tsuga* forest edges; 1800–3400 m. NW and W Yunnan (Gongshan, Weishan, Yunlong).

Hypericum addingtonii is very similar to some populations of the southern form of *H. beanii*, differing from them by the more spreading habit, the broader, apically obtuse to rounded leaves, the broader sepals, and the relatively shorter stamens. Its affinities are clearly with the latter species and not, as had been thought, with *H. hookerianum*.

26. Hypericum latisepalum (N. Robson) N. Robson, Acta Phytotax. Sin. 43: 276. 2005.

宽萼金丝桃 kuan e jin si tao

Hypericum bellum subsp. *latisepalum* N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 274. 1985.

Shrubs, to 1.5 m tall, bushy; branches erect. Stems 4-angled and slightly ancipitous when young, very soon terete; internodes 1.5–6(–9) cm, shorter than to exceeding leaves. Leaves with petiole 1.5–3 mm; blade lanceolate or oblong-lanceolate to ± broadly ovate or triangular-ovate (l:w = 1.8–2.5), (3–)3.7–6.7(–8.7) × (1.3–)1.6–4.6 cm, thickly papery, abaxially paler or glaucous; laminar glands dots and short streaks; abaxial glands absent; main lateral veins 3- or 4-paired, tertiary reticulation lax or not visible; base cuneate to rounded, margin plane, apex acute (when young) or obtuse to rounded. Inflorescence 1–14-flowered, from apical node, nearly flat-topped, rarely with flowering branches from lower nodes; bracts narrowly elliptic or leaflike, persistent. Pedicels 3–14 mm (to 3 cm in fruit). Flowers 4–6 cm in diam., cupped; buds broadly ovoid, apex acute to obtuse. Sepals erect, subequal, ovate to broadly elliptic, 0.8–1.3 cm × (5–)6–8 mm, laminar glands lines, margin entire, apex obtuse or apiculate-obtuse to rounded. Petals golden yellow, broadly obovate, 2.3–3.7 × 1.8–3 cm, ca. 3 × as long as sepals, eglandular, margin entire, apiculus rounded. Stamen fascicles each with 45–55 stamens, longest (1–)1.4–2.1 cm, (0.5–)0.6–0.7 × as long as petals. Ovary broadly ovoid, 7–8 × 6–7 mm; styles (5–)6–7 mm, 0.75–1(–1.1) × as long as ovary, free, suberect, outcurved near apex. Capsule broadly ovoid, 1.2–1.5 × 1–1.5 cm. Seeds dark reddish brown, ca. 1.2 mm, carinate or nearly not; testa scalariform-reticulate. Fl. Jun–Oct, fr. (?Aug–)Sep–Nov.

Open forests, forest edges, thickets, grassy slopes; 2500–2900(–3700) m. SE Xizang (Zayü), NW and W Yunnan [NE India, N Myanmar].

Hypericum latisepalum is closely related (?ancestral) to *H. bellum* but is morphologically distinct. It has a more southerly distribution, mainly S of the Himalayan range except for its incursion into Xizang. Some populations approach the northern form of *H. beanii* closely in morphology but can be distinguished by the ovoid rather than pyramidal-ovoid ovary and the more deeply cupped flowers.

27. Hypericum bellum H. L. Li, J. Arnold Arbor. 25: 308. 1944.

美丽金丝桃 mei li jin si tao

Shrub 0.3–1.2 m tall, often forming low thickets; branches arching. Stems 4-lined and slightly ancipitous when young, very soon terete; internodes 1–6.5 cm, shorter than to exceeding leaves. Leaves with petiole 0.5–2.5 mm; blade elliptic or ovate-oblong to broadly rhombic or subcircular (l:w = 1.1–1.6), 1.5–6.5 × 0.7–4.3 cm, thickly papery, abaxially paler or glaucous; laminar glands dots and short streaks; abaxial glands absent; main lateral veins 3- or 4-paired, without visible tertiary reticulation; base truncate to subcordate or, if cuneate, then margin undulate, apex rounded to emarginate. Inflorescence 1–7-flowered from apical node, nearly flat-topped; bracts narrowly elliptic to linear, persistent. Pedicels 4–15(–30) mm. Flowers 2.5–3.5 cm in diam., cupped; buds ovoid, apex obtuse to rounded. Sepals erect, subequal, narrowly elliptic or oblong to obovate, 3–9 × 2.5–6 mm, laminar glands lines, margin entire or finely eroded-denticulate, eglandular and often with hyaline margin, apex rounded or rarely subapiculate. Petals golden yellow to butter-yellow or rarely pale yellow, narrowly obovate, 1.5–2.5(–3) × 1.1–2.1 cm, 3–6 × as long as sepals, eglandular, mar-

gin entire, apiculus rounded. Stamen fascicles each with 45–50 stamens, longest 6–10(–11) mm, 0.35–0.4(–0.6) × as long as petals. Ovary broadly to narrowly ovoid, 4–6 × 3–3.5 mm; styles 3–5 mm, 0.6–0.9 × as long as ovary, free, suberect, outcurved near apex. Capsule usually narrowly ovoid, 1–1.5 cm × 6–10 mm. Seeds dark brown, not carinate; testa scalariform-reticulate. Fl. Jun–Aug, fr. Aug–Oct.

Open forests, forest edges, thickets, grassy slopes; (1400–)1900–3200(–3500) m. W Sichuan, SE Xizang, NW Yunnan [NE India].

Hypericum bellum shows a westward trend from plane leaves without adaxial glands (NW Yunnan) to undulate leaves with dense adaxial glands (W part of SE Xizang). The Yunnan plants are most similar to *H. latisepalum* but can be distinguished inter alia by the narrower sepals and capsule (see key).

28. Hypericum kouytchense H. Léveillé, Bull. Soc. Agric. Sarthe 39: 322. 1904.

贵州金丝桃 gui zhou jin si tao

Norysca kouytchensis (H. Léveillé) Y. Kimura.

Shrubs, 1–1.8 m tall; branches erect or arching. Stems 4-lined and ± ancipitous when young, becoming 2-lined, eventually terete; internodes 1–4 cm, shorter than to exceeding leaves. Leaves with petiole 0.5–1.5 mm; blade elliptic or lanceolate to ovate or triangular-ovate, 2–5.8 × 0.6–3 cm, thickly papery, abaxially paler but not or scarcely glaucous; laminar glands dots and short streaks; abaxial glands ± dense; main lateral veins 3- or 4(or 5)-paired, tertiary reticulation obscure or invisible; base cuneate or subangustate to rounded, apex acute to obtuse or rarely rounded-apiculate. Inflorescence 1–7(–11)-flowered, from 1(or 2) nodes, nearly flat-topped; bracts deciduous, narrowly lanceolate to subleaflike. Pedicels 5–10 mm. Flowers 4–6.5 cm in diam., stellate; buds narrowly ovoid, apex acute to subacuminate. Sepals spreading, equal, narrowly ovate to lanceolate, 0.7–1.5 cm × 2.5–7 mm, laminar glands lines, margin entire, apex acute to acutely acuminate. Petals bright golden yellow, sometimes becoming recurved, obovate-oblong to obovate, 2.4–4 × 1.6–2.5 cm, ca. 3 × as long as sepals; margin minutely glandular-denticulate toward apex; apiculus acute. Stamen fascicles each with 35–50 stamens, longest 1.8–2.9 cm, 0.7–0.8 × as long as petals. Ovary ovoid-pyramidal to narrowly ovoid, 6–8 × 4–6 mm; styles 8–10 mm, 1.2–1.35 × as long as ovary, free, erect, slightly outcurved at apex. Capsule ± narrowly ovoid-pyramidal to ovoid, 1.7–2 cm × 8–10 mm, turning bright red during maturation. Seeds dark purplish brown, 2–3.2 mm, narrowly winged; testa nearly smooth. Fl. May–Jul(–?Aug), fr. Aug–Sep. 2*n* = 36*, 40*.

● Pastures, hillsides, streamsides, among rocks; 1500–2000 m. Guangxi, Guizhou.

29. Hypericum pseudohenryi N. Robson, J. Roy. Hort. Soc. 95: 493. 1970.

北栽秧花 bei zai yang hua

Shrubs, 0.7–1.7 m tall; branches erect to spreading. Stems 4-angled and ancipitous in first year, then terete, stout; internodes 0.8–6 cm, shorter than to exceeding leaves. Leaves with petiole 0.5–1 mm; blade ovate or ovate-oblong to lanceolate or lanceolate-oblong, 2–6.6(–8) × 0.5–3.5 cm, thickly papery, abaxially paler or somewhat glaucous; laminar glands dots and short streaks; abaxial glands densest or present only near midvein; main lateral veins 2- or 3-paired, the upper forming distinct undulating intramarginal vein, tertiary reticulation lax, obscure; base narrowly to ± broadly cuneate, apex rounded or rarely apiculate-obtuse. Inflorescence 1–7(to ca. 25)-flowered, from apical node, nearly flat-topped; bracts narrowly lanceolate to leaflike, persistent. Pedicels 4–11 mm. Flowers 3–5.5 cm in diam., stellate to shallowly cupped; buds ovoid-pyramidal, subacute. Sepals erect to outcurved, subequal, broadly to narrowly ovate-oblong, 6–9(–13) × 3–7 mm, laminar glands lines, margin entire or minutely denticulate toward apex with narrowly hyaline margin, apex acute to subacuminate or obtuse. Petals golden yellow, sometimes becoming reflexed, obovate, 1.6–3.3 × 1–2 cm, 2.5–3 × as long as sepals; apiculus obtuse; margin eglandular, entire or irregularly eroded-denticulate. Stamen fascicles each with ca. 40 stamens, longest 1.4–2 cm, 0.75–0.85 × as long as petals. Ovary ± broadly ovoid, 5–9 × 3.5–6 mm; styles 5.5–11 mm, somewhat longer than ovary, free, suberect to divergent, outcurved near apex. Capsule ovoid-conic to ovoid, 1.2–1.7 × 1–1.4 cm. Seeds dark orange-brown, 1.5–2 mm, narrowly carinate; testa linear-foveolate. Fl. Jun–Sep, fr. Sep–Nov.

● *Pinus* forests, thickets, dry grassy or stony slopes; 1400–3800 m. SW and W Sichuan, NE and NW Yunnan.

The area of distribution of *Hypericum pseudohenryi* overlaps that of the closely related *H. forrestii*, and plants with characters intermediate between these species have been found.

30. Hypericum forrestii (Chittenden) N. Robson, J. Roy. Hort. Soc. 95: 491. 1970.

川滇金丝桃 chuan dian jin si tao

Hypericum patulum Thunberg var. *forrestii* Chittenden, J. Roy. Hort. Soc. 48: 234. 1923; *H. patulum* f. *forrestii* (Chittenden) Rehder.

Shrubs, 0.3–1.5 m tall, bushy; branches erect or somewhat spreading. Stems 4-angled and slightly ancipitous when young, soon terete; internodes 1–4.5(–6) cm, usually shorter than leaves. Leaves with petiole 0.5–2 mm, rather broad; blade lanceolate or triangular-ovate to ± broadly ovate, 2.5–3(–6) × 0.9–3.2(–3.5) cm, thickly papery, abaxially paler but not glaucous; laminar glands short streaks and dots; abaxial glands dense, especially near midvein; main lateral veins 4- or 5-paired, tertiary reticulation obscure or invisible; base broadly cuneate to rounded, apex obtuse to rounded or slightly retuse. Inflorescence 1- to ca. 20-flowered, from 1(or 2) nodes, nearly flat-topped; bracts lanceolate or ± leaflike, persistent. Pedicels 4–10 mm. Flowers (2.5–)3.5–6 cm in diam., ± deeply cupped; buds broadly ovoid, apex obtuse to rounded. Sepals erect, subequal to equal, ovate or ± broadly elliptic to subcircular, 6–9 × 3–8 mm; laminar glands lines, ± interrupted distally; margin entire or finely eroded-denticulate toward apex with margin often hyaline, apex rounded or rarely subapiculate. Petals golden yellow, broadly obovate, 1.8–3 × 1.1–2.5 cm, 3–3.5 × as long as sepals; margin entire or remotely glandular-subdenticulate; apic-

ulus rounded. Stamen fascicles each with 40–65 stamens, longest 1–1.5 cm, 0.4–0.6 × as long as petals. Ovary broadly ovoid, (4.5–)6–8 × 4–4.5 mm; styles 4–7 mm, 0.7–0.9(–1) × as long as ovary, free, suberect, outcurved near apex. Capsule ± broadly ovoid, 1.2–1.8 × 0.8–1.4 cm. Seeds dark reddish brown, 1.2–1.7 mm, distally slightly carinate or winged; testa scalariform-reticulate. Fl. May–Sep, fr. Aug–Oct. 2*n* = 36, 38.

Open stony situations on hillsides, sometimes beside streams, at *Pinus* forest margins; 1500–3000(–4000) m. WC Sichuan (Kangding, Tianquan), N and SW Yunnan [NE Myanmar].

2. Hypericum sect. **Takasagoya** (Y. Kimura) N. Robson, Blumea 20: 252. 1973 [“1972”].

台湾金丝桃组 tai wan jin si tao zu

Takasagoya Y. Kimura, Bot. Mag. (Tokyo) 50: 498. 1936.

Shrubs or shrublets, glabrous, without dark glands. Sepals free or united at base, margin entire. Petals and stamens deciduous after anthesis; petal apiculus sometimes present. Stamen fascicles 5, free, anthers ± basifixed. Styles 5, completely united. Capsule valves smooth. Seeds carinate or ± winged.

Five species: China (Taiwan), Japan (Ryukyu Islands: Uotori Island), Philippines (Luzon); four species (three endemic) in China.

31. Hypericum formosanum Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 27: 428. 1881.

台湾金丝桃 tai wan jin si tao

Takasagoya formosana (Maximowicz) Y. Kimura.

Shrubs, ca. 22 cm tall; branches spreading and arching. Stems 4-lined and ancipitous when young, soon 2-lined to terete; internodes 1.5–6 cm, usually shorter than leaves. Leaves sessile or with petiole to 1 mm; blade ovate or elliptic to oblong-elliptic, 2–6 × 1.1–2.9 cm, subleathery, abaxially paler but not glaucous; laminar glands dots, prominent; abaxial glands absent; main lateral veins 1- or 2-paired, the upper forming intramarginal vein, tertiary reticulation very faint or invisible; base cuneate to rounded, apex subacute to rounded. Inflorescence 1–3-flowered, terminal, and 1- or 2-flowered on subsidiary branches from up to 7(–10) nodes below, the whole cylindric; bracts leaflike, bracteoles narrowly elliptic, subpersistent. Pedicels 5–10 mm. Flowers 2.5–3.5 cm in diam., stellate to very shallowly cupped; buds ± broadly ovoid, apex subacute to obtuse. Sepals very slightly connate, erect in bud, ascending in fruit, subequal to unequal, lanceolate or narrowly elliptic to oblanceolate or elliptic-ovate, 7–10 × 1.5–6 mm, laminar glands lines and dots, margin entire, apex acute to subacute. Petals golden yellow, obovate, (1–)1.3–1.7(–2) × 0.8–1.2 cm, ca. 2 × as long as sepals, eglandular, margin entire, apiculus very short, rounded. Stamen fascicles each with 25–40 stamens, longest 0.8–1.2 cm, ca. 0.7 × as long as petals. Ovary ovoid to subglobose, 3–4.5 × 3–3.5 mm; styles (6.5–)7–8(–8.5) mm, 1.5–2.5 × as long as ovary; stigmatic mass subglobose. Capsule broadly ovoid, 8–9 × ca. 6 mm. Seeds 1–2 mm, with apical expansion; testa ?linear-reticulate. Fl. Apr–Aug, fr. ?May–Sep.

● On well-drained banks or in stony areas; sea level to 500 m. N Taiwan (Taibei).

The long sepals easily distinguish *Hypericum formosanum* from all other species in *H.* sect. *Takasagoya* except *H. nakamurae*, which has larger flowers and elliptic to obovate leaves.

32. Hypericum nakamurae (Masamune) N. Robson, Blumea 20: 253. 1973 [*“nakamurai*,” “1972”].

清水金丝桃 qing shui jin si tao

Takasagoya nakamurae Masamune, Trans. Nat. Hist. Soc. Taiwan 30: 410. 1940 [*“nakamurai”*].

Shrubs, more than 0.5 m tall; branches ± spreading. Stems 4-lined and ancipitous when young, soon terete; internodes 0.6–3.5 cm, shorter than to exceeding leaves. Leaves sessile or subsessile; blade oblong to elliptic or obovate, 1–2.7(–3) × 0.5–1(–1.3) cm, subleathery, abaxially paler but not glaucous; laminar glands dots, prominent; abaxial glands absent; main lateral veins 1-paired, upper laterals forming distinct intramarginal vein, tertiary reticulation nearly invisible; base cuneate to angustate, apex acute. Inflorescence 1–3-flowered, terminal, sometimes with 1-flowered short subsidiary branches from up to 3 nodes below, the whole short cylindric; bracts leaflike; bracteoles narrowly elliptic or elliptic-lanceolate, persistent. Pedicels ca. 1 cm. Flowers 4–6 cm in diam., stellate; buds narrowly ovoid-pyramidal, apex acute. Sepals very slightly connate, spreading in flower, reflexed in fruit, linear-lanceolate to linear, 3.5–5(–8) × 0.7–1.2(–2) mm, laminar glands streaks and dots, margin entire, apex subacute to rounded. Petals bright yellow, obovate, 2–2.8 × 1–2 cm, 3.5–6 × as long as sepals, margin entire, eglandular, apiculus short. Stamen fascicles each with ca. 15 stamens, longest 1.2–1.6 cm, ca. 0.6 × as long as petals. Ovary narrowly ovoid-ellipsoid, 2.5–3(–5) × ca. 1.5 mm; styles 1.05–1.2(–1.5) cm, ca. 4 × as long as ovary; stigmatic mass capitate. Capsule narrowly ovoid to cylindric, 7–9 × 3–4 mm. Seeds dark yellow-brown, 1.2–1.4 mm, with partial or entire narrow wing; testa linear-reticulate. Fl. Jun–?Jul, fr. Aug–Sep.

● Open limestone rock crevices; 1400–2400 m. E Taiwan (Hualian).

33. Hypericum geminiflorum Hemsley, Ann. Bot. (Oxford) 9: 144. 1895.

双花金丝桃 shuang hua jin si tao

Shrubs, 0.5–1.5 m tall; branches often spreading and pendulous. Stems 4-lined and ancipitous when young, eventually 2-lined to terete; internodes 0.9–3.5 cm, shorter than leaves. Leaves subsessile; blade oblong or oblong-lanceolate to elliptic or ovate, 1.8–4.5 × 0.6–2.2 cm, thickly papery, abaxially paler but not glaucous; laminar glands dots, adaxially sometimes prominent; abaxial glands absent; main lateral veins 1- or 2-

paired, the upper sometimes forming distinct intramarginal vein, tertiary reticulation faint or invisible; base broadly to narrowly cuneate, margin incrassate, apex acute to obtuse or rounded-apiculate. Inflorescence 1(–3)-flowered, terminal and on solitary or paired short subsidiary branches from up to 14 nodes below, the whole narrowly cylindric; bracts leaflike, bracteoles deciduous, reduced. Pedicels 3–4 mm. Flowers 2–3 cm in diam., stellate; buds ovoid, apex acute to obtuse. Sepals free or slightly connate, erect, equal to subequal, broadly ovate or triangular-ovate or subcircular to oblong-lanceolate, (1–)1.5–3 × 1–2.5 mm, laminar glands mostly lines, margin entire, apex subacute to rounded. Petals bright yellow [or rarely white], obovate, 0.9–1.5 cm × 5–7 mm, 3–6 × as long as sepals, margin entire, eglandular, apiculus obsolete or absent. Stamen fascicles each with 5–11 stamens, longest 6–10 mm, ca. 0.65 × as long as petals. Ovary ± narrowly ellipsoid, 2.5–3.5 × 1.5–2.5 mm; styles 4–6(–7) mm, 1–2 × as long as ovary; stigmatic mass capitate to ellipsoid or cylindric. Capsule narrowly cylindric to cylindric-conic, 5–11 × 3–5.5 mm. Seeds dark reddish brown, 0.6–1.5 mm, narrowly carinate with apical expansions or ± deeply winged; testa linear-reticulate. Fl. May–Aug, fr. Aug–Dec.

Open stony ground, mountain slopes, roadsides; 300–1800 m. Taiwan [Philippines (Luzon)].

Hypericum geminiflorum comprises two subspecies, one (subsp. *geminiflorum*) occurring at relatively low altitudes in SE Taiwan and Luzon, the other (subsp. *simplicistylum*) at higher altitudes in C and NW Taiwan.

1a. Style 1.3–2 × as long as ovary; sepals 1–2.5 mm; branches often spreading and pendulous ..... 33a. subsp. *geminiflorum*
1b. Style ca. as long as ovary; sepals 2.5–3 mm; branches erect or ascending ..... 33b. subsp. *simplicistylum*

33a. Hypericum geminiflorum subsp. **geminiflorum**

双花金丝桃(原亚种) shuang hua jin si tao (yuan ya zhong)

Hypericum acutisepalum Hayata; *H. trinervium* Hemsley; *Takasagoya acutisepala* (Hayata) Y. Kimura; *T. geminiflora* (Hemsley) Y. Kimura; *T. trinervia* (Hemsley) Y. Kimura.

Shrubs, 0.5–1.5 m tall; branches often spreading or pendulous. Sepals broadly ovate or triangular-ovate or subcircular to oblong-lanceolate, 1–2.5 mm. Ovary 2.5–3.5 mm; styles 4–6(–7) mm, 1.3–2 × as long as ovary. Capsule narrowly cylindric to narrowly cylindric-conic.

Open stony ground; 300–1200 m. Taiwan [Philippines (Luzon)].

33b. Hypericum geminiflorum subsp. **simplicistylum** (Hayata) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 12: 295. 1985.

小双花金丝桃 xiao shuang hua jin si tao

Hypericum simplicistylum Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 40. 1911; *H. geminiflorum* var. *simplicistylum* (Hayata) N. Robson; *Takasagoya simplicistyla* (Hayata) Y. Kimura.

Shrubs, 0.3–0.4 m tall; branches erect or ascending. Sepals broadly ovate to oblong, 2.5–3 mm. Ovary 4–4.3 mm; styles 3.5–5 mm, 1–1.3(–1.5) × as long as ovary. Capsule cylindric to cylindric-ellipsoid.

● Exposed stony ground, mountain slopes, roadsides; 1500–1800 m. Taiwan.

34. Hypericum subalatum Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 41. 1911.

方茎金丝桃 fang jing jin si tao

Hypericum kushakuense R. Keller; *Takasagoya subalata* (Hayata) Y. Kimura.

Shrubs, more than 0.5 m tall; branches ± ascending. Stems persistently 4-angled or narrowly 4-winged; internodes 1–2.5 cm, shorter than leaves. Leaves sessile; blade narrowly elliptic to lanceolate or narrowly oblong-elliptic, 1.9–7 × 0.5–1.6 cm, thickly papery, abaxially paler but not glaucous; laminar glands dots, prominent; abaxial glands absent; main lateral veins 2- or 3-paired, sometimes forming intramarginal vein, tertiary reticulation faint or nearly invisible; base cuneate, apex acute to subacute or rounded-apiculate. Inflorescence 1-flowered, terminal and on short subsidiary branches from up to ca. 6 nodes below; bracts leaflike, bracteoles leaflike to subulate, entire, deciduous. Pedicels 6–12 mm. Flowers ca. 2.5 cm in diam., substellate; buds ovoid, apex acute. Sepals free or nearly so, erect, subequal to unequal, oblong-linear to elliptic or oblanceolate, 5–8 × 1–2(–3) mm, laminar glands mostly lines, margin entire, apex subacute to acute or short acuminate. Petals bright yellow, tinged red, obovate, 1–2 cm × ca. 6 mm, 1.5–2 × as long as sepals; margin entire, eglandular; apiculus obsolete. Stamen fascicles each with ca. 25 stamens, longest 9–10 mm, ca. 0.8 × as long as petals. Ovary ± narrowly ovoid, 2–4 × 0.7–1.3 mm; styles (3.3–)4–7 mm, 2–2.5 × as long as ovary; stigmatic mass capitate. Capsule narrowly ovoid to cylindric, 7–9 × 3–4 mm, ca. 2 × as long as sepals. Seeds dark yellowish brown. 0.9–1.1 mm, with long terminal expansion; testa linear-reticulate. Fl. Mar–Jul, fr. Aug–Jan.

● Open limestone rock crevices; 400–900 m. E and N Taiwan (Hualian, Ilan, Taibei).

3. Hypericum sect. **Roscyna** (Spach) R. Keller in Engler & Prantl, Nat. Pflanzenfam. 3(6): 211. 1893.

黄海棠组 huang hai tang zu

Roscyna Spach, Ann. Sci. Nat., Bot., sér. 2, 5: 364. 1836.

Herbs, perennial, glabrous, without dark glands. Leaves without abaxial glands. Bracts and bracteoles deciduous or persistent. Sepals free, entire. Petals and stamens usually persistent after anthesis; petal apiculus short or absent. Stamen fascicles 5, free or occasionally apparently 4 (one pair united), anthers dorsifixed. Styles (4 or)5, partly united or more rarely free. Capsule valves longitudinally vittate; seeds not or apically winged.

Two species: Siberia, E Asia, and E North America; two species (one endemic) in China.

35. Hypericum ascyron Linnaeus, Sp. Pl. 2: 783. 1753.

黄海棠 huang hai tang

Herbs, perennial, 0.5–1.3(–2) m tall, erect or sometimes ascending from short creeping base; stems single or few, cespitose, unbranched or branched above or nearly throughout. Stems 4-angled when young, becoming 4-lined or occasionally internodes 2-lined below. Leaves sessile; blade lanceolate or ± narrowly ovate or oblong or elliptic to oblong-linear or oblanceolate, (3–)4–9.7(–12) × (0.4–)0.7–3.5(–4) cm, thickly papery, abaxially rather paler but not glaucous; laminar glands dense, unequal dots or short streaks; intramarginal glands dense; main lateral veins 4–7-paired, tertiary reticulation dense, often obscure; base cuneate to cordate-amplexicaul, apex acute to subapiculate or obtuse (or lowermost rarely rounded). Inflorescence 1- to ca. 35-flowered from 1–5 nodes, the whole nearly flat-topped to narrowly pyramidal, sometimes with flowering branches from up to 4 nodes below; bracts and bracteoles leaflike but smaller and often broader, more rarely linear-lanceolate and deciduous. Flowers 3–7(–8) cm in diam., stellate with petals spreading to reflexed; buds broadly to narrowly ovoid, apex rounded to subacute. Sepals free, erect, oblong to elliptic or ovate to ovate-lanceolate or obovate, subequal to unequal, the outer ones sometimes leaflike, (0.3–)0.5–1.5 cm × (1.5–)2–7(–10) mm; laminar glands lines, distally interrupted to streaks; marginal glands spaced, small, margin entire, apex rounded to obtuse or rarely subacuminate to acute; veins 11–17. Petals bright (to ?golden) yellow, sometimes tinged red in bud, obovate or oblong-obovate to oblanceolate, often somewhat spatulate to subunguiculate, strongly curved to nearly straight, 1.4–4.1 × 0.5–2 cm, 2–3 × as long as sepals or shorter when sepals leaflike; laminar glands lines to short streaks; marginal glands absent; margin entire, apex rounded or obtuse to rarely acute to acuminate; apiculus short and rounded or absent. Stamen fascicles (?4 or)5, each with ca. 30 stamens, longest 0.9–2.5 cm, 0.4–0.67 × as long as petals. Ovary broadly ovoid to narrowly ovoid-pyramidal or ellipsoid; styles (4 or)5, 2.5–15 mm, 0.5–2 × as long as ovary, free or up to 0.8 coherent or connate; stigmas broadly capitate to funnel-shaped. Capsule broadly to narrowly ovoid or ovoid-pyramidal or rarely narrowly cylindric, 0.9–2.2(–3) cm × 5–13 mm, 2–3 × as long as sepals, apex obtuse to rounded. Seeds dark red-brown to yellow-brown, 1–1.5 mm, deeply carinate or narrowly winged, sometimes with slight terminal expansion; testa densely shallowly linear-reticulate. Fl. Jun–Sep, fr. Aug–Oct. 2*n* = 16, 18, 20, 22 (usually 18).

Moist to dry meadows, grassy or rocky slopes, sometimes in forests or among scrub, streamsides and river banks; sea level to 2800(–3600) m. Throughout China except Xizang [Japan, Korea, Mongolia, Russia (Altai to Kamchatka and Kurile Islands, Sakhalin), Vietnam; North America (E Canada, NE United States)].

Hypericum ascyron is a highly variable species or species complex with a very wide distribution. Although several variants have been recognized as varieties or even species, the variation appears to be nearly continuous.

The most frequently distinguished taxon has been *Hypericum gebleri*, which most Russian authors have recognized, as it occurs throughout most of S Siberia along with larger-flowered, less-branched forms and is present alone in Kamchatka, the Kurile Islands, and Sakhalin. On the other hand, Chinese authors have tended to include it in *H. ascyron*, because intermediate forms occur in the north. The North American population, too, was recognized early at species level but none of the characters said to distinguish it appears to be constant.

Under these circumstances, it seems best to distinguish the N Asian *Hypericum gebleri* and the North American *H. pyramidatum* Aiton as subspecies (see Robson, Bull. Nat. Hist. Mus. Lond. (Bot.) 31: 37–88. 2001). It seems impossible to recognize the long-styled (mainly large-flowered and northern) plants and the narrow-fruited, C Chinese ones (respectively var. *longistylum* and var. *giraldii* [var. *hupehense*]) as distinct taxa, as both represent extremes of continuous variation. Likewise, the narrow-leaved, small-flowered form from S China (misidentified as var. *angustifolium* Y. Kimura) merges with more typical forms.

1a. Capsule ovoid to ovoid-pyramidal or ovoid-cylindric; sepals 6–13 mm wide, ovate to lanceolate or oblong or elliptic; styles 4–15 mm, 0.7–2 × as long as ovary, nearly free to up to 0.8 united; leaves 7–40 mm wide, base cordate to rounded ..... 35a. subsp. *ascyron*

1b. Capsule cylindric-ellipsoid; sepals 1.5–7 mm wide, narrowly oblong to oblong-lanceolate; styles 2.5–3.5 mm, ca. 1/2 as long as ovary, free; leaves 4–15 mm wide, base usually cuneate ..... 35b. subsp. *gebleri*

35a. Hypericum ascyron subsp. **ascyron**

黄海棠(原亚种) huang hai tang (yuan ya zhong)

Ascyrum sibiricum Lamarck ex Poiret; *Hypericum ascyron* var. *giraldii* R. Keller; *H. ascyron* var. *hupehense* Pampanini; *H. ascyron* var. *longistylum* Maximowicz; *H. ascyron* var. *micropetalum* R. Keller; *H. ascyron* var. *umbellatum* R. Keller; *H. biondii* R. Keller p.p.; *H. hemsleyanum* H. Léveillé & Vaniot; *H. longifolium* H. Léveillé; *H. scallanii* R. Keller; *Roscyna gmelinii* Spach; *R. japonica* Blume.

Plants 0.5–1.3 m tall. Leaves 4–12 × (0.5–)0.7–4 cm, base usually cordate-amplexicaul. Flowers 4.5–8 cm in diam. Sepals ovate or oblong to elliptic or lanceolate or obovate, 6–10 mm wide, apex rounded to obtuse or rarely apiculate to acute. Styles 4–15 mm, 0.7–2 × as long as ovary, nearly free to 0.8 united. Capsule ovoid to ovoid-pyramidal or ovoid-cylindric.

Throughout China except Xinjiang, Xizang, and parts of the northeast [Japan, Korea, Mongolia, Russia (Altai Mountains eastward except Sakhalin, Kamchatka, and Kurile Islands), ?Vietnam].

35b. Hypericum ascyron subsp. **gebleri** (Ledebour) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 57. 2001.

短柱黄海棠 duan zhu huang hai tang

Hypericum gebleri Ledebour, Fl. Altaic. 3: 364. 1831; *H. ascyron* var. *brevistylum* Maximowicz; *H. ascyron* var. *macrosepalum* Ledebour; *Roscyna gebleri* (Ledebour) Spach.

Plants 0.5–1 m tall. Leaves 3–6 × 0.4–1.5 cm, base usually cuneate. Flowers 0.45–5 cm in diam. Sepals narrowly oblong or oblong-lanceolate, 1.5–7 mm wide, apex rounded or usually obtuse to acute. Styles 2.5–3.5 mm, ca. 0.5 × as long as ovary, free. Capsule cylindric-ellipsoid.

Heilongjiang, extreme W Xinjiang [N Korea, Mongolia, Russia (Altai to Kamchatka, Sakhalin, N Kurile Islands)].

36. Hypericum przewalskii Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 27: 431. 1881.

突脉金丝桃 tu mai jin si tao

Hypericum biondii R. Keller, p.p.; *H. chinense* Linnaeus var. *minutum* R. Keller; *H. macrosepalum* Rehder; *H. obtusifolium* R. Keller; *H. pedunculatum* R. Keller.

Herbs, perennial, (0.17–)0.3–0.55 m tall, erect or sometimes ascending at base; stems few to numerous, simple or usually branched below inflorescence or throughout. Stems incompletely 4-lined or 2-lined when young, nearly always soon becoming terete. Leaves sessile; blade broadly oblong or oblong-ovate to narrowly oblong or oblong-lanceolate (reduced in size down stem), 2–6.5(–8) × 1–3.2 cm, thickly papery, abaxially rather paler but not glaucous; laminar glands dense, unequal dots or short streaks; intramarginal glands dense; main lateral veins 4–6-paired, with densely reticulate tertiary venation not or scarcely prominent abaxially; base cordate-amplexicaul, apex rounded to shallowly retuse. Inflorescence 1–7-flowered from 1–3 nodes, flat-topped, sometimes with flowering branches from up to 5 nodes below, the whole then narrowly pyramidal to cylindric; bracts and bracteoles leaflike, ovate, entire, persistent. Flowers 2–4 cm in diam., stellate; buds narrowly ovoid to cylindric, apex obtuse to rounded. Sepals free or basally united, erect in bud, spreading to deflexed in fruit, subequal to unequal or rarely leaflike, narrowly or broadly oblong or elliptic to lanceolate or ovate-lanceolate or triangular-lanceolate, 8–10 × 2–4 mm, sometimes enlarging to 1.5 cm × 6.5(–8) mm in fruit; laminar glands rather sparse dots, distal and submarginal; marginal glands dense, small, margin undulate, apex rounded to obtuse or rarely short mucronate; veins (5–)7–9. Petals bright yellow, oblong-oblanceolate, 1.2–1.8 cm × 4–8 mm, 1.5–1.8 × as long as sepals; laminar glands lines, sometimes interrupted distally; marginal glands absent; margin entire; apiculus absent. Stamen fascicles each with 15–30 stamens, longest 1–2.4 cm, 0.85–1 × as long as petals. Ovary ovoid; styles 4.5–13 mm, 1–1.8 × as long as ovary, 0.5–0.9 united or appressed (when short); stigmas narrowly capitate. Capsule broadly to narrowly ovoid or subcylindric, 1.4–2.1 × (0.5–)0.7–1.4 cm, 1–2.1 × as long as sepals, apex obtuse. Seeds dark reddish brown to grayish brown, 1.3–1.5 mm, shallowly carinate, without terminal expansion; testa densely linear-reticulate. Fl. Jun–Aug, fr. Jul–Oct.

● Mountain slopes, river bank thickets, meadows, roadsides; 2100–3400(–4000) m. Gansu, Henan, W Hubei, Qinghai, Shaanxi, Sichuan, N Yunnan.

Hypericum przewalskii is closely related to *H. ascyron*, differing from it essentially by the obtuse to retuse leaf apex and usually 2-lined mature stem internodes. *Hypericum macrosepalum* seems to be aberrant in having more persistently 4-angled internodes, but is otherwise typical of forms with leaflike sepals in fruit. *Hypericum pedunculatum* typically has longer, narrower leaves and is more branched than typical *H. przewalskii*, but there is a complete intergradation between it and the typical form.

4. Hypericum sect. **Sampsonia** N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 63. 2001.

元宝草组 yuan bao cao zu

Herbs or rarely suffrutices, perennial, glabrous, with dark (black) glands present on leaves, petals, anthers, and usually sepals. Stems terete, eglandular. Leaves perfoliate, entire. Bracts and bracteoles deciduous or persistent, margin entire. Sepals and petals 5; persistent after anthesis, sepals free, entire, petal apiculus absent. Stamen fascicles apparently 3, anthers dorsifixed. Styles 3, free. Capsule valves vesiculate. Seeds not carinate or winged, testa ribbed-scalariform.

Two species: S Japan and China (Taiwan) to India (Meghalaya); one species in China.

37. Hypericum sampsonii Hance, J. Bot. 3: 378. 1865.

元宝草 yuan bao cao

Hypericum electrocarpum Maximowicz; *H. esquirolii* H. Léveillé.

Herbs, perennial, 20–80 cm tall, erect from decumbent rooting base; stems single or few, branched above or nearly throughout; branches curved-ascending. Stems terete, eglandular. Leaves in perfoliate pairs; blade broadly or narrowly lanceolate to oblong or oblanceolate, (2–)2.5–7(–8) × (0.7–)1–3.5 cm, thickly papery, abaxially paler, not glaucous; laminar gland dots all pale to mostly black, dense; intramarginal glands black, dense; main lateral veins 4- or 5-paired, tertiary reticulation rather lax; common base somewhat expanded, rounded, apex obtuse to rounded. Inflorescence 20–40-flowered from 2 nodes, flat-topped; flowering branches from up to 6 nodes below, the whole flat-topped to subpyramidal or cylindric; uppermost bract pair and bracteoles deciduous, and linear-lanceolate to linear, other bracts persistent, leaflike, margin entire. Flowers 6–10(–15) mm in diam., substellate with cupped base; buds ovoid, apex obtuse. Sepals free, erect, unequal, oblong to oblong-spatulate or linear-oblong, 3–7(–10) × 1–3 mm; laminar glands ± numerous, pale and rarely black, streaks to dots; intramarginal glands black, irregular, or rarely absent, margin entire, apex rounded; veins (3 or)5. Petals bright yellow, elliptic-oblong, 4–8(–13) × 1.5–4(–7) mm; laminar glands pale (very rarely a few black), short streaks to dots; marginal glands black, sessile or subsessile; margin entire or subentire. Stamens 30–42, apparently 3-fascicled, longest (2–)3–4(–6) mm, ca. 1/2 as long as petals. Ovary ovoid to narrowly pyramidal; styles 3, ca. 2 mm, ca. 0.65 × as long as ovary, outcurving. Capsule broadly

ovoid to broadly or narrowly ovoid-pyramidal, 6–9 × 4–5 mm, exceeding sepals; valves with scattered ovoid to ± elongate amber vesicular glands. Seeds orange-brown, ca. 1 mm; testa finely ribbed-scalariform. Fl. May–Jul, fr. Jun–Oct.

Thickets, streamsides, grassy places, roadsides and cultivated margins; 100–1700 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [S Japan, E Myanmar, N Vietnam].

Hance and apparently all succeeding authors placed this species in *Hypericum* sect. *Drosocarpium* Spach on the basis of its vesicular-gland-dotted capsule valves, despite its wide morphological and geographic differences from all species in that mainly SE European section. Disregarding its specialization, *H. sampsonii* and the closely related *H. assamicum* S. N. Biswas from NE India are morphologically a development from *H. przewalskii*. The combination of perfoliate leaf pairs and vesicular-glandular capsule valves is confined to *H.* sect. *Sampsonia*.

5. Hypericum sect. **Elodeoida** N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 66. 2001.

挺茎遍地金组 ting jing bian di jin zu

Herbs, perennial, glabrous, with dark (black or reddish) glands present on leaves and anthers and usually on sepals and petals. Stems terete, eglandular. Leaves free, entire. Bracts and bracteoles persistent, entire to gland-fringed, sometimes auriculate. Sepals and petals 5, persistent after anthesis, sepals free, entire to gland-fringed, petals entire to glandular-ciliate, apiculus present or absent. Stamen fascicles apparently 3, anthers dorsifixed. Styles 3, free. Capsule valves longitudinally vittate. Seeds not carinate, testa scalariform-reticulate to foveolate.

Seven species: from SE China to Kashmir; seven species (three endemic) in China.

38. Hypericum seniawinii Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 27: 434. 1881 [*"seniawini"*].

密腺小连翘 mi xian xiao lian qiao

Hypericum lateriflorum H. Léveillé; *H. lianzhouense* L. H. Wu & D. P. Yang; *H. lianzhouense* subsp. *guangdongense* L. H. Wu & D. P. Yang.

Herbs, perennial, (0.15–)0.3–0.6(–1.15) m tall, erect from creeping, rooting and sometimes branching base; stems usually single, sometimes branched above, branches virgate to curved-ascending. Stems terete, eglandular. Leaves sessile or with broad "petiole" to 1 mm; blade oblong to oblong-lanceolate, (1.5–)2–5.2 cm × 5–13(–16) mm, thickly papery, abaxially paler and rarely minutely papillose (Guangdong), not or ± densely glaucous; laminar gland dots pale, dense, rather large; intramarginal glands all black or the occasional one pale, dense; main lateral veins 3(or 4)-paired, tertiary reticulation dense; base subcordate-amplexicaul to broadly or narrowly cuneate, apex obtuse to rounded. Inflorescence 5–50-flowered, from 1–3 nodes, dense, nearly flat-topped to broadly pyramidal; flowering branches from up to 9 nodes below (often with a gap of sterile nodes), the whole then cylindric; bracts and bracteoles ovate to linear-lanceolate, entire or occasionally with basal glandular cilia or rudimentary auricles. Flowers 0.9–1.5(to ca. 2) cm in diam., conic to stellate or recurved; buds ellipsoid, apex acute to obtuse. Sepals free, erect, subequal to equal, oblong-lanceolate to linear-lanceolate, 2.5–5(–7) × 1–2 mm; laminar glands pale, lines to streaks; marginal glands all black or rarely a few pale, in regular or interrupted row, sessile or slightly prominent, margin entire or subentire, apex acute; veins (3 or)5. Petals ?bright yellow, narrowly oblong to narrowly oblanceolate-elliptic, 7–10(–14) × 2–3 mm, 2–3 × as long as sepals; laminar glands pale, streaks to dots, or absent; marginal glands black, distal, sessile or more proximal immersed; margin subentire. Stamens 24 to ca. 55, apparently 3-fascicled, longest 5–12 mm, slightly shorter than petals. Ovary narrowly ovoid, 1.5–3 × 0.7–1.3 mm; styles 3, (2.5–)4–10(–12.5) mm, 1.5–3(–4) × as long as ovary, divaricate-incurved. Capsule ovoid, 5–6 × 4–5 mm, exceeding sepals. Seeds 0.5–0.8 mm; testa finely foveolate. Fl. (Jun–)Jul–Sep, fr. Aug–Nov.

Slopes, grasslands, roadsides; (100–)500–1600(–2000) m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Sichuan, Zhejiang [N Vietnam].

Hypericum seniawinii and the very closely related *H. hengshanense* appear to be southeastern derivatives of the *H. pedunculatum* form of *H. przewalskii*. *Hypericum seniawinii* differs from *H. hengshanense* in lacking glandular auricles on the leaves but sometimes bears these on the bracts and bracteoles, and the leaves are usually relatively narrower than in that species; but in both species the leaves become markedly narrower toward the south of their respective ranges. *Hypericum lianzhouense* and *H. lianzhouense* var. *guangdongense* fall within the range of variation and area of distribution of *H. seniawinii* in most respects, but the relative style length cited for the species (ca. 4 × as long as the ovary) is longer than that obtained from previous observations.

39. Hypericum petiolulatum J. D. Hooker & Thomson ex Dyer in J. D. Hooker, Fl. Brit. India 1: 255. 1874.

短柄小连翘 duan bing xiao lian qiao

Herbs, perennial (?or annual), 1–50 cm, erect or ascending to procumbent or prostrate from creeping and rooting base; stems much branched, branches curved-ascending to spreading or straggling, all or mostly flowering. Stems terete, slender, eglandular. Leaves with petiole 1–7(–10) mm; blade oblong or lanceolate-elliptic to obovate or suborbicular, 0.5–3.5(–5.2) × 0.3–1(–1.7) cm, thickly papery to submembranous, abaxially paler or ± glaucous; laminar gland dots pale, rather large, fairly dense, usually ± prominent, rarely also 1 or 2 black; intramarginal or marginal glands black, ± dense especially distally; main lateral veins 3-paired, tertiary reticulation fine, rather dense; base cuneate to angustate or more rarely rounded to subcordate, apex rounded to rarely obtuse. Inflorescence (1–)5–28-flowered, from 1 or 2 nodes, usually with long (1–)3–7-flowered branches from up to 5 nodes below, the whole narrowly to broadly pyramidal; bracts and bracteoles linear (or lower bracts leaflike), entire or more rarely with scattered black marginal glands, sessile or on short cilia, and sometimes glandular auricles. Flowers 5–8 mm in diam., stellate; buds

ellipsoid, apex obtuse. Sepals free, erect in bud, ± spreading in fruit, equal to unequal, very narrowly oblong-lanceolate or rarely narrowly elliptic-oblong to linear, 2.3–3.2(–3.4) × 0.5–0.9 mm; laminar glands pale or rarely black, lines to dots, variable in size and number; marginal or submarginal glands black or reddish, few (sometimes only apical) or absent; margin entire or occasionally sparsely glandular-ciliate (especially toward base), apex acute or rarely subacute; veins 3. Petals ?bright yellow, narrowly oblong, 3–5.5 × 1–1.2 mm, ca. 1.5 × as long as sepals; laminar glands pale, 1 or 2 dots, or absent; marginal glands 1 or 2 near apex and occasionally elsewhere, sessile or immersed; margin entire. Stamens (9–)17–22, apparently 3-fascicled, longest (2.5–)3–5 mm, 0.7–1 × as long as petals. Ovary ± broadly to narrowly ellipsoid; styles 3(or 4), (0.5–)1–2.5 mm, 0.65–1.3 × as long as ovary, outcurving. Capsule broadly ovoid to orbicular, 3.5–4 × ca. 3.5 mm, exceeding sepals. Seeds yellow-brown, 0.5–0.6 mm; testa densely but shallowly reticulate-scalariform. Fl. Jun–Aug(–Oct), fr. Aug–Nov.

Mountain slopes, thickets, grasslands, grassy slopes, stream banks, cliffs, roadsides, forest margins; (300–)800–3100 m. Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, SE Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal, N Vietnam].

Hypericum petiolulatum is closely related to *H. seniawinii*, of which it appears to be an upland derivative. It has two subspecies: subsp. *yunnanense* is confined to China and adjacent N Vietnam, whereas subsp. *petiolulatum* is distributed from Yunnan, Sichuan, and Xizang along the Himalayan range to Nepal.

Hypericum petiolulatum subsp. *yunnanense* has been confused with smaller-flowered forms of *H. seniawinii* with narrow and/or cuneate-based leaves, but can be distinguished from them by the shorter styles and smaller, broader capsule and usually by the absence or paucity of marginal sepal glands (not in a continuous row).

1a. Styles 1–1.5 mm, ca. 0.7 × as long as ovary; leaves broadest at or above middle; inflorescence usually from apical node only ..... 39a. subsp. *petiolulatum*
1b. Styles 1.5–2.2 mm, 1–1.3 × as long as ovary; leaves broadest at or below middle; inflorescence from 2 or 3 nodes ..... 39b. subsp. *yunnanense*

39a. Hypericum petiolulatum subsp. **petiolulatum**

短柄小连翘(原亚种) duan bing xiao lian qiao (yuan ya zhong)

Hypericum petiolulatum var. *orbiculatum* Franchet; *H. thomsonii* R. Keller.

Stems decumbent to prostrate, branches ± diffuse. Leaf blade oblanceolate to elliptic or orbicular (broadest at or above middle), 0.5–2.5 × 0.4–1.1(–1.5) cm. Inflorescence usually from 1 node. Styles 1–1.5 mm, 0.65–0.75 × as long as ovary.

Mountain slopes, thickets, grasslands; 2100–3000 m. SW Sichuan, SE Xizang, NW Yunnan [Bhutan, NE India, N Myanmar, Nepal].

39b. Hypericum petiolulatum subsp. **yunnanense** (Franchet) N. Robson, Blumea 20: 262. 1973 [“1972”].

云南小连翘 yun nan xiao lian qiao

Hypericum yunnanense Franchet, Bull. Soc. Bot. France 33: 437. 1886; *H. centiflorum* H. Léveillé; *H. mairei* H. Léveillé (1912), not H. Lévéille (1915); *H. pseudopetiolatum* R. Keller var. *grandiflorum* Pampanini; *H. qinlingense* X. C. Du & Y. Ren.

Stems erect to decumbent, rooting at base, branches curved-ascending. Leaf blade lanceolate or oblong to oblong-lanceolate (broadest at or below middle), 1.5–4 × 0.6–1.6 cm. Inflorescence from 2 or 3 nodes. Styles 1.5–2.2 mm, 1–1.3 × as long as ovary.

Grassy slopes, cliffs, roadsides, forest margins, grasslands; (300–)800–3100 m. Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan [N Vietnam].

40. Hypericum hubeiense L. H. Wu & D. P. Yang, Acta Phytotax. Sin. 42: 74. 2004.

湖北金丝桃 hu bei jin si tao

Herbs, perennial, erect, 40–50 cm tall; stems ?single, unbranched or branched toward inflorescence. Stems terete, eglandular. Leaves sessile; blade oblong-ovate, 1.5–3.8 × 1–1.6 cm, thickly papery; laminar glands pale; intramarginal glands black, dense; main lateral veins 3–5-paired, tertiary reticulation; base cordate-amplexicaul, without glandular auricles, margin entire, apex rounded. Inflorescence ca. 17-flowered, from 2 nodes, nearly flat-topped; bracts and bracteoles lanceolate, entire. Pedicel 1–6 mm. Flowers ca. 1.8 cm in diam., stellate. Sepals ?free, erect, unequal, narrowly ovate to lanceolate, 4–6.8 × 0.8–1.8 mm, margin entire; laminar glands black, lines to streaks; intramarginal glands black, spaced, median and distal; apex acute to subacute; veins 3. Petals obovate-oblong to narrowly ovate, 8.5–12 × 2.5–3.5 mm, ca. 2 × as long as sepals; laminar glands black, streaks; marginal glands black, sessile or subsessile; margin entire. Stamens 70–90, apparently 3-fascicled, longest 6–9.5 mm, ca. 0.75 × as long as petals. Ovary ovoid, 1.5–3.5 × ca. 1.5 mm; styles 3, suberect, 4.5–6.5 mm, 2–3 × as long as ovary. Capsule ovoid, 5–6 × ca. 4 mm, equaling sepals; valves with numerous longitudinal vittae. Seeds dark brown, 7–8 mm; testa densely scalariform-pitted. Fl. Jul–Aug, fr. Aug–Sep.

● Thickets; ca. 1600 m. Hubei (Badong).

Hypericum hubeiense is morphologically intermediate between *H. seniawinii* and *H. hengshanense*, having entire bracts and longer styles like the former but broader leaves like the latter.

41. Hypericum hengshanense W. T. Wang, Bull. Bot. Lab. N. E. Forest. Inst., Harbin 5: 27. 1979.

衡山金丝桃 heng shan jin si tao

Hypericum hengshanense var. *xinlinense* Z. Y. Li.

Herbs, perennial, 0.62–1 m tall, erect from creeping and rooting base; stems ?single, short branched above; branches virgate. Stems terete, eglandular. Leaves sessile; blade oblong-lanceolate to narrowly oblong-elliptic, (1.5–)3–6 × (0.3–)0.7–1.6 cm, thickly papery, abaxially paler but not glaucous; laminar gland dots pale, scattered; intramarginal glands black, ± dense; main lateral veins 2(or 3)-paired, tertiary reticulation dense; base slightly oblique-cuneate or (uppermost) rounded, at least upper with black-glandular-fimbriate auricles, margin

entire or black-glandular-ciliate, apex obtuse. Inflorescence 5- to ca. 18-flowered, from (1 or)2 or 3 nodes, nearly flat-topped to broadly pyramidal; bracts and bracteoles linear-lanceolate to linear, with margin and auricles black-glandular-fimbriate. Pedicel 0.5–3(–6) mm. Flowers 1.5–2.5 cm in diam., stellate; buds ellipsoid, apex obtuse. Sepals free, erect, equal, oblong-lanceolate to linear-oblong, ca. 7 × 1.5–2 mm, glandular-ciliate; laminar glands pale, lines to streaks; intramarginal glands black, few, distal or absent; marginal glands on cilia; apex acute; veins 3. Petals ?golden yellow, narrowly oblong, 9–15 × 2.5–3 mm, ca. 2 × as long as sepals; laminar glands pale, streaks to dots; marginal glands black, sessile or subsessile; margin entire. Stamens 30–35, apparently 3-fascicled, longest 8–15 mm, 0.6–0.75 × as long as petals. Ovary ovoid; styles 3, 6–18 mm, 3–7 × as long as ovary, divaricate-incurved. Capsule ovoid, 5.5–6(–?9) × 3–3.5(–?4) mm, exceeding sepals. Seeds dark brown, ca. 1 mm; testa densely scalariform-reticulate. Fl. Jul, fr. ? (coll. Dec).

● Slopes, thickets, roadsides; 600–1000 m. Guangdong (Lianshan), Guangxi ("Tong Shan"), Hunan (Heng Shan, Xinning), Jiangxi (Yongxin).

Hypericum hengshanense is closely related to *H. seniawinii*, differing from it by its longer styles, glandular-ciliate sepals, and glandular-auriculate leaves and bracts. The Guangxi populations have small, relatively narrower leaves and smaller flowers.

42. Hypericum elodeoides Choisy in Candolle, Prodr. 1: 551. 1824.

挺茎遍地金 ting jing bian di jin

Hypericum napaulense Choisy.

Herbs, perennial, 0.15–0.5(–0.73) m tall, erect (sometimes from creeping and rooting base); stems cespitose, unbranched or rarely branched above; branches virgate. Stems terete, eglandular. Leaves sessile; blade lanceolate or more rarely ovate-lanceolate to oblong-lanceolate or oblong-elliptic to linear, 1–5 × (0.2–)0.4–1.2(–1.7) cm, thickly papery, abaxially paler but not glaucous; laminar glands pale, dense, large, dots or short streaks; intramarginal glands black, sparse; main lateral veins (2 or)3-paired, tertiary reticulation lax; base cordate-amplexicaul to rounded, the upper usually with glandular-ciliate auricles, margin entire or (upper) glandular-ciliate toward base, apex acute to subacute or more rarely obtuse to rounded. Inflorescence (1–)5- to ca. 30-flowered, from 1(–4) nodes, corymbiform to cylindric, very rarely with flowering branches from 1 or 2 nodes below; bracts and bracteoles ovate-lanceolate to oblong-lanceolate or linear, with margin and auricles black-glandular-ciliate or very rarely subentire to entire without auricles. Pedicel 3–12 mm. Flowers 1–2 cm in diam., stellate; buds ellipsoid. Sepals free, erect, equal, narrowly elliptic-lanceolate to narrowly oblong-lanceolate, 5–9 × 1–1.5(–3) mm, glandular-ciliate; laminar glands pale or black, lines or streaks; marginal glands black, on cilia and a few sessile; apex acute; veins 5. Petals golden yellow, oblanceolate to obovate-oblong, 7–15 × 3–4 mm; laminar glands black and sometimes a few pale, lines to dots, dense to sparse; marginal glands black, distal, few, sessile; margin entire. Stamens ca. 60, apparently 3-fascicled, longest 6–11 mm, ca. 0.75 × as long as petals. Ovary narrowly ovoid, 2–4 × 1.3–1.7 mm; styles 3, (3–)4–8 mm, ca. 2 × as long as ovary, divaricate, curved-ascending or straight. Capsule ovoid, 5–8 × 4–5.5 mm, ca. as long as sepals. Seeds yellow-brown, 0.5–0.6 mm; testa densely scalariform-reticulate. Fl. Jun–Aug, fr. Aug–Oct. 2*n* = 16, 32.

Forests, thickets, damp meadows and rice fields, grassy slopes, tracksides; 2100–3000 m. Guangxi, Sichuan, Xizang, Yunnan; also recorded from Fujian, Guangdong, Guizhou, Hubei, Hunan, Jiangxi [Bhutan, N India (W Himalayas, Sikkim), Kashmir, W Myanmar, Nepal].

Hypericum elodeoides is apparently derived from *H. hengshanense*, having shorter leaves and styles than the latter and being in general smaller than it. A reduction trend runs mainly E–W along the Himalayan range to Kashmir, the smaller plants having linear leaves. A separate subspecies with entire leaves, bracts, sepals, and petals, *H. elodeoides* subsp. *wardii* N. Robson, occurs in NE India (Manipur) and W Myanmar.

43. Hypericum austroyunnanicum L. H. Wu & D. P. Yang, Acta Phytotax. Sin. 40: 77. 2002.

滇南金丝桃 dian nan jin si tao

Herbs, perennial, erect from short rooting base, ca. 30 cm tall; stems several, not branched below inflorescence. Stems terete, eglandular. Leaves sessile, 3-whorled; blade oblong-lanceolate, 1.5–3 × 0.5–1 cm, ?thickly papery; laminar glands pale, dense; intramarginal glands black, sparse; main lateral veins 2- or 3-paired; base subcordate-amplexicaul, asymmetric, the upper with densely glandular-ciliate auricles, margin entire, apex obtuse. Inflorescence 16-flowered, from terminal node, corymbiform-subglobose, with flowering branches from one node below; bracts and bracteoles oblong-lanceolate, with margin and auricles black-glandular-ciliate. Pedicel ca. 5 mm. Flowers ca. 1 cm in diam. Sepals erect, ?subequal, ovate, 3.5–5 × 1–2 mm, glandular-ciliate; laminar glands ?pale; marginal glands black, on cilia and a few sessile or submarginal; apex acute; veins 5. Petals oblong, 4–5 × 1–2 mm; laminar glands pale; marginal glands black, distal, sessile; margin entire. Stamens 10–13, apparently 3-fascicled, longest 3–4 mm, 0.75–0.8 × as long as petals. Ovary 3-loculed, ovoid, ca. 2 × 1.5 mm; styles 3, outcurving, ca. 1.7 mm, ca. 0.8 × as long as ovary. Capsule ovoid, ca. 4 × 3 mm, ca. as long as sepals; valves laxly longitudinally vittate. Seeds blackish brown, ca. 0.5 mm; testa linear-pitted. Fl. & fr. Aug.

● Roadsides and dry waste places; 1600–1700 m. W Yunnan.

In most respects *Hypericum austroyunnanicum* falls within the range of variation of *H. elodeoides*; but, discounting the ternate leaves (a character that is rarely species-specific in the genus), the small flowers with ovate sepals and short styles would seem to distinguish it from that species.

44. Hypericum kingdonii N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 74. 2001.

察隅遍地金 cha yu bian di jin

Hypericum wightianum Wallich ex Wight & Arnott subsp. *axillare* N. Robson.

Herbs, perennial, 15–48 cm tall, suberect to decumbent from short rooting base, with stems usually branched from upper to nearly all nodes. Stems terete, eglandular; internodes

1–2.5 cm, longer than leaves. Leaves sessile, lower soon deciduous; leaf blade broadly ovate-oblong or broadly elliptic to suborbicular, 6–14 × 3–7 mm, recurved, subpapery, abaxially pale or glaucous; laminar glands pale, punctiform, small, dense; intramarginal glands black, dense; main lateral veins 3 or 4 pairs from lower 2/5 of midvein, tertiary reticulation lax or apparently absent; base shallowly cordate to rounded, margin entire, apex rounded. Inflorescence 5–25-flowered from 1 or 2 nodes, usually with flowering branches from up to 6 nodes below and often also toward base of stem, the whole narrowly pyramidal to subcylindric. Pedicel 1–2 mm; bracts and bracteoles narrowly elliptic or linear-lanceolate, black glandular-denticulate to -fimbriate or subentire, with intercalary sessile black glands and ± well-developed black-gland-fringed auricles, persistent. Flowers 8–14 mm in diam., stellate; buds ellipsoid, apex obtuse. Sepals 5, erect in bud and fruit, equal, lanceolate to oblong-linear, 4.5–6 × (1–)1.5–2 mm, margin irregularly glandular-denticulate to -fimbriate or subentire, apex acute to subacuminate; veins 3–5, branching; laminar glands pale, linear to punctiform and often a few black, punctiform; marginal or intramarginal glands black, irregular, often between glandular cilia or fimbriae. Petals 5, ?golden yellow, not tinged red in bud, narrowly ovate, 6–8 mm, 1.3–1.5 × as long as sepals, margin entire, apex acute; laminar glands sparse to rather dense, black, striiform to punctiform; marginal glands distal and in apiculus, black. Stamens 20–25, apparently 3-fascicled, longest 5–6 mm, 0.7–0.85 × as long as petals; anther gland black. Ovary 3-loculed, ellipsoid, ca. 2 × 1 mm; styles 3, ca. 3 mm, ca. 1.5 × as long as ovary, ± divergent; stigmas narrow. Capsule narrowly ovoid to ellipsoid, 5–7 × 3.5–4.5 mm, ca. 1.1 × as long as sepals; valves with numerous longitudinal vittae. Seeds yellowish brown, ca. 0.5 mm, not carinate; testa finely scalariform.

Rice paddy embankments, grassy slopes; 1200–2700 m. SE Xizang, NW Yunnan [NE India, N Myanmar].

6. Hypericum sect. **Monanthema** N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 75. 2001.

单花遍地金组 dan hua bian di jin zu

Herbs, perennial, glabrous, with dark (black or reddish) glands present on leaves, sepals, petals, and anthers. Stems terete or, when thin, 2–4-lined, eglandular or rarely with reddish glands on lines. Leaves free, often gland-fringed, sometimes glandular-auriculate. Bracts and bracteoles entire or gland-fringed, often auriculate. Sepals and petals 4 or 5, persistent after anthesis, sepals free, entire to gland fringed, petals entire or with apical glandular cilium. Stamens apparently 3-fascicled. Styles (2 or)3(or 4), free. Capsule valves longitudinally vittate. Seeds not carinate, testa scalariform-reticulate to foveolate.

Seven species: from SW China to S India and Pakistan; seven species (two endemic) in China.

45. Hypericum daliense N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 83. 2001.

大理金丝桃 da li jin si tao

Herbs, perennial, 0.15–0.4 m tall, erect from creeping and rooting base; stems single or few, unbranched (?always). Stems 4-angled when young, soon terete or faintly 2-lined, eglandular. Leaves sessile; blade elliptic-oblong to (upper) lanceolate, 2.2–4.5 × 0.7–2.1 cm, thinly papery, abaxially paler, not glaucous; laminar gland dots pale, dense, ± small; intramarginal glands black, dense; main lateral veins 4-paired (lowermost weak), tertiary reticulation rather dense; base rounded-amplexicaul, margin entire, apex rounded. Inflorescence 5–14-flowered, from 1 or 2 nodes, nearly flat-topped, congested; bracts and bracteoles lanceolate to narrowly elliptic, with margin and auricles reddish- to black-glandular-ciliate or rarely subentire with a few intramarginal black glands. Flowers 1–1.5 cm in diam., stellate; buds ellipsoid. Sepals free or nearly so, erect, subequal or equal, lanceolate to narrowly oblong-elliptic, 4.5–6.5 × 1–1.5 mm, glandular-ciliate; laminar glands all pale lines or usually distal part(s) black, streaks or dots; marginal glands reddish or black; apex acute; veins 5, outer pair branched. Petals bright yellow, oblong-oblanceolate, 6–8 × 2.5–3.5 mm; laminar glands absent; marginal glands black, few, subapical, sessile; margin entire. Stamens 25–35, apparently 3-fascicled, longest 5–6 mm, 0.75–0.8 × as long as petals. Ovary ellipsoid; styles 3, 2–2.5 mm, ca. as long as ovary or slightly longer, divaricate. Capsule cylindric-ellipsoid, ca. 7 × 4.5 mm, slightly exceeding sepals. Seeds not seen. Fl. Jul–Aug, fr. ?

● Open situations among scrub; 2400–3100 m. Yunnan (Dali and Lijiang ranges).

Hypericum daliense resembles a large form of *H. wightianum* (to which it is clearly closely related), differing from that species inter alia in its larger flowers, larger, all sessile and mostly elliptic-oblong leaves (which are all entire, i.e., the upper ones are not basally glandular-fimbriate), and larger, cylindric-ellipsoid capsule. It provides a morphological link between *H. wightianum* and the *H. macrosepalum* form of *H. przewalskii* from N Yunnan.

46. Hypericum wightianum Wallich ex Wight & Arnott, Prodr. Fl. Ind. Orient. 1: 99. 1834.

遍地金 bian di jin

Hypericum bodinieri H. Léveillé & Vaniot; *H. delavayi* R. Keller.

Herbs, perennial or annual, (0.08–)0.13–0.45 m tall, erect to decumbent or procumbent from creeping and rooting base; stems single or few, clustered, branched above or rarely throughout; branches short, spreading-ascending. Stems shallowly 2-lined or terete, eglandular. Leaves sessile to short petiolate (especially lower ones); blade broadly elliptic to obovate or ovate, (0.6–)1–3 × (0.3–)0.5–1.5(–1.9) cm, thinly papery, abaxially paler, not glaucous; laminar glands pale or rarely a few black, dots to streaks, dense, varying in size; intramarginal glands black, dense or irregular; main lateral veins 2- or 3-paired, tertiary reticulation scarcely visible abaxially, dense; base rounded to cordate, margin entire or (upper) sometimes basally or completely reddish- to black-glandular-ciliate and with reddish- to black-glandular-ciliate auricles, apex rounded

[or rarely acute to apiculate-obtuse]. Inflorescence 3- to ca. 50-flowered, from 1 or 2(or 3) nodes, the whole laxly flat-topped or broadly pyramidal to capitate-cylindric or bifurcate; bracts and bracteoles ovate or lanceolate to linear, with black-glandular-ciliate margin and auricles. Flowers 5–8(–11) mm in diam., stellate; buds ellipsoid, apex subacute. Sepals basally united, erect, equal, narrowly to broadly oblong or elliptic, 2.5–5(–6) × 1.5–3 mm, glandular-ciliate to -laciniate [or very rarely entire]; laminar glands all pale or some black, linear to punctiform, scattered; marginal glands reddish to black, the cilia sometimes alternating with intramarginal black gland dots, or very rarely all intramarginal; apex acute to obtuse; veins 3(–5). Petals bright yellow, elliptic-oblong, 3–5 × 1.2–1.6 mm, 1–1.2 × as long as sepals; laminar glands absent; marginal glands black, few, distal and subapical, sessile; margin entire or apically glandular-ciliate. Stamens 7–11, apparently 3-fascicled, longest 2.5–4 mm, 0.8–0.9 × as long as petals. Ovary ovoid to globose; styles 3, 1.5–2.5 mm, 0.9–1 × as long as ovary, divaricate. Capsule broadly ovoid to subglobose, 3–4.5(–6) × 3–4 mm, ca. as long as sepals or slightly longer. Seeds brown, ca. 0.5 mm; testa finely scalariform. Fl. Apr–Jul, fr. Jul–Sep.

Grassy slopes, open woodlands, streamsides, roadsides and rice paddy terraces; 700–3300 m. Guangxi, Guizhou, Sichuan, Xizang, Yunnan [Bhutan, India (NE and Tamil Nadu), N Laos, N Myanmar, Sri Lanka, N Thailand].

Hypericum wightianum is clearly closely related to *H. daliense* and has apparently spread from SE China westward to NE India and southwest to W Myanmar and Mizoram, NE India. It then reappears in the S Indian hills and in Sri Lanka. The variation is continuous.

47. Hypericum trigonum Handel-Mazzetti, Symb. Sin. 7: 403. 1931.

三棱遍地金 san leng bian di jin

Herbs, perennial, 0.25–0.4 m tall, erect from short creeping and rooting base; stems unbranched below inflorescence or with slender ascending or spreading branches from up to ca. 5 upper nodes. Stems terete, eglandular. Leaves sessile, lower not smaller but ascending and soon deciduous; blade oblong or oblong-ovate to triangular-ovate, 2–3 × 0.9–1.5 cm, subpapery, abaxially paler, not glaucous; laminar glands dots all pale and very small or all black; intramarginal glands black, sparse; main lateral veins 4-paired, tertiary reticulation dense; base broadly cuneate to shallowly cordate, margin entire, apex rounded to obtuse. Inflorescence 4- to ca. 15-flowered from apical node; flowering branches from up to 4 nodes below, the whole flat-topped to cylindric; bracts and bracteoles narrowly lanceolate to linear, with black-glandular cilia and auricles. Flowers 1.5 to ca. 2.5 cm in diam., stellate or reflexed; buds cylindric, apex rounded. Sepals free, erect, equal, narrowly oblong to elliptic-oblong or lanceolate, 6–7 × 1.5–2 mm, glandular-ciliate; laminar glands all pale or parts black, lines, sometimes interrupted; marginal glands black; apex acute; veins 5. Petals golden yellow, narrowly oblong-elliptic to lanceolate-elliptic, 0.9–1.1 cm × 2.5–4.5 mm, 1.5(–?2) × as long as sepals; marginal gland black, apical, solitary; laminar glands few, pale, lines and sometimes black, 1–3 dots, subapical; margin entire. Stamens 25–35, apparently 3-fascicled, longest 7–9 mm, 0.75–0.8 × as long as petals. Ovary narrowly ovoid-ellipsoid; styles 3, 4–5 mm, ca. as long as ovary, divergent. Capsule broadly ovoid, 7–8 × ca. 4.5 mm, ca. 2 × as long as sepals. Seeds dark yellowish brown, ca. 0.6 mm; testa shallowly scalariform-foveolate. Fl. Jun–Aug, fr. Aug–?

?Marshes and wet meadows; 2900–3600 m. SE Xizang, NW Yunnan [Myanmar (extreme N Kachin)].

The *Hypericum trigonum* group contains variable taxa that are sometimes difficult to separate specifically. The group comprises *H. trigonum* (SE Xizang, NW Yunnan, and N Myanmar), *H. ludlowii* (SE Xizang, adjacent NW Yunnan, and Bhutan), and *H. himalaicum* (Pakistan to NW Yunnan and SW Sichuan). *Hypericum trigonum* is basic to the group, being closely allied to *H. monanthemum*, and the other taxa are both derived individually from it. Despite the existence of some morphologically intermediate populations, it seems best to recognize the above three species. Li Xiwen (in FRPS 50(2): 54. 1990) included *H. trigonum* and *H. himalaicum* (in part, as *H. monanthemum* var. *brachypetalum*) in *H. monanthemum* and apparently placed *H. ludlowii* (without citation) in the remaining part of *H. himalaicum*.

48. Hypericum ludlowii N. Robson, Notes Roy. Bot. Gard. Edinburgh 41: 133. 1983.

滇藏遍地金 dian zang bian di jin

Herbs, perennial, 0.03–0.25(–0.4) m tall or long, erect or ascending from creeping and rooting base; stems solitary, slender, growing through other vegetation, unbranched or with short branches from upper or occasionally several nodes. Stems 2–4-lined, eglandular. Leaves with petiole 0.5–1 mm; blade triangular-ovate or elliptic to oblong-oblanceolate, 0.3–2 cm × 1.5–10 mm, subpapery, abaxially paler, not glaucous; laminar gland dots pale, very small, dense to sparse; intramarginal glands all black or black and pale or reddish, rather dense to spaced, sometimes very small; main lateral veins (2 or)3-paired, tertiary reticulation dense; base rounded to rarely cuneate, margin entire, apex rounded. Inflorescence 1–9-flowered from 1 or 2 nodes, nearly flat-topped or broadly pyramidal to cylindric or bifurcate, sometimes with flowering branches from up to 4 nodes below; bracts and bracteoles narrowly oblong and black- or red-glandular-ciliate and -auriculate or reduced leaflike and entire and without auricles. Flowers (0.6–)0.9–1.1(–1.5) cm in diam., stellate; buds cylindric-ellipsoid, apex subacute. Sepals free, erect, subequal to unequal, narrowly oblong or narrowly elliptic to lanceolate, 1.5–5 × 0.5–1.5 mm; laminar glands all pale or partly black, lines; marginal glands black or reddish, sometimes few; margin glandular-ciliate to entire, apex obtuse to acute; veins 5. Petals golden yellow, oblong-oblanceolate, 4–7 × 1–2.5 mm, (1.3–)1.5 × as long as sepals; marginal glands black or reddish, solitary, apical, and sometimes a few black, subapical, sessile; laminar glands absent or rarely 1 or 2 black streaks; margin entire or subentire. Stamens ca. 20, apparently 3-fascicled, longest 4–5 mm, 0.6–1 × as long as petals. Ovary ellipsoid to subglobose; styles 3, 2–2.5 mm, 1–1.4 × as long as ovary, divergent. Capsule cylindric-ellipsoid to ellipsoid-subglobose, 4.5–6 × 2.5–3.5 mm, ca. 2 × as long as sepals. Seeds straw-colored, ca. 0.4 mm; testa foveolate-scalariform. Fl. Jul, fr. Jul–Aug.

Grassy swamps, streambanks and bogs; 2800–3400(–3600) m. SE Xizang, NW Yunnan (Weixi) [Bhutan (Bumthang)].

Hypericum ludlowii shows a reduction trend westward from Yunnan to Bhutan. The easternmost populations are rather similar to the "intermediate" population of *H. trigonum* in SE Xizang and N Myanmar, but differ in the smaller overall size and delicate habit and in the size of the leaves and floral parts, as well as in the absence, in the more reduced forms, of black glands (except in the anthers). The upper leaves in this easternmost population, however, appear trigonous as in typical *H. trigonum*. It differs from *H. himalaicum* in the relatively longer styles and narrower, apically acute sepals that are not black-streaked; and it is usually distinct in the smaller flowers, shorter ascending stems, and boggy habitat. The styles are not absolutely shorter, but the smaller ovary makes them relatively so.

49. Hypericum himalaicum N. Robson, J. Jap. Bot. 52: 287. 1977.

西藏金丝桃 xi zang jin si tao

Hypericum monanthemum J. D. Hooker & Thomson ex Dyer var. *brachypetalum* Franchet.

Herbs, perennial, 0.05–0.35 m tall or long, decumbent from creeping and rooting base; stems ?solitary or clustered, often branched below inflorescence or lower; branches slender, spreading. Stems terete or 2–4(–6)-lined, eglandular or occasionally with few reddish glands on lines. Leaves sessile or to 2 mm petiolate; blade ovate to oblong or elliptic to obovate or oblanceolate, 0.4–2.4 × 0.2–1.7 cm, subpapery, abaxially paler or usually glaucous; laminar gland dots pale, small to medium, dense; intramarginal glands black or rarely pale, dense to spaced; main lateral veins 2–4-paired, tertiary reticulation dense; base cordate to rounded or cuneate, the upper often with black-glandular-ciliate auricles and sometimes also glandular-ciliate proximal margin, margin entire, apex rounded. Inflorescence 1–12-flowered, from 1(or 2) nodes, often with flowering branches from up to 4 nodes below, the whole nearly flat-topped; bracts and bracteoles narrowly elliptic or linear-lanceolate to linear, black-glandular-ciliate and -auriculate or more rarely entire and then either bracteose or reduced leaflike. Flowers 1–2 cm in diam., stellate; buds ovoid to broadly ellipsoid, apex obtuse to acute. Sepals free, erect, equal to subequal, ovate-lanceolate or elliptic to linear-lanceolate, 3.5–7 × 1–2.5 mm; laminar glands pale or often partly black, lines (with the black parts dots to usually streaks) to dots; marginal glands black, on cilia or sessile or absent, margin glandular-ciliate to entire, apex subacute to acute or rarely rounded; veins 5. Petals bright yellow, sometimes tinged red in bud, oblong-elliptic to oblanceolate, 6–10 × 2–4 mm, 1.2–2 × as long as sepals; laminar glands black streaks or absent; marginal glands absent or 1–4, black, apical and subapical, sessile or on apical cilium; margin entire or rarely with one apical glandular cilium. Stamens 12–30, apparently 3-fascicled, longest 4–7 mm, 0.65–0.85 × as long as petals. Ovary ovoid to ellipsoid; styles 3(or 4), 2–3 mm, 0.65–1(–?1.3) × as long as ovary, divergent. Capsule ± broadly ellipsoid, 3–9 × 2.5–6 mm, 1.5–2 × as long as sepals. Seeds yellowish brown, 0.5–0.6 mm; testa densely scalariform-foveolate. Fl. Jun–Aug, fr. Aug–Oct.

Forest and woodland clearings, alpine meadows, rocky or grassy slopes, often in damp places; 2500–3300 m. SW Sichuan, SE Xizang, NW Yunnan [E Bhutan, N India, Nepal, Pakistan].

The specimens of *Hypericum himalaicum* that most closely resemble *H. trigonum*, especially the intermediate population of that species from SE Xizang and N Myanmar, are found in C Nepal. The Chinese populations represent an eastward reduction trend from there that penetrates into Xizang through the Yadong (Chomo) gap and continues to NW Yunnan and north into Sichuan, where it has been known as *H. monanthemum* var. *brachypetalum* and where the sepals are sometimes apically entire and rounded.

50. Hypericum monanthemum J. D. Hooker & Thomson ex Dyer in J. D. Hooker, Fl. Brit. India 1: 256. 1874.

单花遍地金 dan hua bian di jin

Herbs, perennial, (0.05–)0.1–0.4 m tall or long, erect or decumbent to prostrate from creeping, rooting and branching base; stems scattered or clustered or often carpeting, often slender, unbranched above or rarely with one pair of ascending branches below inflorescence. Stems terete or 2(–4)-lined, eglandular. Leaves sessile (uppermost or very rarely all) or to 1 mm petiolate, lower smaller, erect to appressed, soon deciduous; blade broadly ovate or circular to broadly oblong or broadly elliptic or obovate-spatulate, 0.4–2.5(–3.5) × 0.2–1.5(–2.5) cm; subpapery to submembranous, abaxially paler or slightly glaucous; laminar gland dots all pale and very small or some or all black, rather dense to sparse or absent; intramarginal glands black and dense or reddish to pale and rather sparse; main lateral veins 3(or 4)-paired, tertiary reticulation dense; base rounded to truncate or subcordate or (lower) cuneate, margin entire, apex rounded or retuse to obtuse. Inflorescence 1–5(–7)-flowered, from 1(or 2) nodes, subumbelliform or bifurcate; bracts leaflike, the pair usually wider than inflorescence, entire; bracteoles narrowly ovate to lanceolate, with black-glandular-ciliate margin and auricles. Flowers (0.6–)1–2.5 cm in diam., stellate or reflexed; buds narrowly ovoid, obtuse. Sepals 5 subequal or 4 in unequal pairs, free, erect, oblong or elliptic to narrowly ovate or linear-lanceolate, 2.5–7 × 1–3 mm; laminar glands all pale or parts or all black, linear; marginal glands black or reddish to pale; margin glandular-ciliate to entire, apex obtuse (rarely acute) to rounded; veins 5–7. Petals 4 or 5, golden yellow, lanceolate-oblong to narrowly ovate, (0.3–)0.5–1.5 cm × 1–4.5 mm, 1–2 × as long as sepals; apical gland reddish, other marginal glands absent; laminar glands pale or black, few, lines to streaks, or absent; margin entire. Stamens 10–45, apparently 3-fascicled, longest 4–9 mm, 0.6–0.8 × as long as petals. Ovary ovoid to subglobose, 2–5 × 1.5–2.5 mm; styles (2 or)3(or 4), 1.5–3 mm, 0.5–1 × as long as ovary, divergent. Capsule broadly ovoid to globose, (5–)6–8 × (3–)4–6 mm, ca. 1.5 × as long as sepals. Seeds yellowish brown, 0.7–0.8 mm; testa shallowly foveolate. Fl. Jun–Aug, fr. Aug–Oct.

Clearings in forests and bamboo forests, thickets, grassy or stony slopes, streamsides, rock crevices; 2900–3900 m. W Sichuan, SE Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal].

A detailed study has revealed not only that *Ascyrum filicaule* is a *Hypericum*, but that it is only with difficulty separable from *H. monanthemum*. This species displays a western reduction trend from China to Nepal, while the reduction trend in *A. filicaule* goes in the reverse direction, from Nepal and NE India (Sikkim) to Yunnan and Myanmar. In Nepal, NE India (Sikkim), and Bhutan there is an area of morphological overlap, where some specimens have perianth states intermediate between 5-mery and 4-mery. It therefore seems appropriate to treat these taxa as subspecies.

1a. Sepals and petals 5; sepals subequal, glandular-ciliate to subentire; flowers 12–25 mm in diam.; leaves 10–35 mm ..... 50a. subsp. *monanthemum*
1b. Sepals and petals 4; sepals in unequal pairs, often leaflike, entire; flowers 6–12 mm in diam.; leaves mostly 5–10 mm ..... 50b. subsp. *filicaule*

50a. Hypericum monanthemum subsp. **monanthemum**

单花遍地金(原亚种) dan hua bian di jin (yuan ya zhong)

Hypericum bachii H. Léveillé; *H. mairei* H. Léveillé (1915), not H. Léveillé (1912); *H. monanthemum* var. *nigropunctatum* Franchet.

Plants erect. Stems terete. Leaves sessile or subsessile, 10–25(–35) × 8–15(–25) mm, never scalelike, subpapery, abaxially sometimes slightly glaucous, inframarginal glands black, base rounded to broadly cuneate. Inflorescence 1–5(–7)-flowered. Pedicels 1–2.5 mm. Flowers 12–25 mm in diam. Sepals 5, subequal, 4–7 × 1.5–3 mm, margin glandular-ciliate to subentire. Petals 5, 8–15 mm × 2.5–4.5 mm, ca. 2 × as long as sepals. Stamens 20–45. Styles 0.6–1 × as long as ovary.

Clearings in forests and bamboo forests, grassy slopes, streamsides; 2900–3900 m. W Sichuan, SE Xizang, Yunnan [Bhutan, NE India (Sikkim), N Myanmar (Kachin), Nepal].

50b. Hypericum monanthemum subsp. **filicaule** (Dyer) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 78. 2001.

纤茎遍地金 xian jing bian di jin

Ascyrum filicaule Dyer in J. D. Hooker, Fl. Brit. India 1: 252. 1874; *Hypericum filicaule* (Dyer) N. Robson.

Plants erect to decumbent or prostrate and ± mat-forming; stems unbranched above or (in Yunnan) branched from upper 2 or 3 nodes. Stems terete or narrowly 2-lined. Leaves (except uppermost, sessile) to 1 mm petiolate, (4–)5–10(–15) ×2–8(–11) mm, broadly elliptic, lower gradually smaller, sometimes becoming minute and scalelike, thinly papery to membranous, abaxially paler, inframarginal glands reddish or pale, base cuneate to rounded-attenuate. Inflorescence 1-flowered. Pedicels (terminal) 0.5–1.5 mm. Flowers 6–12 mm in diam. Sepals 4, sometimes leaflike, outer 4–12 × 1.5–7 mm, inner 3–7 × 1–3 mm, margin entire, apex obtuse. Petals 4, 3–8 × 1–2.7 mm, 0.75–1.6 × as long as sepals. Stamens 10–20. Styles 0.5–0.8 × as long as ovary.

Rock crevices, grassy slopes; 3000–3900 m. SE Xizang, NW Yunnan [NE India, N Myanmar (Kachin), Nepal].

51. Hypericum subcordatum (R. Keller) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 78. 2001.

川陕遍地金 chuan shan bian di jin

Hypericum thomsonii var. *subcordatum* R. Keller, Bot. Jahrb. Syst. 33: 553. 1904; *H. petiolulatum* var. *subcordatum* (R. Keller) H. Léveillé.

Herbs, perennial, 1–7 cm tall, erect from creeping and rooting base with stems unbranched or branched from upper 1(or 2) nodes. Stems with internodes 2-lined above, terete below, eglandular, slender. Leaves 1–1.5 mm petiolate; blade broadly elliptic or oblong-elliptic to obovate, 1–1.6 × 0.8–1.2 cm; thinly papery, abaxially paler (?or subglaucous); laminar gland dots pale, dense, small, or sometimes a few black, scattered; intramarginal glands black, dense or subirregular; main lateral veins 3-paired, tertiary reticulation rather dense, obscure; base cuneate to truncate or (uppermost) subcordate, margin entire, apex rounded. Inflorescence (1–)3–5-flowered, occasionally with branches from 1(or 2) nodes below, the whole flat-topped or bifurcating to subcylindric; bracts and bracteoles leaflike, margin entire. Flowers (0.8–)1–1.2 cm in diam., stellate; buds ?ellipsoid. Sepals free, erect in ?bud and fruit, oblong-lanceolate to lanceolate, subequal, 3–4.5 × 0.8–1.2 mm; laminar glands black, lines to (distally) dots; marginal glands black, few, sessile or submarginal, all or most distal; margin entire, apex acute; veins 5. Petals ?golden yellow, narrowly elliptic, 4.5–6 × 1–1.5 mm, 1.35–1.5 × as long as sepals; laminar glands black, few, lines to streaks; marginal glands black, few, subapical or absent; margin entire. Stamens 17–20, apparently 3-fascicled, longest 4–5.5 mm, ca. 0.9 × as long as petals. Ovary ellipsoid; styles 3(or 4), 1.7–2 mm, 0.85–1 × as long as ovary, divaricate-ascending. Capsule ovoid to subglobose, 4.8–6 × 3.5–4 mm, 1.5–2 × as long as sepals. Seeds yellow-brown, ca. 0.6 mm; testa finely scalariform. Fl. Jun–Aug, fr. Jul–Sep.

● No habitat details known; 1800–2900 m. Shaanxi, Sichuan.

Hypericum subcordatum is very closely related to *H. monanthemum* subsp. *monanthemum* and resembles a small, delicate form of *H. monanthemum* var. *nigropunctatum* with leaves all petiolate and sepals apically acute and entire, characters that do not occur in combination in *H. monanthemum* itself. Along with the occurrence of both taxa on Emei Shan (Sichuan), where they remain distinct, these differences would appear to justify its separation as a species.

7. Hypericum sect. Hypericum

贯叶连翘组 guan ye lian qiao zu

Herbs, perennial, glabrous, with dark (black) glands present on leaves, sepals, petals, anthers, and sometimes stems. Stems 2–4-lined or terete, glandular or eglandular. Leaves free, entire. Bracts and bracteoles persistent, entire. Sepals and petals 5, persistent after anthesis, sepals free, entire to gland-fringed, petals entire to distally crenate, apiculus obscure or absent. Stamen fascicles apparently 3, anthers dorsifixed. Styles 3, free. Capsule valves longitudinally vittate to abaxially vittate with lateral vesicles. Seeds not carinate, testa finely reticulate to linear-foveolate.

Forty-three species: N temperate zone from Macaronesia east to Guatemala; six species (two endemic) in China.

52. Hypericum faberi R. Keller in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 21: 179 in clav. 1925.

扬子小连翘 yang zi xiao lian qiao

Herbs, perennial, 20–60(–80) cm tall, geniculate (or rarely suberect) to procumbent from creeping, branching and rooting base; stems solitary or few, unbranched below inflorescence to branched from most nodes. Stems terete, eglandular. Leaves with petiole (0.5–)1–1.5(–3) mm; blade ovate-oblong to oblong, 1–3 cm × 5–11 mm; thickly papery, abaxially paler or glaucous; laminar glands absent or more rarely few or scattered dots, pale and rarely black, large; intramarginal glands rather dense, black; main lateral veins 2- or 3-paired, tertiary reticulation rather lax and abaxially often scarcely visible; base rather broadly cuneate to rounded, margin entire, plane or slightly incurved, apex rounded. Inflorescence (1–)5–7(–11)-flowered, from 1 or 2(or 3) nodes, sometimes with branches from up to 9 nodes below, the whole nearly flat-topped to pyramidal or condensed-cylindric; bracts and bracteoles linear or linear-lanceolate, margin entire, with spaced marginal black glands. Flowers 5–10 mm in diam., substellate; buds ellipsoid, apex obtuse. Sepals free, erect, oblong or elliptic-oblong to obovate-oblong, subequal to unequal, (3.5–)4–5 × 1–2 mm; laminar glands pale or black, streaks to dots; marginal glands black, spaced, submarginal, rather large; margin entire, apex rounded to apiculate-obtuse or rarely acute; veins 5. Petals ?bright yellow, obovate-oblong, 5–7 × 1.5–3 mm, 1.2–1.5 × as long as sepals; laminar glands absent; marginal glands black, few, near apex only; margin entire. Stamens 24–30, apparently 3-fascicled, longest 4–6 mm, 0.8–0.9 × as long as petals. Ovary ovoid; styles 3(or 4), 2–3(–5.5) mm, 1–1.5(–2.5) × as long as ovary, divaricate. Capsule broadly ovoid, 5–7 × 3.5–4.5 mm, 1.5–2 × as long as sepals Seeds yellow-brown, 0.5–0.6 mm; testa shallowly linear-foveolate. Fl. Jun–Aug, fr. Aug–Oct.

● Grassy places and thickets on mountain slopes, along roadsides and in rice fields; (200–)500–2700 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

Hypericum faberi appears to be related to the *"decorum"* form of the Japanese *H. senanense* Maximowicz, the Fanjing Shan (Guizhou) population being most similar to it. It is easy to confuse with *H. petiolulatum* subsp. *yunnanense*, which differs from it by (1) the densely gland-dotted leaves that vary from oblong to lanceolate, (2) the upper leaves sometimes with glandular auricles, (3) the acute sepals with few or no marginal glands that are sometimes on cilia, and (4) the usually shorter styles (1.5–2.2 mm) and smaller, broader capsule.

53. Hypericum enshiense L. H. Wu & F. S. Wang, Acta Phytotax. Sin. 42: 76. 2004.

恩施金丝桃 en shi jin si tao

Herbs, perennial, erect to decumbent from branching base, 14–40 cm tall; stems branching from most nodes. Stems terete, eglandular. Leaves with petiole 0.5–2.5 mm; blade oblong to obovate, 1–3.8 × 0.5–1.3 cm, ?thickly papery, abaxially greenish and densely minutely papillose; laminar glands black and occasionally pale; intramarginal glands rather dense, black; main lateral veins 3-paired; base narrowly cuneate to angustate, margin entire, apex rounded to ?obtuse. Inflorescence 3-flowered, terminal, with ?flowering branches from 5 (?or more) nodes below, the whole narrowly pyramidal; bracts and bracteoles leaflike. Flowers 1.2–1.5 cm in diam., stellate. Sepals free, erect, narrowly ovate to lanceolate, unequal, 4–6 × 0.8–1.6 mm; laminar glands black, lines to streaks; marginal glands black, spaced; margin entire, apex acute; veins 3. Petals oblong, 6–9 × 1.5–2.5 mm, ca. 1.5 × as long as sepals; laminar glands few, black, lines; marginal glands black, few, near apex only; margin entire. Stamens 50–60, apparently 3-fascicled, longest 4–7 mm, ca. 0.7 × as long as petals. Ovary ovoid, 2–3 × ca. 1.5 mm; styles 3, divaricate, 2.5–3.5 mm, ca. 1.2 × as long as ovary. Capsule ovoid, 4–6 × 3–4 mm, equaling sepals. Seeds dark brown, ca. 0.8 mm; testa linear-pitted. Fl. Jul–Aug, fr. Aug–Sep.

● Forest and field margins, roadsides; 1000–1300 m. Hubei (Badong).

Hypericum enshiense appears to be related to *H. faberi*. It has an overall resemblance to that species, differing from it in the black-gland-dotted, minutely papillose leaves, leaflike bracts, and larger flowers with apically acute sepals and black-glandular-lined petals.

54. Hypericum taihezanense Sasaki ex S. Suzuki, Trans. Nat. Hist. Soc. Taiwan 20: 239. 1930.

台粤小连翘 tai yue xiao lian qiao

Hypericum pseudopetiolatum R. Keller var. *taihezanense* (Sasaki ex S. Suzuki) Y. Kimura.

Herbs, perennial, 15–40 cm tall, ascending from creeping and rooting base; stems ± cespitose, branched above. Stems terete, eglandular. Leaves sessile or with petiole to 0.7 mm; blade triangular-lanceolate or ovate to obovate, 0.4–1.7(–2) cm × 2–6(–10) mm; ± thinly papery, abaxially paler or glaucous; laminar gland dots pale only, dense, varying in size; intramarginal glands black, rather dense; main lateral veins 3- or 4-paired, tertiary reticulation rather dense, often marked; base cordate-amplexicaul to cuneate, margin entire and plane, apex rounded. Inflorescence 1- to ca. 10-flowered, from 1 or 2 nodes; flowering branches from up to 2 nodes below, the whole laxly flat-topped to cylindric; bracts and bracteoles reduced leaflike, margin entire. Flowers 5–10 mm in diam., concave; buds ellipsoid, apex obtuse. Sepals free, erect in bud, ascending in fruit, subequal to unequal, lanceolate to narrowly oblong or linear, 3–5.5 × 1–1.5 mm; laminar glands all pale, streaks and dots; intramarginal glands black or those toward base pale, regular, ± dense; margin entire, apex obtuse to rounded; veins 3–5. Petals mid-yellow, obovate-oblong to narrowly obovate, (3–)5–6(–8) × (1–)2–3.5 mm, (0.7–)1.2–2 × as long as sepals; laminar glands pale, few, dots or streaks, distal, or absent; marginal glands black, sessile or on cilia; margin with sessile or stalked glands near apex or around upper half (sometimes few). Stamens ca. 30, apparently 3-fascicled, longest ca. 4 mm, 0.8–0.9 × as long as petals. Ovary broadly ovoid; styles 3, ca. 1.5 mm, ca. 0.5 × as long as ovary, divergent to ascending. Capsule broadly ovoid to subglobose, 4–5(–6.5) × 4–4.5 mm, 0.8–1.2 × as long as sepals. Seeds dark brown, 0.5–0.6 mm; testa finely scalariform-foveolate. Fl. Apr–Jul(–Aug), fr. (Jun–)Jul–Sep.

Forest margins, mountain slopes, grassy places, open ground, roadsides; 1000–3000 m. Guangdong, Taiwan (except extreme south) [Indonesia (Sumatra), Malaysia (Sabah), Philippines (Luzon)].

In Fl. Taiwan (2: 640. 1976), *Hypericum taihezanense* was included in *H. pseudopetiolatum* R. Keller because its variation fell within the range of variation of that species in Japan. The work of T. Kato on the *H. pseudopetiolatum* group, however, has clarified the situation in Japan, and the Taiwanese population, with its entire sepals and broadly ovoid to subglobose capsule, seems to be a distinct southern species related to the Japanese *H. kiusianum* Koidzumi.

55. Hypericum erectum Thunberg in Murray, Syst. Veg., ed. 14, 702. 1784.

小连翘 xiao lian qiao

Hypericum erectum f. *angustifolium* (Y. Kimura) Y. Kimura; *Hypericum erectum* var. *angustifolium* Y. Kimura; *H. erectum* subsp. *longisepalum* L. H. Wu & D. P. Yang; *H. taisanense* Hayata.

Herbs, perennial, 30–70 cm tall, erect or ascending from branching and rooting base; stems solitary or few, unbranched below inflorescence or sometimes branched above. Stems terete, eglandular. Leaves sessile; blade narrowly triangular-ovate to narrowly elliptic, 1.5–5 × 0.8–1.3 cm; thickly papery, abaxially paler; laminar glands black [and sometimes pale], ± numerous, small; intramarginal glands black, dense; main lateral veins 3- or 4-paired, tertiary reticulation rather dense; base cordate-amplexicaul, margin entire, plane or incurved, apex obtuse to rounded. Inflorescence (1 or)3- to many-flowered, from 1–3 nodes, often with flowering branches from up to 6 nodes below, the whole flat-topped to cylindric; bracts and bracteoles reduced leaflike, margin entire. Flowers ca. 1.5 cm in diam., substellate; buds narrowly ellipsoid, apex acute. Sepals free, erect, ovate-lanceolate [to oblong-elliptic], subequal to unequal, ca. 2.5[–7] × 1[–3] mm; laminar glands black, streaks and dots; intramarginal glands black, [rather dense to] sparse or absent; margin entire [to irregularly glandular-ciliate], apex obtuse to acute; veins 5. Petals bright yellow, obovate to oblong, [6–]7–9[–10] × [2–]2.5 mm, 2.5–3 × as long as sepals; laminar glands black, streaks, distal; marginal glands black, inframarginal to prominent, irregular; margin entire [or with scattered prominent glands]. Stamens 25–30[–40], apparently 3-fascicled, longest 5–7 [6–7] mm, ca. 0.7 × as long as petals. Ovary ovoid; styles 3, 2.5–3 mm, 0.8–1[–1.2] × as long as ovary, widely spreading. Capsule ovoid, ca. 1 cm × 4 [5–11 × 3.5–6] mm, [1.2–]2–2.5 × as long as sepals. Seeds yellow-brown, 0.7–1 mm; testa finely reticulate. Fl. Jul–Aug, fr. Aug–Sep. 2*n* = 16.

Grassy slopes; 400–2300 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Sichuan, Taiwan, Zhejiang [Japan (including Ryukyu Islands), Korea (Cheju-do), Russia (Sakhalin)].

In China, *Hypericum erectum* can always be recognized by the sessile leaves with black gland dots only. The described variation of *H. erectum* subsp. *longisepalum* falls within that of this very variable species as a whole; and it was not possible for us to see the diagnostic characters in a color image of a living specimen. This subspecies has therefore been tentatively included in the synonymy of *H. erectum*.

56. Hypericum attenuatum C. E. C. Fischer ex Choisy, Prodr. Monogr. Hypéric. 47. 1821.

赶山鞭 gan shan bian

Herbs, perennial, 10–45(–70) cm tall, erect from rootstock or creeping rhizomatous base; stems numerous to few, cespitose, much branched. Stems 2-lined, with black glandular dots and streaks on lines and often sparsely (reddish or black) elsewhere. Leaves sessile; blade elliptic to oblong or oblanceolate or rarely ovate, (0.8–)1.5–3.1(–3.8) cm × (3–)5–12(–15) mm; thickly papery, abaxially paler; laminar glands dots, small, pale and black, few or scattered, mainly distal; intramarginal glands black, spaced; main lateral veins 2-paired, tertiary reticulation dense but often rather obscure and apparently lax; base subcordate to cuneate, margin entire and plane; apex obtuse to rounded. Inflorescence (1 or) few- to many-flowered from 1–4 nodes, sometimes with flowering branches from up to 4 nodes below, the whole cylindric to pyramidal; bracts and bracteoles oblong-elliptic, margin entire. Flowers 1.3–2(–2.5) cm in diam., stellate; buds ovoid, apex subacute to acute. Sepals free, erect, triangular-ovate to lanceolate, unequal to subequal, (3.5–)5–10 × 1–4 mm; laminar glands pale, streaks to dots and black dots, scattered, rather sparse or rarely absent; intramarginal and marginal glands black, dots, sparse, distal; margin entire, apex acute to subacuminate; veins 5–7. Petals ?golden yellow, tinged red in bud, oblong-obovate, 0.8–1.2 cm × 4–7 mm, 2.4–3 × as long as sepals, asymmetric; laminar glands black, dots to streaks, scattered; marginal glands black, distally dense; margin entire. Stamens ca. 90, apparently 3-fascicled, longest 8–10 mm, 0.7–0.8 × as long as petals. Ovary narrowly ovoid; styles 3, free, 4–4.5 mm, 1.3–1.6 × as long as ovary, widely spreading. Capsule broadly ovoid or oblong-ovoid to narrowly conic, (4–)6–10 × 2–6 mm, 2–3 × as long as sepals; valves occasionally with a few black longitudinal glandular streaks. Seeds medium brown, 0.7–1.1 mm; testa finely linear-foveolate. Fl. Jun–Aug, fr. Jul–Sep. 2*n* = 16.

Fields, pastures, steppes, grassy and dry stony slopes, pebble shores, forest margins, clearings; sea level (Liaoning) to 2000 m (Guizhou). Anhui, Fujian, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Sichuan, Zhejiang; also recorded from Guangdong, Guangxi [Korea, Mongolia, Russia (Far East, E Siberia)].

Hypericum attenuatum is variable but is distinguishable from all other mainland herbaceous species except *H. perforatum* by the 2-lined stem internodes. It would seem to be one diploid parent of the amphidiploid *H. perforatum* (the other being *H. maculatum* subsp. *immaculatum*).

57. Hypericum perforatum Linnaeus, Sp. Pl. 2: 785. 1753.

贯叶连翘 guan ye lian qiao

Hypericum perforatum var. *confertiflorum* Debeaux; *H. perforatum* var. *microphyllum* H. Léveillé (1908), not Candolle (1815).

Herbs, perennial, 20–60(–100) cm tall, erect from creeping and rooting base; stems numerous to few, much branched especially distally. Stems 2-lined, with few black glands on lines. Leaves sessile to subsessile; blade ± narrowly elliptic to ± narrowly oblong or linear, (0.7–)1–2.5(–3) cm × 3–7(–15) mm; thickly papery, abaxially paler; laminar glands pale, scattered and sometimes black, few, dots; intramarginal glands black, spaced, interspersed with small dense pale ones; main lateral veins ca. 2-paired, tertiary reticulation lax or scarcely visible;

base subcordate-amplexicaul to rather narrowly cuneate, margin entire, plane or ± recurved, apex obtuse. Inflorescence 3- to numerous-flowered, from 1–3 nodes; flowering branches curved-ascending from up to 15 or sometimes more nodes below, the whole nearly flat-topped to broadly pyramidal or cylindric; bracts and bracteoles to 4(–7) mm, narrowly lanceolate to linear, margin entire. Flowers 1.5–2.5(–3) cm in diam., stellate; buds narrowly ovoid, apex acute. Sepals free, erect in bud, recurved in fruit, narrowly oblong or lanceolate to linear, equal, 3–4(–5) × 1–1.2 mm; laminar glands pale and often a few black, in 2(–4) rows, streaks (basally) to dots; intramarginal glands black, few, or absent; margin entire, apex acute to acuminate with tip somewhat glandular; veins 3(–5). Petals golden yellow, oblong to oblong-elliptic, (0.8–)1.2–1.5 cm × 5–6 mm, 3–4 × as long as sepals, asymmetric; laminar glands black or pale, dots to lines, or often absent; intramarginal glands black or pale, distal, in sinuses when present; margin distally ± crenate. Stamens 40–60, apparently 3-fascicled, longest 6–8 mm, 0.5–0.7 × as long as petals. Ovary narrowly ovoid to ovoid-ellipsoid; styles 3, 4.5–6 mm, 1.5–2 × as long as ovary, broadly to rather narrowly spreading. Capsule ovoid-conic to ovoid, 3–6.5 × 3–5 mm, 1–1.5 × as long as sepals; valves with abaxial vittae and lateral yellowish, elongate or short vesicles. Seeds dark brown, ca. 1 mm; testa finely linear-foveolate. Fl. Jun–Sep, fr. Jul–Oct. 2*n* = 32, 48.

Open woodlands, meadows, grasslands, and steppes, riverbanks, stony and grassy slopes, roadsides, in dry or well-drained habitats; 100–2800 m. Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Yunnan [NW India, Kazakhstan, Kyrgyzstan, Mongolia, Russia; NW Africa, SW to C Asia, Atlantic islands, Europe (except extreme N); introduced into many parts of the world].

Hypericum perforatum is apparently an allotetraploid that would appear to have arisen from a cross between two diploid taxa, namely *H. maculatum* subsp. *immaculatum* (Balkan Peninsula) and *H. attenuatum* (W Siberia to China).

In both the SW (S Europe, Mediterranean) and SE (China) parts of its range, small-leaved forms of *Hypericum perforatum* evolved, and both have been named var. *microphyllum* (respectively by Candolle in 1815 and H. Léveillé in 1908). This more southern Chinese form (var. *confertiflorum* Debeaux), which intergrades morphologically with the larger-leaved more northern Chinese form, has small, narrow leaves, with dense, smallish partial inflorescences remaining distinct on elongate, widely ascending branches.

Hypericum perforatum has been subdivided into four subspecies, of which two occur in China.

1a. Leaves (at least on main stem) sessile; petal laminar glands usually all pale ..... 57a. subsp. *songaricum*

1b. Leaves all petiolate; petal laminar glands all black or absent ..... 57b. subsp. *chinense*

57a. Hypericum perforatum subsp. **songaricum** (Ledebour ex Reichenbach) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 32: 95. 2002.

准噶尔金丝桃 zhun ga er jin si tao

Hypericum songaricum Ledebour ex Reichenbach, Icon. Bot. Pl. Crit. 3: 72. 1825; *H. perforatum* var. *songaricum* (Ledebour ex Reichenbach) K. Koch.

Leaves (at least on main stem) sessile, oblong to oblong-ovate, base ± shallowly cordate-clasping. Sepals finely acuminate. Petal laminar glands usually all pale. Capsule valves with lateral vittae linear or slightly swollen overall, not interrupted.

About 1100 m. Xinjiang [Kazakhstan, Kyrgyzstan, SW Russia; SE Europe (Ukraine)].

57b. Hypericum perforatum subsp. **chinense** N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 32: 101. 2002.

中国金丝桃 zhong guo jin si tao

Leaves all petiolate. Inflorescence and/or partial inflorescences congested; branches relatively long, curved-ascending. Petal laminar glands all black or absent.

● 400–2200 m. Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan [Japan (introduced)].

8. Hypericum sect. **Humifusoideum** R. Keller in Engler & Prantl, Nat. Pflanzenfam. 3(6): 211. 1893.

玉山金丝桃组 yu shan jin si tao zu

Deciduous wiry shrublets or perennial herbs with dark (black) glands present on leaves, anthers and usually sepals and petals. Sepals and petals 5, persistent after anthesis, sepals free, entire or rarely glandular-ciliate, petals entire or glandular-ciliate, apiculus absent. Stamens not or obscurely apparently 3-fascicled; anthers dorsifixed. Styles 3, free. Capsule valves slightly longitudinally vittate or nearly smooth. Seeds not or scarcely carinate, testa finely scalariform-reticulate.

Twelve species: China (Taiwan), Indonesia, New Guinea, Philippines; tropical and S Africa, Madagascar; two species (both endemic) in China.

58. Hypericum nagasawae Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 38. 1911 [*"nagasawai"*].

玉山金丝桃 yu shan jin si tao

Hypericum hayatae Y. Kimura; *H. nagasawae* var. *nigrum* Y. Kimura; *H. randaiense* Hayata; *H. suzukianum* Y. Kimura; *H. taiwanianum* Y. Kimura; *H. taiwanianum* var. *ohwii* Y. Kimura.

Herbs, perennial, 5–35 cm tall, suberect to ascending from creeping branching rooting base; stems solitary or ± cespitose, unbranched or ± branched above. Stems 2-lined, eglandular. Leaves sessile or subsessile; blade ovate or oblong to elliptic or oblanceolate or linear, (0.3–)0.8–2.5 cm × 3–12 mm; thickly papery to subleathery, abaxially glaucous or sometimes minutely papillose; laminar glands pale, dots, rather sparse, prominent above; intramarginal glands black, dense or irregular; main lateral veins 3- or 4-paired, sometimes forming ± marked submarginal vein, tertiary reticulation lax or obscure; base cuneate to angustate, margin entire and recurved, apex acute to rounded.

Inflorescence 1–11-flowered from 1 or 2 nodes, sometimes with flowering branches from 1 or 2 nodes below, the whole nearly flat-topped; bracts and bracteoles lanceolate to linear, margin entire. Flowers 1.5–2.7 cm in diam., ± stellate; buds ovoid to ellipsoid, apex obtuse. Sepals free, ascending in bud, spreading in fruit, ovate-lanceolate to ± narrowly oblong, equal, 3–7.5 × 0.8–2.5 mm; laminar glands pale or rarely black, streaks or rarely lines to dots; marginal glands black and sometimes pale, regular or irregular, immersed or rarely on cilia, or absent; margin entire or rarely with 1 or 2 glandular cilia, apex obtuse to acute; veins 5. Petals ?bright yellow, ?tinged red in bud, obovate or oblong-obovate to oblanceolate, 0.8–1.5 cm × 4–7 mm, 2–2.5 × as long as sepals; laminar glands pale and rarely black, lines to dots, or rarely absent; marginal glands black, sessile or occasionally on cilia, distal or subapical; margin usually entire. Stamens 40–80, not or obscurely fascicled, longest 4.5–8 mm, 0.6–0.8 × as long as petals. Ovary narrowly ovoid to ellipsoid-ovoid, 2–2.5 × 1–1.5 mm; styles 3, 3.5–7 mm, 1.3–3 × as long as ovary, ± spreading from near base. Capsule narrowly to broadly ovoid, (5–)6–7 × 3.5–5 mm, 1–1.5 × as long as sepals. Seeds dark brown, ca. 1 mm, scarcely carinate; testa finely scalariform-reticulate. Fl. Jul–Aug, fr. Aug–Oct. 2*n* = 36*.

● Stony or rocky slopes, roadsides, conifer forests; 2300–4000 m. Taiwan (central mountains).

The variation from the mainly northern, broad-leaved form, with sepals and styles ca. 1.3 × as long as the ovary (*Hypericum nagasawae*), to the southern, narrow-leaved form, with apically acute sepals and styles ca. 2 × as long as the ovary or more (*H. randaiense*), appears to be continuous; and indeed the trends in leaf form, sepal shape, and style length are only partially correlated. It is not possible, therefore, to recognize *H. randaiense* as a distinct species. Similarly, plants described as *H. suzukianum* and *H. hayatae*, respectively, are more extreme forms of trends within *H. nagasawae*; and the occasional forms with black-glandular-ciliate sepal margins (*H. taiwanianum*) are linked to the more typical forms by specimens with one or two glandular cilia on each sepal margin.

59. Hypericum nokoense Ohwi, Acta Phytotax. Geobot. 6: 48. 1937.

能高金丝桃 neng gao jin si tao

Herbs, perennial, 5–10 cm tall (sometimes longer and straggling), suberect to ascending from creeping, branching, and rooting base; stems ± cespitose, sometimes mat-forming, unbranched or ± branched above. Stems 2–4-lined or sometimes becoming nearly terete, eglandular. Leaves sessile or with petiole to 1 mm; blade ovate (below inflorescence) to elliptic or narrowly oblong or obovate, 4–12 × 1.5–6 mm, subleathery, abaxially markedly glaucous and sometimes minutely papillose; laminar glands pale and sometimes black, punctiform, dense to sparse; intramarginal glands black, dense; main lateral veins 2- or 3-paired, tertiary reticulation obscure; base cuneate-angustate, margin entire, apex rounded. Inflorescence 1–5(–7)-flowered, from terminal node, without lower branches, nearly flat-topped; bracts and bracteoles entire or with prominent marginal glands. Flowers 1.2–1.8 cm in diam., ± stellate; buds ovoid to ellipsoid, apex acute. Sepals free, erect, lanceolate to narrowly oblong, equal, 3–5 × 0.8–1.2 mm; laminar glands pale and black, lines to streaks; marginal to intramarginal glands black, irregular; margin entire, apex acute to subacuminate; veins 3–5. Petals ?bright yellow, obovate or oblong-lanceolate to lanceolate, 7–11 × 2–3(–4.5) mm, ca. 3 × as long as sepals; laminar glands pale and usually black, lines to dots; marginal glands absent; margin entire. Stamens ca. 43, obscurely apparently 3-fascicled, longest 5–8 mm, ca. 0.7 × as long as petals. Ovary ?ovoid; styles 3, 4–6 mm, 2–3 × as long as ovary, spreading from base. Capsule narrowly ovoid, 6–7 × ca. 4 mm, 1.5–2 × as long as sepals. Seeds not seen. Fl. Jul–Aug, fr. Aug–Sep.

● Mountain slopes; 1800–1900 m. Taiwan (Hualian, Nantou).

No single character separates *Hypericum nokoense* from *H. nagasawae* (from which it appears to have been derived by reduction); but the combination of small and relatively broad leaves, apically acute sepals usually with black, laminar glands, and styles more than twice as long as the ovary appears to distinguish it. The leaf glands are not completely black.

9. Hypericum sect. **Hirtella** Stefanoff, God. Sofiisk. Univ. Agr.-Les. Fak. 11: 183. 1933.

糙枝金丝桃组 cao zhi jin si tao zu

Herbs, perennial, glabrous to papillose [or pubescent], with dark (black or reddish) glands present on petals, usually on sepals and sometimes on leaf apex [and stems], but not forming intramarginal row on leaves. Stems not rooting. Sepals and petals 5, petals [usually] clawed, without apiculus; petals and stamens persistent after anthesis. Stamen fascicles apparently 3, anthers dorsifixed. Styles 3, free. Capsule valves longitudinally vittate; seeds not carinate or winged, testa [nearly smooth to] papillose.

Twenty-four species: SE Europe, Mediterranean region, SW and C Asia, W China; two species in China.

60. Hypericum elongatum Ledebour ex Reichenbach, Iconogr. Bot. Pl. Crit. 3: 71. 1825.

延伸金丝桃 yan shen jin si tao

Hypericum hyssopifolium var. *elongatum* (Ledebour ex Reichenbach) Ledebour; *H. hyssopifolium* subsp. *elongatum* (Ledebour ex Reichenbach) Woronow.

Herbs, perennial, 15–50 cm tall, erect, sometimes with prostrate to ascending vegetative shoots from the base, with short or fascicled branches in most leaf axils. Stems 2-lined, glaucescent, eglandular or rarely with very few amber gland dots toward base. Leaves sessile; those on main stem narrowly oblong to linear, 1.2–3.2 cm × 1–4.5(–6) mm; thickly papery, ± glaucous, glabrous or adaxially sometimes finely undulate-papillose; laminar glands numerous, pale dots; lateral veins 2–4-paired (?or absent), tertiary reticulation not visible; base narrowly to broadly cuneate, margin entire and usually revolute, apex acute to obtuse or subapiculate. Leaves on vegetative shoots smaller, narrower, adaxially more markedly papillose,

often fascicled, apex apiculate to mucronate. Inflorescence many flowered, from 5–12(–17) nodes; flowering branches from up to 3 nodes below, the whole ± narrowly cylindric, 8–25 cm; bracts and bracteoles narrowly ovate-triangular, glands pale, margin entire. Flowers 1.5–3 cm in diam., stellate; buds broadly ellipsoid to broadly cylindric. Sepals free or nearly so, imbricate, broadly ovate or broadly oblong to elliptic, unequal, (2–)3–5 × 1–2.5 mm; laminar glands pale lines and some dots; marginal glands absent or on some (rarely all) sepals black, sessile, irregular; margin entire or subentire, apex rounded to obtuse or rarely acute; veins 5. Petals deep to golden yellow, very rarely red-tinged or -veined, obovate to oblanceolate, 1.2–1.8 cm × 4–8 mm, 3.5–4 × as long as sepals; laminar glands pale, dots and short streaks; marginal glands black; margin distally short glandular-ciliate. Stamens 40–60, longest 8–10 mm, ca. 0.5 × as long as petals. Ovary narrowly ovoid-pyramidal, rostrate; styles 4–5(–5.5) mm, ca. 1.3 × as long as ovary, ascending-erect. Capsule ovoid, 0.8–1.5 cm × 4–7 mm, 2.5–3.5 × as long as sepals. Seeds dark brown, ca. 2 mm. Fl. Jun–Jul, fr. Jul–Aug.

Steppes, dry mountain slopes; [below 2200 m in C Asia]. Xinjiang (Altay Shan) [Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan; SW Asia, SE Europe].

61. Hypericum scabrum Linnaeus, Cent. I Pl. 25. 1755.

糙枝金丝桃 cao zhi jin si tao

Drosanthe scabra (Linnaeus) Spach; *Hypericum asperum* Ledebour.

Herbs, perennial, (5–)10–45(–60) cm tall, erect or decumbent, glabrous, sometimes with decumbent to ascending vegetative shoots from base; stems numerous, much branched above with branches ascending. Stems 2(–?4)-lined, scabrid with simple red-gland-tipped emergences especially toward base [or rarely nearly smooth]. Leaves sessile or subsessile; those on main stem with blade oblong or elliptic to lanceolate or linear, 0.7–2(–2.7) cm × 1.5–6.5 mm; thickly papery, rarely glaucous or the upper epidermis undulate; laminar glands pale, numerous, dots; main lateral veins 1- or 2-paired, tertiary reticulation not visible; base cuneate, margin entire and sometimes revolute, apex rounded to mucronate or uncinate. Leaves on axillary and vegetative shoots smaller, linear, more acute to uncinate. Inflorescence (5 to) many flowered, from 1–4 nodes, sometimes with flowering branches from 1 or 2 nodes below, flat-topped, ± dense, 0.5–8(–11) cm, to 6(–9) cm wide; bracts and bracteoles oblong to linear, margin entire or eroded or with black glands near apex. Flowers 5–14 mm in diam., stellate; buds short cylindric to globose. Sepals 1/3 to 2/3 united, oblong, equal, 1–2.5 × 0.7–1.2 mm; laminar glands pale, usually in 2 lines; marginal glands black, on cilia or denticles, or absent; margin irregularly glandular-denticulate to -ciliate or eglandular-ciliate to subentire, apex rounded to subacute; veins 3. Petals bright or golden yellow, not red-tinged, oblanceolate to obovate, (3–)5–8 × (1–)2–3.5 mm, 3–4 × as long as sepals, long-clawed; laminar glands pale, dots and sometimes lines; margin distally usually black-glandular-ciliate. Stamens 25 to ca. 45, 4–8 mm, 0.8–1 × as long as petals. Ovary narrowly ovoid; styles 2–5 mm, erect, distally outcurved. Capsule ovoid-acuminate, (3–)4–8 × 2.5–5 mm, 2–2.5 × as long as sepals. Seeds dark brown, 1.5–2 mm. Fl. Jul, fr. Aug–Sep. 2*n* = 24, 28, ?48.

Dry stony and rocky places, open or in scrub; 1100–1600 m. Xinjiang (Altay Shan) [Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan; SW Asia, SE Europe].

10. Hypericum sect. **Taeniocarpium** Jaubert & Spach, Ill. Pl. Orient. 1: 47. 1842.

毛金丝桃组 mao jin si tao zu

Herbs [or suffrutices], perennial, [glabrous or] pubescent, with dark glands present on petals, [usually on] sepals and sometimes on leaf apex, but not on anthers or forming intramarginal row on leaves. Stems rooting. Sepals and petals 5; petals and stamens persistent after anthesis; petals not clawed or with apiculus. Stamen fascicles apparently 3, anthers dorsifixed. Styles 3, free. Capsule valves longitudinally vittate; seeds not carinate or winged, testa [rugulose to] papillose.

Twenty-three species: Europe, Mediterranean region, SW and C Asia, NW Mongolia, W China; one species in China.

62. Hypericum hirsutum Linnaeus, Sp. Pl. 2: 786. 1753.

毛金丝桃 mao jin si tao

Herbs, perennial, 35–100 cm tall, all parts to sepals crisped-pubescent to -puberulous (longer on stem), erect from creeping and rooting base, with few branches. Stems terete, eglandular. Leaves subsessile or with petiole to 1.5 mm; blade ovate-oblong to elliptic, 1.7–5(–6) × 1–2 cm; thickly papery, abaxially paler; laminar glands pale, scattered dots; main lateral veins 2- or 3-paired, tertiary reticulation dense; base broadly cuneate, margin entire and plane, apex obtuse. Inflorescence many flowered, from 3–6 nodes, sometimes with subsidiary branches from 1–4 nodes below, the whole narrowly pyramidal to cylindric, 3.5–25 × 1.5–6 cm; bracts and bracteoles lanceolate to linear-lanceolate, black-glandular-ciliate. Flowers ca. 9 mm in diam., stellate; buds ellipsoid, apex obtuse. Sepals shortly united, narrowly oblong to lanceolate or linear-lanceolate, subequal, (2.5–)3.5–4 × 0.7–1 mm; laminar glands pale, streaks to dots; marginal glands black, on cilia or denticles; margin glandular-ciliate to -denticulate, apex subacute; veins 3. Petals bright [or rarely pale] yellow, sometimes red-veined, oblong-elliptic, 1–1.2 cm × ca. 5 mm, 2–3 × as long as sepals; laminar glands sparse, pale, lines to dots; margin sparsely black-glandular-ciliate. Stamens 24–30, longest 7–10 mm, 0.7–0.8 × as long as petals. Ovary ovoid; styles 2–6 mm, 1.3–2.5 × as long as ovary. Capsule ovoid or oblong-ovoid to conic, 4–7 × 3–5 mm, 1.5–2 × as long as sepals. Seeds brown, ca. 1 mm. Fl. Jul–Aug, fr. Sep. 2*n* = ?16, 18.

Wooded valleys and slopes; below 2800 m. Xinjiang (Gongliu) [Kazakhstan, Kyrgyzstan, Russia (European part, Siberia E to

Angara Sayan); NW Africa (Algeria), SW Asia, Europe (except Mediterranean region)].

Hypericum hirsutum is the only Chinese *Hypericum* with hairy stems and leaves.

11. Hypericum sect. **Trigynobrathys** (Y. Kimura) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 16: 3. 1987.

地耳草组 di er cao zu

Sarothra sect. *Trigynobrathys* Y. Kimura in Nakai & Honda, Nov. Fl. Jap. 10: 233. 1951.

[Shrubs, subshrubs or] perennial to annual herbs, [nearly always] glabrous, without dark glands. Stems rooting or not. Sepals and petals 5; sepals free, entire; petals not clawed, without apiculus; petals and stamens persistent after anthesis. Stamens [not usually clearly fascicled] irregularly arranged, anthers dorsifixed. Styles (2 or)3[–5], free. Capsule valves obscurely longitudinally vittate; placentation parietal; seeds not carinate or winged, testa reticulate to ribbed-scalariform.

Fifty-one species: North and South America, tropical and S Africa, Madagascar, E and SE Asia, Australia; introduced in Europe; two species in China.

63. Hypericum gramineum G. Forster, Fl. Ins. Austr. 53. 1786.

细叶金丝桃 xi ye jin si tao

Hypericum japonicum Thunberg var. *kainantense* Masamune; *H. japonicum* var. *lanceolatum* Y. Kimura; *Sarothra graminea* (G. Forster) Y. Kimura; *S. saginoides* Y. Kimura.

Herbs, perennial or annual, 5–30 cm tall, erect to decumbent but not rooting; stems solitary or ± cespitose, unbranched below inflorescence or variously branched. Stems 4-lined, eglandular. Leaves sessile; blade lanceolate or rarely ovate-lanceolate to linear, 0.6–1.3[–2.5] cm × 1–5[–8] mm; thickly papery, abaxially paler and sometimes glaucous; laminar gland dots dense distally, sparser proximally; intramarginal glands dense; with or without one pair of basal main lateral veins, veins prominent abaxially, tertiary reticulation not visible; base cordate to rounded or sometimes cuneate and usually somewhat decurrent and forming a "V," margin plane or recurved, apex obtuse to rounded. Inflorescence 1–21-flowered, terminal, sometimes with subsidiary branches from up to 3 nodes below, triangular-lanceolate to linear; bracts and bracteoles triangular-lanceolate to linear. Flowers 5–8 mm in diam., stellate; buds ellipsoid, apex subacute. Sepals free, erect, lanceolate to narrowly elliptic, subequal to unequal, 2.8–5[–9] × [0.8–]1.5–2 mm; laminar glands lines, distally dots; marginal glands absent; apex acute to subacute; veins 3–5. Petals pale to bright yellow or orange, obovate to oblanceolate, 5–10 × 2–5 mm, ca. 1.3 × as long as sepals; laminar glands few, streaks, or absent; margin entire, eglandular. Stamens 30–40, irregular, longest 2.5–4 mm, 0.4–0.6 × as long as petals. Ovary narrowly ovoid-conic; styles 3, 0.7–1.8 mm, ca. 0.9 × as long as ovary, ± spreading. Capsule ovoid-conic, 2.5–8 × 1–3.5 mm, ca. 2 × as long as sepals. Seeds brown, ca. 0.5 mm; testa finely ribbed-scalariform. Fl. May–Oct, fr. Jul–Oct. 2*n* = 16, 14.

Wet but well-drained habitats; (1200–)1900–2700 m. ?Hainan, Taiwan (Xinzhu), S Yunnan [Bhutan, NE India, Papua New Guinea, Vietnam; Australia, Pacific islands (Hawaii, New Caledonia, New Zealand)].

The description of *Hypericum japonicum* var. *kainantense*, from Hainan, appears to fit *H. gramineum* better than *H. japonicum*. One of the authors (Robson) has not examined the type specimen of this variety or the specimen on which the record of *H. gramineum* from "Chang Ngo Shan" (Zhang Nao Shan, Wanning, Hainan) is based, so the occurrence of this species in Hainan remains unconfirmed.

64. Hypericum japonicum Thunberg in Murray, Syst. Veg., ed. 14, 702. 1784.

地耳草 di er cao

Brathys japonica (Thunberg) Wight; *B. laxa* Blume; *Hypericum cavaleriei* H. Léveillé; *H. chinense* Osbeck (1757), nom. utique rej., not Linnaeus (1759), nor Retzius (1788); *H. japonicum* var. *calyculatum* R. Keller; *H. japonicum* var. *cavaleriei* (H. Léveillé) Koidzumi; *H. japonicum* var. *maximowiczii* R. Keller; *H. japonicum* var. *thunbergii* (Franchet & Savatier) R. Keller; *H. laxum* (Blume) Koidzumi; *H. nervatum* Hance; *H. thunbergii* Franchet & Savatier; *Sarothra japonica* (Thunberg) Y. Kimura; *S. laxa* (Blume) Y. Kimura.

Herbs, annual, 2–45 cm, tall or long, erect to decumbent or prostrate and rooting at base or along stem; stems solitary or ± cespitose, unbranched below inflorescence or variously branched. Stem 4-lined, with scattered gland dots. Leaves sessile; blade usually ovate or ovate-triangular to oblong or elliptic, 0.2–1.8 cm × 1–10 mm; thickly papery, abaxially paler and sometimes glaucous; laminar and intramarginal glands dense; main lateral veins 1–7, basal, tertiary reticulation not visible; base cordate-amplexicaul to cuneate, not decurrent, margin plane, apex obtuse to rounded. Inflorescence 1- to ca. 30-flowered, terminal, sometimes with flowering branches from up to 3 nodes below; bracts and bracteoles lanceolate-subulate to leaflike. Flowers 4–8 mm in diam., stellate; buds cylindric-ellipsoid, apex ± obtuse. Sepals free, erect, narrowly oblong or rarely lanceolate to elliptic, subequal to unequal, 2–5.5 × 0.5–2 mm; laminar glands lines, distally dots; marginal glands absent; apex acute or obtuse to rounded; veins 3–5. Petals pale to bright yellow or orange, obovate to oblong or elliptic, 1.7–5 × 0.8–1.8 mm, 0.4–0.8 × as long as sepals; laminar glands absent; margin entire, eglandular. Stamens 5–30, irregular or in 5 obscure groups when few, longest 1.5–2.8 mm, 0.4–0.8 × as long as petals. Ovary ± broadly ovoid to subglobose; styles (2 or)3, 0.4–0.8(–1) mm, 0.4–0.6 × as long as ovary, spreading. Capsule cylindric to globose, (2–)2.5–6 × 1.3–2.8 mm, usually slightly shorter than to slightly exceeding sepals. Seeds straw-yellow, ca. 0.5 mm; testa finely linear-scalariform. Fl. Mar–Oct, fr. Apr–Nov. 2*n* = 16.

Rice fields, ditches, marshes, grasslands, waste places; sea level to ca. 3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Shandong, Sichuan, Taiwan,

Yunnan, Zhejiang [Bhutan, Cambodia, N and S India, Indonesia (Sumatra to Irian Jaya), Japan, S Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; SE Australia, Pacific islands (New Zealand)].

Hypericum japonicum is very variable and, the variation being continuous, eight nodal variants have been recognized but not formally named. Five of these occur in China:

(i) Stems erect to decumbent; inflorescence from terminal node only; bracts linear to lanceolate; sepals narrow (*"japonicum"* in part). Lowland.

(ii) Stems erect to decumbent; inflorescence from more than one node, sometimes with other branches; bracts linear to lanceolate; sepals narrow (*"japonicum"* in part). Lowland.

(iii) Stems erect; inflorescence from terminal node; bracts leaflike; sepals narrowly oblong to narrowly elliptic (*"maximowiczii"*). ?Lowland.

(iv) Stems decumbent to procumbent; inflorescence from terminal node; bracts leaflike; sepals narrowly oblong to narrowly elliptic (*"laxum"*). Lowland to upland.

(v) Stems decumbent to prostrate; inflorescence from terminal node; bracts leaflike; sepals (at least outer) broadly elliptic to obovate (*"calyculatum"*). Upland to montane.

2. LIANTHUS N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 38. 2001.

惠林花属 hui lin hua shu

Li Xiwen (李锡文 Li Hsi-wen); Norman K. B. Robson

Suffrutex, glabrous, with translucent ("pale") glands only. Stems and branches terete, eglandular. Leaves opposite, sessile, entire, venation pinnate; glands in 2 systems: abaxial, closely parallel, linear, and arching from near base, and adaxial and punctiform. Flowers bisexual, homostylous, deeply ?cupped. Sepals 5, quincuncial, equal, free. Petals 5, ?contorted, white, subsymmetric, deciduous after anthesis. Stamens in 5 fascicles united to form apparently 3 (i.e., 2 + 2 + 1), with compound fascicles antisepalous, deciduous, each single fascicle with 3 or 4 stamens; filaments slender, united at base; anthers small, dorsifixed, dehiscing longitudinally, with gland on connective; sterile fascicles (fasciclodes) 3, very small, inserted between stamen fascicles, persistent. Ovary 3-loculed with axile placentae, each placenta with many ovules; styles 3, free, slender; stigmas narrowly capitate. Fruit a septicidal capsule, with valves longitudinally and narrowly vittate. Seeds small, carinate, not arillate; testa finely foveolate; embryo not seen.

● One species: China (NW Yunnan).

1. Lianthus ellipticifolius (H. L. Li) N. Robson, Bull. Brit. Mus. (Nat. Hist.), Bot. 31: 38. 2001.

惠林花 hui lin hua

Hypericum ellipticifolium H. L. Li, J. Arnold Arbor. 25: 307. 1944.

Suffrutex 0.3–0.6 m tall, erect, cespitose or from short creeping and rooting base; stems few, slender, sometimes branched above. Stems terete, eglandular. Leaves sessile; blade elliptic, 3–5 × 1.5–3 cm; thickly papery, abaxially paler, not glaucous; abaxial laminar glands very small, irregular, dense; adaxial laminar glands linear, curved-parallel from base, alternating with veinlike narrower glands; intramarginal glands rather dense; main lateral veins 2–3(–4)-paired, tertiary reticulation lax, only main veins visible (and prominent) below; base rounded, margin recurved, apex rounded to subretuse, often obtusely apiculate. Inflorescence 5–7-flowered, subumbelliform, terminal; peduncle absent; bracts and bracteoles narrowly triangular, persistent. Pedicels ca. 8 mm. Flowers ca. 1.5 cm in diam., ?deeply cupped; buds elliptic, apex obtuse. Sepals erect in bud, reflexed in fruit, narrowly triangular-lanceolate, equal, 6–7 × ca. 2 mm; laminar glands lines, usually 2 between each vein; marginal glands absent; margin entire, apex narrowly acute to acuminate; veins 5. Petals white, oblong-obovate, 1–1.2 cm × 3–4 mm, ca. 2 × as long as sepals; laminar glands lines to streaks; marginal glands absent; margin entire, with apiculus lateral, very short. Stamens 11–15, apparently 3-fascicled (5 + 3 + 3 to 6 + 5 + 4), longest 8–9 mm, ca. 0.75 × as long as petals. Fasciclodes 3, very small, lenticular. Ovary ovoid; styles ca. 2 mm, ca. 0.4 × as long as ovary, free, distally spreading. Capsule ovoid, ca. 7 × 4 mm, ca. as long as sepals. Seeds dark brown, ca. 0.6 mm; testa finely foveolate. Fl. Aug–Sep, fr. Sep–Oct.

● Grassy slopes; 1800–2200 m. NW Yunnan (Dulong Jiang-Nu Jiang divide).

Lianthus is named after Li Hui-lin, who described its sole species as a *Hypericum*. It differs from *Hypericum*, however, in several characters, e.g., in having fasciclodes and white petals and, most notably, in its two systems of foliar glands. It is related to *Triadenum* but is more primitive in most respects.

3. TRIADENUM Rafinesque, Fl. Tellur. 3: 78. 1837 ["1836"].

三腺金丝桃属 san xian jin si tao shu

Li Xiwen (李锡文 Li Hsi-wen); Norman K. B. Robson

Herbs, perennial, rhizomatous, glabrous, with translucent ("pale") glands only. Leaves opposite, sessile or petiolate, entire; venation pinnate; glands punctiform only. Flowers bisexual, homostylous. Sepals 5, quincuncial, equal, free. Petals 5, imbricate, flesh-pink or white, ± symmetric, deciduous after anthesis. Stamens in 5 fascicles united to form apparently 3 (i.e., 2 + 2 + 1) with compound fascicles antisepalous, persistent, each fascicle with 3 stamens; filaments rather slender, 0.35–0.5 united; anthers small,

dorsifixed, dehiscing longitudinally, with gland on connective; sterile fascicles (fasciclodes) 3, yellow to orange, inserted between stamen fascicles, persistent. Ovary 3-loculed with axile placentae, each placenta with numerous ovules; styles 3, free, ± slender; stigmas narrowly to scarcely capitate. Fruit a septicidal capsule, with valves longitudinally and prominently vittate. Seeds small, carinate; testa reticulate-foveolate, not arillate; embryo slender, straight, with distinct slender cotyledons.

Six species: one in NE India (Khasia Hills) and S China, one in NE China, Korea, Russia (Far East), and Japan, and four in E Canada and the E United States.

1a. Petals flesh-pink; inflorescence from 2 nodes, narrowly cylindric to narrowly ellipsoid; leaves ovate-oblong to oblong or oblong-lanceolate (l:w = 2–3), base cordate-amplexicaul ..... 1. *T. japonicum*
1b. Petals white; inflorescence from 6–11 nodes, spikelike; leaves narrowly elliptic to oblong (l:w = 3–5), base attenuate ..... 2. *T. breviflorum*

1. Triadenum japonicum (Blume) Makino, Nippon Shokobutsu-Zukwan: 326. 1925.

红花金丝桃 hong hua jin si tao

Elodes japonica Blume, Mus. Bot. 2: 15. 1856 [*"Elodea"*]; *E. virginica* (Linnaeus) Nuttall var. *asiatica* Maximowicz; *E. virginica* var. *japonica* (Blume) Makino; *Hypericum asiaticum* (Maximowicz) Nakai; *H. fauriei* R. Keller; *H. virginicum* Linnaeus var. *asiaticum* (Maximowicz) Yatabe; *H. virginicum* var. *japonicum* (Blume) Matsumura; *Triadenum asiaticum* (Maximowicz) Komarov; *T. japonicum* f. *asiaticum* (Maximowicz) Y. Kimura.

Herbs, 15–50(–90) cm tall, erect from creeping and rooting base, with few or no branches below inflorescence. Stems terete, eglandular. Leaves sessile; blade oblong-lanceolate to ovate-oblong or oblong, (1–)2–5(–8) × (0.5–)1–1.7 cm; thickly papery, abaxially paler; laminar glands scattered dots; intramarginal glands ± dense to spaced; main lateral veins 4-paired, tertiary reticulation rather dense; base shallowly cordate-amplexicaul, margin revolute, apex obtuse to emarginate. Inflorescence 1–3-flowered, terminal, or sometimes with flowering branches from 1–3 nodes below, the whole narrowly cylindric to narrowly ellipsoid; peduncles 5–10 mm; bracts and bracteoles linear-lanceolate, persistent. Pedicels 1–3 mm. Flowers ca. 1 cm in diam., curved-funnel-shaped; buds cylindric, apex rounded. Sepals erect, ovate-lanceolate, 3–4 × ca. 2 mm; laminar glands 5, lines; marginal glands absent; margin entire, apex obtuse; veins 7. Petals flesh-pink, narrowly obovate to oblong, 6–7 × 2–3 mm, ca. 0.7 × as long as sepals; laminar glands few, dots, near apex; marginal glands absent; margin entire. Stamen fascicles ca. 4 mm, ca. 0.8 × as long as petals; filaments to 0.5 united. Fasciclodes orange, scalelike, ovate to orbicular, ca. 2 mm, not lobed. Ovary ovoid; styles 1.5–1.75 mm, ca. 0.5 × as long as ovary, appressed, eventually distally spreading. Capsule narrowly ellipsoid to narrowly obconic, 7–10 × 5–6 mm, 1.7–2 × as long as sepals, apex acute. Seeds dark brown, ca. 1 mm; testa finely foveolate. Fl. Jul–Aug, fr. Aug–Sep. 2*n* = 36.

Wet meadows and hillsides, marshes; lowland. Heilongjiang, Jilin [Japan, Korea, Russia (Far East)].

Triadenum japonicum is very similar to the E North American *T. virginicum* (Linnaeus) Rafinesque, differing from it mainly in dimensions of floral parts.

2. Triadenum breviflorum (Wallich ex Dyer) Y. Kimura in Nakai & Honda, Nov. Fl. Jap. 10: 79. 1951.

三腺金丝桃 san xian jin si tao

Hypericum breviflorum Wallich ex Dyer in J. D. Hooker, Fl. Brit. India 1: 257. 1874.

Herbs, (15–)30–55 cm tall, ascending from creeping and rooting base; stems solitary or few, unbranched or branched above middle, branches all fertile. Stems 4-lined and ancipitous when young, soon terete, eglandular. Leaves sessile or petiolate to 2 mm; blade narrowly elliptic to oblong, 2–5.5(–7) × 0.6–1.3(–1.5) cm; thickly papery, abaxially paler; laminar glands scattered dots; intramarginal glands ± dense; main lateral veins 5- or 6-paired, forming prominent intramarginal vein, tertiary reticulation lax; base angustate, margin recurved, apex obtuse to rounded. Inflorescence 3-flowered, terminal and with paired 1–3-flowered branches from up to 8 nodes, the whole narrowly cylindric to spiciform; bracts and bracteoles ovate to triangular-ovate; peduncles 0.5–6 mm. Pedicels 1–2 mm. Flowers 5–6 mm in diam., ?funnel-shaped; buds ovoid, apex acute. Sepals erect, ovate to oblong, 3.5–5 × 1.5–2 mm; laminar glands 5, lines; marginal glands absent; margin entire, apex obtuse to rounded, 7-veined. Petals white, obovate-oblong to oblong, 4–6 × 2–3 mm, ca. 1.1 × as long as sepals; laminar glands scattered dots; marginal glands absent; margin entire. Stamen fascicles 3, 2–4 mm, ca. 0.7 × as long as petals; filaments 0.35 to 0.7 united. Fasciclodes ?orange, scalelike, subrectangular, 1–1.5 × ca. 0.8 mm, emarginate. Ovary ovoid to ellipsoid, 2.5–3 × 1.5–2 mm; styles ca. 1 mm, ca. 2/5 as long as ovary, appressed, distally spreading. Capsule ovoid, 6–8 × 3–4 mm, apex acute. Seeds dark red-brown, ca. 1 mm; testa finely foveolate. Fl. Jul–Aug, fr. Aug–Sep.

Wet grasslands, ditches, rice fields, roadsides; below 600 m. Anhui (Jiuhua Shan), Hubei (Qichun), Hunan (Wugang), Jiangsu (Lianyungang), Jiangxi, Taiwan (Nantou), Yunnan (Jinghong), Zhejiang [NE India (Khasia Hills)].

4. CRATOXYLUM Blume, Verh. Batav. Genootsch. Kunsten 9: 172, 174. 1823.

黄牛木属 huang niu mu shu

Li Xiwen (李锡文 Li Hsi-wen), Li Jie (李捷); Peter F. Stevens

Hornschuchia Blume, Catalogus, 15. 1823, not Nees (1821).

Trees or shrubs, deciduous to evergreen. Twigs with nodes sometimes flattened, mostly with interpetiolar lines; apical bud abortive or not; buds with scales or not. Leaves opposite, sessile to petiolate, entire, abaxially often pruinose to waxy, often finely translucent-punctate between veins, secondary veins ± widely spaced, tertiary veins reticulate. Inflorescence cymose, terminal and/or axillary; bracteoles caducous, minute. Flowers bisexual, homostylous or heterostylous, pedicellate. Sepals 5, ± unequal, leathery, usually accrescent. Petals 5, white to deep crimson or pink, sometimes tinged orange and green, often with punctiform or linear dark resinous glands, sometimes with ± adnate adaxial near-basal scalelike appendage. Stamen fascicles apparently 3 (2 + 2 + 1), with filaments ca. 2/3 united; anthers subpersistent, dorsifixed, sometimes with ± prominent resinous connective gland. Fasciclodes 3, alternating with fascicles, scalelike, sometimes minute. Ovary 3-loculed, with [3–]5–16[–18] erect or ascending ovules on lower half of each placenta; styles 3, free, often divergent; stigmas punctiform, truncate or somewhat thickened, slightly papillose. Capsule ± woody, ellipsoid to narrowly cylindric, dehiscing loculicidally, with persistent columella. Seeds obovoid to cylindric, with unilateral wing 2.5–3 × as long [or wing all around and smaller]; embryo cylindric.

About six species: Cambodia, S and SW China, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam, all S of ca. 24° N; two species in China.

1a. Leaves with secondary veins ascending, not or irregularly joining; inflorescences terminal and axillary; flowers homostylous; stamen fascicles short and broad; fasciclodes recurved-cucullate; twigs and leaves glabrous; petals without appendage ..... 1. *C. cochinchinense*

1b. Leaves with secondary veins spreading, regularly joining toward margin; inflorescences axillary, often on old growth; flowers heterostylous; stamen fascicles long and slender; fasciclodes never recurved; twigs and leaves sometimes villous; petals with minute, basal appendage ..... 2. *C. formosum*

1. Cratoxylum cochinchinense (Loureiro) Blume, Mus. Bot. 2: 17. 1856.

黄牛木 huang niu mu

Hypericum cochinchinense Loureiro, Fl. Cochinch. 2: 472. 1790; *Ancistrolobus ligustrinus* Spach; *Cratoxylum biflorum* (Lamarck) Turczaninow; *C. chinense* Merrill; *C. ligustrinum* (Spach) Blume; *C. petiolatum* Blume; *C. polyanthum* Korthals; *C. polyanthum* var. *ligustrinum* (Spach) Dyer; *Elodes chinensis* (Retzius) Hance; *H. biflorum* Lamarck (1797), not Choisy (1821); *H. chinense* Retzius (1788), not Osbeck (1757), nor Linnaeus (1759); *Oxycarpus cochinchinensis* Loureiro; *Stalagmites erosipetala* Miquel.

Shrubs or trees, deciduous, 1.5–18(–25) m tall, glabrous. Trunk with clusters of long thorns on lower part. Bark gray-yellow or gray-brown, smooth or finely striate. Twigs somewhat compressed, glabrous and pink when young, interpetiolar scars not always continuous. Petiole 2–3 mm, glabrous; leaf blade abaxially gray-green, adaxially green, elliptic to oblong or lanceolate, 3–10.5 × 1–4 cm, papery, both surfaces glabrous, abaxially with pellucid or dark glands, midvein abaxially raised, adaxially impressed; secondary veins 8–12 pairs, oblique, not or irregularly joining at the margins; veins and veinlets reticulate, raised on both surfaces, base obtuse to cuneate, apex abruptly acute or acuminate. Cymes axillary or extra-axillary and terminal, (1 or)2 or 3-flowered, pedunculate; peduncles 3–10 mm or longer. Pedicel 2–3 mm. Flowers 1–1.5 cm in diam. Sepals accrescent, oblong, 5–7 × 2–5 mm, with dark linear glands on entire surface, apex rounded. Petals deep crimson to pink or pinkish yellow, obovate, 5–10 × 2.5–5 mm, with dark linear glands between veins, base cuneate, apex rounded; petal-scale absent. Stamen fascicles 4–8 mm, stalk broad to slender, with 40–55 stamens. Fasciclodes oblong to obovate, cucullate, to 3 × 1–1.5 mm, apex thickened and recurved; connective with gland or not. Ovary conic, ca. 3 mm, glabrous; styles ca. 2 mm. Capsule brown, ellipsoid, 0.8–1.2 cm × 4–5 mm, to 2/3 covered by persistent calyx. Seeds (5 or)6–8 per locule, 6–8 × 2–3 mm. Fl. Apr–May, fr. after Jun.

Secondary forests, thickets, dry sunny mountain slopes, hills; below 1200 m. S Guangdong, S Guangxi, S Yunnan [Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

This plant is xerophilous. The wood is hard and valuable for woodcuts. The young fruit is used as a spice for cooking. The roots, bark, and twigs are used as a medicine for colds and diarrhea. The young leaves are used a substitute for tea.

2. Cratoxylum formosum (Jack) Dyer in J. D. Hooker, Fl. Brit. India 1: 258. 1874.

越南黄牛木 yue nan huang niu mu

Shrubs or trees, deciduous, 3–6 m tall. Trunk with spreading, long thorns on lower part. Bark exfoliating in flakes. Twigs somewhat compressed, ± tetragonous when young, becoming terete; interpetiolar scars interrupted. Petiole 5–7 mm, glabrous; leaf blade abaxially greenish, adaxially green, elliptic to oblong, 4–10 × 2–4 cm, abaxially with pellucid glands, midvein raised abaxially, impressed adaxially; secondary veins 8–10 pairs, broadly spreading, anastomosing regularly near leaf margin; tertiary veins and veinlets reticulate, base rounded, apex obtuse or acute. Cymes 5–8-flowered, in axils of fallen leaves. Pedicels 3–5 mm. Flowers ca. 1.3 cm in diam. Sepals elliptic or oblong-lanceolate, 5–6 × 2–3 mm, apex obtuse. Petals obovate or obovate-oblong, 1.1–1.5 cm, ciliolate and brown-glandular on upper half of margin, narrowly clawed at base; petal-scale indistinct, ca. 2 mm, base cuneate, apex truncate and denticulate. Stamen fascicles ca. 1 cm, with 20–30 stamens; filament ca. as long as stalk; connectives with glands or not. Fasciclodes ligulate, 1–1.5 mm, attenuate. Ovary narrowly conic, ca. 4 mm, glabrous; styles ca. 3.5 mm. Capsule dark brown, oblong, 0.6–1.5 cm, up to 1/2 enclosed by persistent calyx. Seeds 6–8 per locule, 3–7 mm. Fl. Mar–Apr, fr. after May.

Thickets, open secondary forests; below 1000 m. S Guangxi, Hainan, S Yunnan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

1a. Young twigs, leaves, pedicels, and sepals glabrous ..... 2a. subsp. *formosum*
1b. Young twigs, leaves, pedicels, and sepals densely villous ..... 2b. subsp. *pruniflorum*

2a. Cratoxylum formosum subsp. **formosum**

越南黄牛木(原亚种) yue nan huang niu mu (yuan ya zhong)

Elodes formosa Jack, Malayan Misc. 2(7): 24. 1822 [*"Elodea"*]; *Hypericum biflorum* Choisy (1821), not Lamarck (1797).

Young twigs, leaves, pedicels, and sepals glabrous; connective without glands.

Thickets; below 600 m. Hainan [Cambodia, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

2b. Cratoxylum formosum subsp. **pruniflorum** (Kurz) Gogelein, Blumea 15: 469. 1967.

红芽木 hong ya mu

Tridesmis pruniflora Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 41: 293. 1872; *Cratoxylum dasyphyllum* Handel-Mazzetti; *C. pruniflorum* (Kurz) Kurz.

Young twigs, leaves, pedicels, and sepals densely villous; connective with glands.

Open secondary forests, thickets in mountain regions; below 1000 m. S Guangxi, S Yunnan [Cambodia, Myanmar, Thailand, Vietnam].

The wood is reddish, hard, and fine-grained, and is used for making woodcuts. The bark is used as a medicine for diarrhea in domestic animals. The young leaves are used as a substitute for tea.

5. MESUA Linnaeus, Sp. Pl. 1: 515. 1753.

铁力木属 tie li mu shu

Li Xiwen (李锡文 Li Hsi-wen), Li Jie (李捷); Peter F. Stevens

Trees. Apical bud abortive; axillary buds with scales. Leaves opposite, petiolate, leathery, usually with inconspicuous, translucent glands; secondary veins many, slender; tertiary veins scalariform, not prominent. Flowers bisexual, homostylous, solitary, axillary [or in axillary thyrses]. Sepals 4[or 5], imbricate. Petals 4[or 5], imbricate. Stamens many, not obviously fascicled, in continuous ring; filaments free, slender; anthers erect, basifixed; fasciclodes absent. Ovary 2-loculed, with 2 erect ovules per locule; styles united, elongate; stigma peltate. Capsule subwoody, septifragal; septae persistent. Seeds 1–4, without appendage; embryo with broad fleshy cotyledons.

About five species: India and Sri Lanka to peninsular Malaysia, possibly Java, and China; one species (introduced) in China.

1. Mesua ferrea Linnaeus, Sp. Pl. 1: 515. 1753.

铁力木 tie li mu

Calophyllum nagassarium N. L. Burman; *Mesua nagassarium* (N. L. Burman) Kostermans.

Trees evergreen, 20–30 m tall. Trunk upright, buttressed at base; crown conic. Bark dark gray-brown, thin, fissured, lamellate, exuding aromatic white resin when wounded. Leaves always pendulous; petiole 5–8 mm; leaf blade reddish yellow when young, becoming dark green, abaxially usually glaucous, adaxially dark green and somewhat lucid, lanceolate or narrowly ovate-lanceolate to linear-lanceolate, (4–)6–10(–12) × (1–)2–4 cm, leathery; secondary veins numerous, obliquely parallel, slender and indistinct; tertiary veins and veinlets reticulate, ± visible under hand lens, base cuneate, apex acuminate or long acuminate to caudate. Pedicel 3–5 mm. Flowers bisexual, solitary, axillary, 5–8.5 cm in diam. Sepals (outer 2 slightly larger than inner 2) orbicular, convex, margin membranous and sometimes white ciliate. Petals white, obovate-cuneate, 3–3.5 cm. Stamens with filaments filiform, 1.5–2 cm; anthers golden-yellow, oblong. Ovary conic, ca. 1.5 cm; style 1–1.5 cm; stigma oblique. Fruit broadly ovoid or laterally depressed globose, ca. 3 × 2.5 cm, dry, longitudinally rugose, with stoutly pointed style at apex, usually dehiscent by 2 valves, with accrescent woody sepals and many persistent filaments at base; stalk robust, 0.8–1.2 cm. Seeds 1–4, ± irregular in shape; coat brown, fragile. Fl. Mar–May, fr. Aug–Oct. $2n = 32$.

Usually cultivated, escaped and locally naturalized in SW Yunnan (Gengma: Mengding); 500–600 m. Guangdong (Xinyi), Guangxi (Rongxian, Tengxian), S, SW, and W Yunnan [Bangladesh, India, ?Indonesia (Java), Malaysia, Sri Lanka, Thailand].

The seeds yield up to 79% oil, which is inedible but is used industrially. The wood is very hard. The tree is a handsome ornamental.

6. CALOPHYLLUM Linnaeus, Sp. Pl. 1: 513. 1753.

红厚壳属 hong hou ke shu

Li Xiwen (李锡文 Li Hsi-wen), Li Jie (李捷); Peter F. Stevens

Apoterium Blume; *Augia* Loureiro.

Trees or shrubs, with clear [or milky or yellow] latex. Apical buds rarely abortive; buds lacking (or with) scales. Leaves opposite, petiolate [or rarely sessile], leathery, usually glabrous; secondary veins many, almost perpendicular to midvein, ± prominent above; tertiary venation absent; translucent glandular canals present between veins. Inflorescence cymose or thyrsiform, terminal or axillary. Flowers bisexual [or rarely unisexual]. Sepals and petals together 4–12 (usually 4 + 4 in Chinese species), 2- or 3-whorled, not always differentiated, outer (sepals) decussate, inner (petals) imbricate. Stamens many, not obviously fascicled; filaments scarce-

ly united or all free, slender; anthers erect, basifixed; fasciclodes absent. Ovary 1-loculed, glabrous [tomentose], with a single erect ovule; style elongate, slender; stigma often peltate. Drupelike berry with thin exocarp (“skin”), thin fleshy mesocarp and thin endocarp sometimes adherent to seed. Seed 1, large, with thin [or thick] testa (“stone”); embryo with broad fleshy cotyledons.

About 187 species: tropical regions, mainly in Asia, but also in E Africa, tropical America, Madagascar, the Mascarenes, and Australasia; four species in China.

1a. Inflorescences axillary only or also terminal on short axillary shoots; pedicels glabrous.
2a. Leaf blade elliptic to obovate, apex rounded to emarginate, thickly leathery; petiole 10–25 mm; pedicels 15–40 mm; fruit globose, apex rounded ..... 1. *C. inophyllum*
2b. Leaf blade oblong to oblong-lanceolate, apex acute to caudate-acuminate, ± thinly leathery; petiole 6–10[–14] mm; pedicels 5–8 mm; fruit ovoid-cylindric, apex apiculate ..... 2. *C. membranaceum*
1b. Inflorescences terminal only or also axillary; pedicels puberulous or villous.
3a. Young shoots densely gray-puberulous, drying brown to blackish; leaf blade ovate to elliptic; fruit ovoid, 2.4–3.4 cm ..... 3. *C. polyanthum*
3b. Young shoots almost glabrous, drying brown to yellowish; leaf blade elliptic or oblong-elliptic to obovate; fruit ovoid to subglobose, 1.1–1.8 cm ..... 4. *C. blancoi*

1. Calophyllum inophyllum Linnaeus, Sp. Pl. 1: 513. 1753.

红厚壳 hong hou ke

Balsamaria inophyllum (Linnaeus) Loureiro.

Trees 5–12 m tall. Bark gray brown or dark brown, thick, with longitudinal fissures, always exuding pellucid resins when wounded. Young shoots striate. Petiole robust, 1–2.5 cm; leaf blade shiny on both surfaces, broadly elliptic or obovate-elliptic, rarely oblong, 8–15 × 4–8 cm, thickly leathery, midvein raised abaxially, impressed adaxially, base rounded or broadly cuneate, apex rounded or emarginate. Thyrses in upper axils, 7–11-flowered, rarely shorter than 10 cm. Pedicel 1.5–4 cm. Flowers scented, white, 2–2.5 cm in diam. Sepals 4; outer 2: suborbicular, ca. 8 mm; inner 2: obovate, petaloid. Petals 4, oblanceolate to obovate, ca. 1.1 cm, concave, apex subtruncate or rounded. Ovary subglobose; stigma peltate. Mature fruit yellow, globose, ca. 2.5 cm in diam. Fl. Mar–Jun, fr. Sep–Nov. $2n = 32$.

Wild or cultivated on open waste sites on hills, seashores, sandy wastelands; 100(–200) m. Hainan, Taiwan [Cambodia, India, Indonesia, Japan (Ryukyu Islands), Malaysia, Philippines, Sri Lanka, Thailand, Vietnam; Africa (including Madagascar), Australia, Indian Ocean islands (Mascarenes), Pacific islands (Polynesia)].

The seeds yield 20%–30% oil, the seed kernels 50%–60%. The seed oil is used for industry or as a medicine; it is also edible after refinement and detoxification. The timber is hard and heavy, and is used for making furniture. The bark contains ca. 15% tannin.

2. Calophyllum membranaceum Gardner & Champion, Hooker’s J. Bot. Kew Gard. Misc. 1: 309. 1849.

薄叶红厚壳 bao ye hong hou ke

Calophyllum spectabile Hooker & Arnott (1833), not Willdenow (1811).

Shrubs to small trees, 1–5 m tall. Young shoots tetragonous, narrowly winged. Petiole 6–10 mm; leaf blade lucid and opaque-brown on both surfaces when dry, oblong or oblong-lanceolate, 6–12 × 1.5–3.5 cm, thinly leathery, midvein raised on both surfaces, base cuneate, margin revolute, apex acute, acuminate, or caudate-acuminate. Cyme axillary and terminating short axillary shoots, (1–)3(–5)-flowered, 2.5–3 cm, puberulous. Pedicels 5–8 mm, glabrous. Flowers reddish white. Sepals 4; outer 2: suborbicular, ca. 4 mm; inner 2: obovate, ca. 8 mm. Petals 4, obovate, equal in size, ca. 8 mm. Ovary ovoid; stigma subulate. Mature fruit yellow, ovoid-oblong, 1.2–2 cm, apiculate. Fl. Mar–May, fr. Aug–Oct(–Dec).

Dense or sparse forests on hills; (200–)600–1000 m. S Guangdong, S Guangxi (coast), Hainan [Vietnam].

The roots and leaves are used as medicine for traumatic injuries or rheumatoid arthritis.

3. Calophyllum polyanthum Wallich ex Choisy, Descr. Guttif. Inde. 43. 1849.

滇南红厚壳 dian nan hong hou ke

Calophyllum smilesianum Craib; *C. smilesianum* var. *luteum* Craib; *C. thorelii* Pierre; *C. williamsianum* Craib.

Trees ca. 25 m tall. Young shoots gray puberulous, indistinctly tetragonous, old ones terete. Petiole 1–2 cm, adaxially broadly sulcate; leaf blade abaxially usually glaucous, oblong-elliptic or ovate-elliptic, rarely lanceolate, 5.5–9.5 × 2.5–4.3 cm, leathery, midvein raised on both surfaces, base cuneate and decurrent, margin somewhat revolute, apex acuminate but with an obtuse tip. Thyrse terminal, rarely axillary, always shorter than leaf blade; peduncle short or also nearly absent. Pedicel 4–10 mm, densely rusty-puberulous. Flowers white. Sepals ciliolate on margin, apex rounded; outer 2: oblong-ovate or broadly elliptic, rarely obovate, ca. 2.5 mm; inner 2: equal, elliptic-obovate, ca. 4.5 mm. Petals absent. Ovary ovoid, ca. 1.7 mm; stigma peltate. Infructescence usually with 1 or 2 fruit. Fruit globose, 2–2.5 cm, apiculate. Fl. Apr–May, fr. Sep–Oct. $2n = 22$.

Dense forests in valleys; 1100–1800 m. S Yunnan (Jinghong, Lancang) [Bangladesh, Bhutan, N India, Laos, Myanmar, Thailand, Vietnam].

4. Calophyllum blancoi Planchon & Triana, Ann. Sci. Nat., Bot., sér. 4, 15: 262. 1861.

兰屿红厚壳 lan yu hong hou ke

Calophyllum changii N. Robson.

Trees. Young shoots tetragonous, glabrous. Petiole 1–1.4

cm; leaf blade elliptic-obovate, 7.2–9 × 3.5–6 cm, leathery, base cuneate, apex rounded or very shortly acuminate. Panicles terminal and axillary, 5.5–8 cm, sparsely rusty villous. Pedicel 5–10 mm, rusty villous. Flower buds globose or oblong. Sepals 4; outer 2: oblong-elliptic, ca. 7.5 mm when in bud, leathery, rugose, rusty villous on margin. Petals 5, obovate when in bud. Ovary globose. Fruit ovoid to subglobose, 1.1–1.8 cm, apex acute to apiculate.

Taiwan (Lan Yu) [Indonesia (N Kalimantan), Malaysia (Sabah), Philippines].

7. MAMMEA Linnaeus, Sp. Pl. 1: 512. 1753.

格脉树属 ge mai shu shu

Li Xiwen (李锡文 Li Hsi-wen), Li Jie (李捷); Peter F. Stevens

Ochrocarpos Noronha ex Thouars.

Trees, cryptically dioecious. Apical bud not abortive; buds with scales. Leaves opposite, petiolate, entire, leathery; secondary veins many, nearly parallel, nearly perpendicular to midvein, tertiary venation densely and evenly reticulate, prominent, with translucent gland dots [or streaks] in areoles. Flowers axillary on older twigs, solitary [or fasciculate]. Calyx completely united in bud, splitting at anthesis into 2[or 3] sepals after. Petals [4 or 5 or]6[or 8], imbricate. Filaments slender, basally connate; anthers erect, basifixed. Ovary 2-loculed, each locule 2-ovuled [or incompletely 4- or 8-loculed, each locule 1-ovuled]; style very short; stigma 2[–4]-lobed. Berry with [thick or] thin exocarp, fleshy mesocarp and 1–4[–8] seeds with testa thin [to fibrous or woody]. Seeds large; embryo with broad fleshy cotyledons completely united externally or not.

About 80 species: mainly in tropical Asia and Madagascar, also in tropical Africa, Australasia, and Central America; one species (endemic) in China.

The plants appear to be androdioecious, but the apparently perfect flowers are in fact carpellate.

1. Mammea yunnanensis (H. L. Li) Kostermans, Djawatan Kehutanan Indonesia 15. 1956.

格脉树 ge mai shu

Ochrocarpos yunnanensis H. L. Li, J. Arnold Arbor. 25: 308. 1944.

Trees evergreen, ca. 25 m tall, 60–80 cm in diam. Crown compact, broadly conic. Bark opaquely brown, gray spotted, spots unequal in size. Twigs many, old ones gray-brown, with large and conspicuous leaf scars; young ones yellow-brown, angled. Petiole short, 5–8 mm, robust; leaf blade oblong, rectangular-lanceolate, or narrowly elliptic, 16–20 × 5–9 cm, thickly leathery, midvein robust, plane-convex; secondary veins numerous, inconspicuous; tertiary veins and veinlets conspicuously and evenly reticulate, base usually rounded, apex shortly acuminate, obtuse, or rounded. Pedicel 2–3.5 cm. Plant solitary, sometimes in pairs on defoliate branchlets, ca. 8 cm in diam. Sepals 2, becoming deflexed, persistent, equal, broadly ovate, concave, 8–10 mm. Petals 6, imbricate, white, equal, oblong, ca. 2 cm, concave. Stamen with filaments ca. 6 mm, united into 1 whorl at base, enveloping base of ovary. Ovary ovoid, bisulcate outside, ca. 4 mm; style robust, 2–3 mm; stigma glabrous, peltate, margin recurved. Fruit dark brown when mature, oblong, 5–6 cm, 3.5–4 cm in diam. at middle, apiculate; endocarp succulent. Seed 1, 2.5–3 cm; testa brownish, thin. Fl. Mar–Apr, fr. Sep–Oct.

● Dense, humid forests on low hills; ca. 600 m. S Yunnan (Jinghong, Lancang, Mengla).

This is an ornamental tree. The fruit pulp is sweet and edible.

8. GARCINIA Linnaeus, Sp. Pl. 1: 443. 1753.

藤黄属 teng huang shu

Li Xiwen (李锡文 Li Hsi-wen), Li Jie (李捷); Peter F. Stevens

Brindonia Thouars; *Cambogia* Linnaeus; *Discostigma* Hasskarl; *Hebradendron* Graham; *Mangostana* Gaertner; *Oxycarpus* Loureiro; *Rhinostigma* Miquel; *Xanthochymus* Roxburgh.

Trees or shrubs, usually with yellow latex. Terminal bud functional; buds usually lacking scales. Leaves opposite [or rarely whorled], very rarely stipulate, petiolate, entire, leathery to papery, usually glabrous; secondary veins usually prominent, numerous to few, oblique to perpendicular to midvein; tertiary veins reticulate, with adaxial brownish transvenous resin canals [or much branched] and abaxial linear [to punctiform or much branched] or intervenous translucent glands; petiole often with basal liguliform appendage. Plant functionally dioecious (sometimes apparently flowers bisexual or plant monoecious), flowers in terminal and/or axillary cymes (often thyrsiform), triads or fascicles, or paired or solitary. Sepals [2 or 3 or]4 or 5, decussate or imbricate (quincuncial), free [or very rarely completely connate in bud]. Petals [3 or]4 or 5[–8], fascicles each with many to few stamens with filaments almost free to completely united, or ± completely connate [or adnate to petals], with anthers 1, 2, 4 or many-celled, basifixed or variously united; fasciclodes (sterile stamen fascicles) 4 or 5, antisepalous and free or ± united or absent; pistillode present or absent. Female flowers: staminode fascicles as for staminate flowers but smaller or staminodes apparently free; fasciclodes free as in male flower but smaller or united in a ring at base of ovary or absent; stigmas free or ± united, peltate, 2–5-lobed or entire.

Berry smooth or sulcate [or verrucose or rarely secondarily dehiscent], with leathery to thin exocarp and 1–5 or sometimes more seeds embedded in endocarpic pulp. Seeds large; hypocotyl massive.

About 450 species: tropical and S Africa, Madagascar, tropical Asia, NE Australia, W Polynesia, tropical America; 20 species (13 endemic, one introduced) in China.

The present authors were unable to place *Garcinia qinzhouensis* Y. X. Liang & Z. M. Wu (J. S. China Agric. Univ. 17(3): 56. 1996), described from Guangxi (Qinzhou), because of insufficient information.

The fruit of most species in this genus are edible, among them, those of *Garcinia mangostana* are famous. The seeds yield more than 15% oil. The yellow resin of some species is used as a medicine. Species like *G. hanburyi* J. D. Hooker provide medicinal resin and yellow dyes of the best quality. The timber of many species is used for building houses or making furniture.

1a. Sepals and petals 5; stamen fascicles and fasciclodes 5, free.
2a. Flowers [female only known] in corymbiform cymes or fascicles in axils of fallen leaves; sepals 3 large, 2 small; berry (obliquely) globose or ovoid, apex apiculate ..... 1. *G. xanthochymus*
2b. Flowers solitary or fascicled in axils of fallen leaves, or male pseudospicate; sepals 2 large, 3 small; berry broadly cylindric, apex rounded ..... 2. *G. subelliptica*
1b. Sepals and petals 4; stamen fascicles and fasciclodes 4, free or ± united, or absent.
3a. Stigma in female flower and fruit (if persistent) smooth.
4a. Inflorescence of male flowers a thyrsoid cyme or, if flowers solitary, then terminal.
5a. Flowers 2–3 cm in diam.; sepals 2 large, 2 small; ovary 2-loculed; female flowers 1–5 ..... 3. *G. multiflora*
5b. Flowers 0.8–1 cm in diam.; sepals equal; ovary 4-loculed; female flowers in thyrsoid cyme ..... 4. *G. yunnanensis*
4b. Inflorescence of male flowers a simple cyme or flowers fascicled or, if solitary, then axillary.
6a. Stamen fascicles united in a ring or unlobed mass; ovary 1-loculed.
7a. Peduncle with 2 foliar bracts at apex; stigma irregularly lobed; stipules absent ..... 8. *G. bracteata*
7b. Peduncle without foliar bracts at apex; stigma entire; stipules present ..... 9. *G. paucinervis*
6b. Stamen fascicles 4 or forming a 4-lobed mass; ovary (where known) 1–10-loculed.
8a. Inflorescence terminal; flowers 1.2–1.5 cm in diam.; mature fruit 3–8 cm ..... 7. *G. mangostana*
8b. Inflorescence axillary; flowers 2–4 mm in diam. or, if larger (ca. 2.3 cm), then mature fruit 2–3 cm.
9a. Flowers in 6–8 or more-flowered cymes; stipules present ..... 11. *G. nujiangensis*
9b. Flowers solitary or paired; stipules absent.
10a. Flowers ca. 4 mm in diam.; mature fruit 1–1.5 cm; branchlets slender, pendulous ..... 19. *G. lancilimba*
10b. Flowers 2.2–2.4 cm in diam.; mature fruit 2–3 cm; branchlets robust ..... 20. *G. linii*
3b. Stigma in female flower and fruit (if persistent) papillose or tuberculate.
11a. Sepal pairs equal.
12a. Sepals and pedicel purple-red ..... 14. *G. erythrosepala*
12b. Sepals and pedicel greenish.
13a. Fruit oblate, both ends concave, 10–18 × 11–20 cm; fruiting pedicel 5–6 cm ..... 5. *G. pedunculata*
13b. Fruit globose or ovoid, less than 5 cm in diam.; fruiting pedicel shorter.
14a. Fruit ovoid, oblique, 4–5 cm in diam., 4–8-sulcate, usually apiculate; fruiting pedicel short ..... 12. *G. cowa*
14b. Fruit globose or ovoid, less than 3.5 cm in diam., not sulcate, not apiculate; fruiting pedicel short or subsessile.
15a. Fruit globose, 2–2.5 cm in diam.; stigma 4-lobed; fruiting pedicel nearly sessile ..... 18. *G. tetralata*
15b. Fruit ovoid or globose, 2–3.5 cm in diam.; stigma peltate, convex radiately 8–10-lobed; fruiting pedicel 3–7 mm ..... 13. *G. oblongifolia*
11b. Sepal pairs unequal.
16a. Fruit orange, 6–8 × 5–9 cm, 6–8(–11)-sulcate; stigma persistent, entire, papillate; petals of male flowers 3 large and equal, inner one smallest ..... 17. *G. esculenta*
16b. Fruit small, exsulcate.
17a. Secondary veins of leaf 30–45 pairs, tertiary veins inconspicuous; twigs reddish brown ..... 10. *G. kwangsiensis*
17b. Secondary veins of leaf less than 16 pairs, tertiary veins ± conspicuous; twigs greenish.
18a. Secondary veins of leaf obscure but ± visible, to 5 pairs; fruit fusiform or narrowly ellipsoid, 1.5–1.8 cm ..... 15. *G. oligantha*
18b. Secondary veins of leaf conspicuous, 7–13 pairs; fruit globose, 2–5 cm in diam.
19a. Leaf blade apically long acuminate, usually falcate; stigma radiately lobed, papillate; fruit globose, ca. 3 cm in diam.; pedicel not articulate ..... 16. *G. subfalcata*

19b. Leaf blade apically acute or acuminate, not falcate; stigma thick, subpapillate; fruit globose, 4–5 cm in diam.; pedicel distinctly articulate ..... 6. *G. xishuanbannaensis*

1. Garcinia xanthochymus J. D. Hooker ex T. Anderson in J. D. Hooker, Fl. Brit. India 1: 269. 1874.

大叶藤黄 da ye teng huang

Garcinia pictoria (Roxburgh) Engler (1925), not Buchanan-Hamilton (1826); *G. tinctoria* W. Wight (1909); *G. tinctoria* (Candolle) Dunn (1915); *Xanthochymus pictorius* Roxburgh; *X. tinctorius* Candolle.

Trees 8–10 m tall, 15–45 cm in diam. Bark gray-brown. Branches numerous, slender, decussate, horizontal but usually ± distally pendulous, twigs distinctly angled. Petiole robust, V-shaped and somewhat clasping at base, 1.5–2.5 cm, angled and transversely wrinkled when dry, those of terminal 1 or 2 pairs on branchlet usually rose-colored; leaf blade shiny, elliptic or oblong to oblong-lanceolate, (14–)20–34 × (4–)6–12 cm, thickly leathery, midvein robust, raised on both surfaces; veins dense, to 35–40 pairs, near margin arching and anastomosing; tertiary veins and veinlets conspicuous, base ± broadly cuneate, margin involute, apex acute to obtuse, rarely acuminate. Corymbose cyme (2–)5–10(–14)-flowered, arising from leafless axils; peduncle 6–12 mm. Pedicels 1.8–3 cm. Flowers 5-merous, only female observed. Sepals and petals 3 large and 2 small, apparently ciliate. Staminode fascicles 5, ca. 3 mm, complanate, united below, upper parts free, each fascicle with 2–5 staminodes; fasciclodes 5, square, ca. 1 mm, strongly rugose. Ovary globose, usually 5-loculed; style short, ca. 1 mm; stigma peltate, apex concave, (3–)5-cleft. Mature berry yellow, globose or ovoid, sometimes oblique, 3–5 cm in diam., smooth or sometimes with orbicular lenticels, apiculate, sepals and staminal bundles usually persistent. Seeds 1–4, oblong or ovoid; testa brown, smooth. Fl. Mar–May, fr. Aug–Nov. 2*n* = 72, 80, 96.

Dense humid forests of valleys or on hills; (100–)600–1000(–1400) m. Guangdong (cultivated), SW Guangxi, S, SW, and W Yunnan [Bangladesh, Bhutan, Cambodia, India, Japan (introduced and cultivated), Laos, Myanmar, Nepal, Thailand, Vietnam].

The fruit is edible but is rather sour. The seeds yield up to 17% oil.

Some scholars have reduced *Garcinia pictoria* Buchanan-Hamilton (Mem. Wern. Nat. Hist. Soc. 5: 346. 1826) to this species; however, *G. pictoria* Buchanan-Hamilton has 4-merous, solitary, sessile flowers, 4-cleft stigmas, and 4-angled fruit, so it is regarded as distinct.

2. Garcinia subelliptica Merrill, Philipp. J. Sci. 3: 361. 1909.

菲岛福木 fei dao fu mu

Trees to 2 m tall or more. Twigs rigid, robust, 4–6-angled. Petiole 0.6–1.5 cm, robust; leaf blade abaxially yellow-green, adaxially dark green and shiny, ovate, ovate-oblong, or elliptic, rarely orbicular or lanceolate, 7–14(–20) × 3–6(–7) cm, thickly leathery, midvein raised abaxially; secondary veins 12–18 pairs, slender, slightly arching, raised on both surfaces, joining at leaf margin, tertiary veins and veinlets conspicuous, base broadly cuneate or subrounded, margin involute, apex obtuse, rounded, or emarginate. Plant monoecious; flowers 5-merous, male and female flowers usually mixed together, clustered or solitary in leafless axil, sometimes female flowers in cluster but male ones arranged in a pseudospike ca. 1 cm. Male flowers: sepals suborbicular, leathery, densely ciliolate at margin, inner 2 large, outer 3 small; petals yellow, obovate, ca. 2 × as long as sepals or more; stamens 5 fascicle bundles, each with 6–10 stamens; stalk ca. 2 mm; anthers 2-celled; fasciclodes 5, glandlike, rugose; pistillode absent. Female flowers: pedicels usually long; staminode fascicles 5; fasciclodes 5, free, irregularly erose on upper half; ovary globose, 3–5-loculed; stigma peltate, 5-cleft, smooth. Mature berry yellow, broadly oblong, smooth; seeds 1–3(or 4).

Coastal broad-leaved forests. Taiwan (Gaoxiong, Huoshao Dao, cultivated in Taibei) [Indonesia (Java), Japan (Ryukyu Islands), Philippines, Sri Lanka].

This species is characteristically a coastal tree.

3. Garcinia multiflora Champion ex Bentham, Hooker's J. Bot. Kew Gard. Misc. 3: 310. 1851.

木竹子 mu zhu zi

Garcinia hainanensis Merrill.

Trees, rarely shrubs, (3–)5–15 m tall, 20–40 cm in diam. Bark gray, scabrid. Twigs gray, angled. Petiole 0.6–1.2 cm; leaf blade abaxially glaucous-green or brown when dry, ovate, oblong-ovate, or oblong-obovate, 7–16(–20) × 3–6 cm, thinly leathery, midvein raised abaxially, impressed adaxially; secondary veins 10–15 pairs, slender, joining near leaf margin; tertiary veins and veinlets inconspicuous adaxially, base cuneate or broadly cuneate, margin somewhat recurved, apex acute, acuminate, or obtuse. Plant monoecious. Male flowers sometimes solitary, sometimes in a thyrse 5–7 cm, 2–3 cm in diam.; pedicels 0.8–1.5 cm; sepals 2 large, 2 small; petals orange, obovate, 1–5 × as long as sepals; stamen fascicles stalk 2–3 mm, each fascicle with 50 anthers; anthers aggregated into a head, 2-celled, cells longitudinally dehiscent; pistillode columnar; stigma distinctly peltate, 4-lobed. Female flowers 1–5; staminode fascicles short, stalk ca. 1.5 mm, shorter than pistil; ovary oblong, wider in upper half, 2-loculed; stigma sessile, peltate, large, thick. Mature fruit yellow, ovoid to obovoid, 3–5 × 2.5–3 cm, smooth. Seeds 1 or 2, oblong, 2–2.5 cm. Fl. Jun–Aug, fr. Nov–Dec, flowers and fruit appear occasionally at same time.

Open or dense forests on mountain slopes, valley margins, secondary forests, thickets; (100–)400–1200(–1900) m. Fujian, Guangdong, Guangxi, S Guizhou, Hainan, SW Hunan, Jiangxi, Taiwan, Yunnan [N Vietnam].

This is a widely adaptable species growing in various habitats and at various elevations.

The seeds yield up to 50% oil (seed pulp up to 55% oil). The oil is used for manufacturing soap or as a lubricant for machines. The bark is used as an external medicine to reduce inflammation. The timber is hard, and is used for making furniture, boats, and woodcuts.

4. Garcinia yunnanensis H. H. Hu, Bull. Fan Mem. Inst. Biol., Bot. 10: 131. 1940.

云南藤黄 yun nan teng huang

Trees to 20 m tall, to 30 cm in diam. Branches robust, with small, hollow pith; twigs sometimes robust, lenticellate, gray-brown, irregularly striate, with short internodes. Petiole 1–2 cm; leaf blade oblanceolate, obovate, or oblong, (5–)9–16 × 2–5 cm, papery, midvein raised abaxially, impressed adaxially; secondary veins many, dense, 30–36 pairs, oblique, joining at leaf margin; tertiary veins and veinlets slender, conspicuous on both surfaces, base cuneate-decurrent, margin somewhat recurved, apex obtusely acuminate, apiculate, or rounded, sometimes strongly emarginate. Plant dioecious. Male flowers 0.8–1 cm in diam., in a terminal or axillary thyrse; thyrse 8–10 cm, pedunculate; peduncle conspicuously articulate, sometimes 2-foliate at base; pedicels robust, 3–5 mm, 2-bracteolate at base; bracteoles opposite, subulate; sepal ca. 2.5 mm; petals yellow, ca. as long as or slightly longer than sepal; stamens united into 4 bundles; bundle stalk robust, somewhat complanate, broader on lower part, ca. 3 mm, each with 60–70 anthers aggregated into a head, 2-celled, cells longitudinally dehiscent; pistillode semiglobose, slightly angular. Female flowers in a paniculiform thyrse; thyrse axillary, ca. 10 cm; staminode bundles 4, each with 15–20 antherodes, sometimes among them a few fertile, shorter than pistil; bundle stalk 1.5–2 mm; ovary turbinate, 4-loculed; stigma sessile, peltate, 4-lobed, 2.5–3 mm. Young fruit ellipsoid, smooth. Fl. Apr–May, fr. Jun–Aug.

● Mixed forests on mountain slopes or hills; 1300–1600 m. SW Yunnan.

The fruit is slightly sour. The yellowish timber is used for house construction.

This species is close to *Garcinia multiflora* Champion ex Bentham but easily distinguished from it by its oblanceolate leaves, smaller flowers, non-columnar pistillode, and 4-loculed ovary. A few stamens in the carpellate flower may be fertile. The mature fruit is unknown.

The specimens cited by Hu in the protologue of *Garcinia yunnanensis*, except for the type and one other (*C. W. Wang 73277*, male, and *C. W. Wang 73278*, female), all are *G. cowa* Roxburgh.

5. Garcinia pedunculata Roxburgh ex Buchanan-Hamilton, Edinburgh J. Sci. 7: 45. 1827.

大果藤黄 da guo teng huang

Trees ca. 20 m tall. Bark thick, corky; branchlets obtusely 4-angled or subterete, striate, lenticellate, glabrous. Petiole 2–2.5 cm; leaf blade oblong, obovate, or oblong-lanceolate, (12–)15–25(–28) × 7–12 cm, papery, midvein robust, raised abaxially, somewhat impressed adaxially; secondary veins regular, oblique, 9–14 pairs, near margin arching and joining together; tertiary veins nearly parallel, almost inconspicuous, base cuneate, margin conspicuously narrowly involute, apex usually rounded, rarely obtusely acuminate. Plant dioecious, flowers 4-merous. Male flowers 8–12 in an erect 8–15 cm paniculiform cyme; peduncle 3–6 cm; pedicels robust, 3–7 cm; sepals broadly ovate or suborbicular, thick, fleshy, margin membranous; petals yellow, oblong-lanceolate, 7–8 mm; stamen fascicles connate in capitate ring ca. 3 mm high, anthers sessile, or a few near pistillode with short filaments, anthers 2-celled, cells longitudinally dehiscent; pistillode columnar-cuneate, slightly angular; stigma peltate, inconspicuously tuberculate. Female flowers usually in pairs or solitary at apex of branchlet; pedicels robust, slightly tetragonous, with 2 suborbicular bracts at base; staminodes basally united, surrounding ovary, 80–100, upper parts free; ovary subglobose, 8–10-loculed; stigma radiate, 8–10-lobed, papillate. Fruit yellow, large, oblate, concave on both ends when mature, 10–18 × 11–20 cm, smooth; fruiting pedicel 5–6 cm. Seeds 8–10, reniform. Fl. Aug–Dec, fr. Dec–Jan.

Humid dense forests on hills; 200–400(–1500) m. SE Xizang (Mêdog), W Yunnan (Ruili, Yingjiang) [N Bangladesh (sometimes cultivated), NE India (Assam)].

The fruit is edible.

This species is characterized by its long, robust peduncle and pedicel, large fruit, and by the plant exuding barely any yellow resin wherever cut. The Chinese plant (*G. D. Tao 17879*, *Expedition for Drugs 6862*) has 90–100 staminodes in the female flower. It is somewhat different from the descriptions of Anderson (in Hooker, Fl. Brit. India 1: 264. 1874) and Pierre (Fl. Forest. Cochinch. 1: xxiv, t. 79, M. 1883). We think it may be a local variant.

6. Garcinia xishuanbannaensis Y. H. Li, Res. Bull. Trop. Pl. 15: 16. 1980 [*"xipshuanbannaensis"*].

版纳藤黄 ban na teng huang

Trees 6–15 m tall. Branches brown, striate, with hollow pith; branchlets initially green, subterete, striate, glabrous. Petiole 1.2–2.2 cm; leaf blade abaxially greenish, elliptic, elliptic-lanceolate, or ovate-lanceolate, 13–18 × 4–8 cm, papery, midvein raised on both surfaces; secondary veins 8–12 pairs, near margin arching and anastomosing; tertiary veins and veinlets many, inconspicuous, base cuneate and slightly decurrent, margin slightly involute, apex acuminate or acute. Plant monoecious, flowers arranged in a lax paniculiform cyme; cyme to 8 cm, usually terminal, rarely axillary, sometimes with a 2-flowered ca. 2.5 cm long cymule at base. Pedicel 0.8–1.2 cm, like peduncle distinctly articulate. Flowers orange-yellow, ca. 1 cm in diam. when open; sepals: outer 2 shorter, triangular-ovate, inner 2 longer, suborbicular; petals nearly equal, fleshy, broadly ovate, longer than sepals. Male flowers: stamens many, not fascicled; filaments united in basal cup enveloping ovary, robust, ca. as long as or longer than anthers; anthers oblate, 2-celled, cells longitudinally dehiscent; pistillode not inflated, stigma depressed, 2–3 mm high, smooth. Female flowers: ovary 10–12-loculed; stigma thick, subpapillate. Infructescence 5–7 cm, usually with 1 or 2 fruit. Mature fruit yellow, globose, 4–5 cm in diam., smooth. Seeds 2–4, nearly ovoid, 2–2.5 cm, smooth. Fl. Jan–Feb, fr. Apr–May.

● Dense valley forests; ca. 600 m. S Yunnan (Mengla).

This species is similar in habit to *Garcinia gummi-gutta* (Linnaeus) N. Robson (*G. cambogia* Desrousseaux) but differs in having many stamens, a pistillode with a subentire, smooth stigma, and a smooth fruit.

7. Garcinia mangostana Linnaeus, Sp. Pl. 1: 443. 1753.

莽吉柿 mang ji shi

Mangostana garcinia Gaertner.

Trees small, 12–20 m tall. Branches many, dense, decussate; twigs distinctly angled. Petiole robust, ca. 2 cm, densely and transversely wrinkled when dry; leaf blade shiny, elliptic or

elliptic-oblong, 14–25 × 5–10 cm, thickly leathery, midvein raised on both surfaces; secondary veins dense, to 40–50 pairs, joining just within leaf margin, base broadly cuneate or subrounded, margin involute, apex shortly acuminate. Plant dioecious. Male flowers rare, 2–9, clustered at apex of branchlet; pedicels short; stamen fascicles 4, anthers 2-celled, cells longitudinally dehiscent; pistillode conic. Female flowers solitary or paired at apex of branchlet, slightly larger than male ones, 4.5–5 cm in diam.; pedicels ca. 1.2 cm; ovary 5–8-loculed; style nearly absent; stigma 5- or 6-lobed. Mature fruit purple-red, sometimes yellow-brown spotted, globose, 5–8 cm in diam., smooth. Seeds 4 or 5 or more, pulp white, juicy, fleshy. Fl. Sep–Oct, fr. Nov–Dec. 2*n* = 96.

Cultivated. Fujian, Guangdong, Hainan, Taiwan, Yunnan [native to Indonesia (Maluku); widely cultivated in tropical regions of Africa and Asia].

This is a well-known fruit tree (mangosteen).

8. Garcinia bracteata C. Y. Wu ex Y. H. Li, Acta Phytotax. Sin. 19: 490. 1981.

大苞藤黄 da bao teng huang

Trees ca. 8 m tall. Branchlets greenish, robust, striate, glabrous. Petiole robust, 1–1.5 cm; leaf blade abaxially greenish, ovate, ovate-elliptic, or oblong, 8–14(–18) × 4–8 cm, leathery, midvein raised abaxially, impressed adaxially; secondary veins conspicuous, dense, 20–30 pairs, near margin anastomosing; tertiary veins few and inconspicuous, base broadly cuneate or subrounded, margin cartilaginous, involute, apex acuminate or shortly acuminate, rarely obtuse. Plant dioecious, flowers in 2–7-flowered umbels; umbels usually axillary but male ones occasionally terminal; peduncles (1–)2–3 cm, with a distal pair of foliar bracts; foliar bracts ovate, large or small, leathery; pedicels 0.6–1.3 cm, 4-bracteolate at base; bracteoles broadly ovate or ovate, ca. 1.5 mm; sepals and petals gradually deflexed after anthesis. Male flowers with staminodes; fertile stamens ca. 40; filaments fleshy, connate into a cup and enveloping pistillode; anthers free, 4-celled, cells longitudinally dehiscent. Female flowers: staminodes ca. 20; filaments membranous, connate into a disk, enveloping ovary base; ovary cylindric but dilated at middle, 1-loculed; stigma peltate, smooth, irregularly lobed. Infructescence usually 1-fruited. Fruit ovoid, usually oblique at apex, 2.2–4 cm, to 3 cm in diam. when mature, ± smooth, finely striate, stipitate, wilted tepals persistent. Seed 1. Fl. Apr–May, fr. Nov–Dec.

● Mixed forests on limestone hills; 400–1300(–1800) m. S Guangxi, S and SE Yunnan.

9. Garcinia paucinervis Chun & F. C. How, Acta Phytotax. Sin. 5: 12. 1956.

金丝李 jin si li

Trees 3–15(–25) m tall. Bark gray-black, white spotted. Young branchlets dark purple, depressed tetragonous, longitudinally sulcate when dry. Stipules 2, ca. 1 mm; petiole 0.8–1.5 cm; leaf blade purple-red when young, abaxially greenish or glaucous when dry, adaxially dark green, elliptic, elliptic-oblong, or ovate-oblong, 8–14 × 2.5–6.5 cm, membranous when young, becoming subleathery, midvein raised abaxially; secondary veins 5–8 pairs, raised on both surfaces, curved and connected at leaf margin; tertiary veins sinuous, parallel, joined by veinlets, slightly raised on both surfaces, base broadly cuneate, rarely rounded, margin cartilaginous, involute, apex acute or shortly acuminate, with obtuse or rounded acumen. Plant monoecious. Male flowers 4–10, in terminal and axillary short pedunculate cymes; pedicels robust, slightly tetragonous, 3–5 mm, 2-bracteolate at base; sepals 4, nearly equal, suborbicular, ca. 3 mm; petals ovate, ca. 5 mm, margin membranous and subtransparent, apex obtuse; stamen fascicles connate forming a 4-lobed ring of 300–400 stamens; free part of filaments very short; anthers narrowly elliptic, 2-celled, cells longitudinally dehiscent; pistillode subtetragonous; stigma peltate, convex. Female flowers usually solitary and axillary, slightly larger than male ones; staminodes of fascicles 4; fascicle stalks complanate, lamellate, shorter than ovary, each fascicle with 6–8 rudimentary anthers; ovary globose, ca. 2.5 mm, not angular, 1-loculed; stigma peltate, convex, smooth, entire. Mature fruit ellipsoid or ovoid-ellipsoid, 3.2–3.5 × 2.2–2.5 cm, smooth; sepals persistent. Seeds 2. Fl. Jun–Jul, fr. Nov–Dec.

● Rather dry sparse or dense forests on limestone mountains; 300–800 m. SW and W Guangxi, SE Yunnan (Malipo).

This is a valuable timber species but is vulnerable to extirpation because of its restricted and scattered distribution, overcutting, and poor seed germination and natural reproduction. The wood is hard, heavy, and extremely water-tolerant. It is used for shipbuilding, construction, quality furniture, and in the military industry.

The species is similar to *Garcinia stipulata* T. Anderson but differs in having fewer secondary leaf veins, smaller male flowers, shorter pedicels, and a usually 1-seeded fruit.

10. Garcinia kwangsiensis Merrill ex F. N. Wei, Acta Phytotax. Sin. 19: 355. 1981.

广西藤黄 guang xi teng huang

Trees small, ca. 6 m tall. Twigs reddish brown, slightly angular when dry. Petiole 1–1.5 cm; leaf blade brown when dry, elliptic to elliptic-lanceolate, 8–14 × 2–4 cm, thinly leathery, midvein raised abaxially, impressed adaxially; secondary veins 30–45 pairs, slender, joined at leaf margin, tertiary veins inconspicuous, base cuneate and decurrent, margin involute, apex acuminate or acute. Plant dioecious. Male flowers (1 or)2–4 clustered in leaf axil, ca. 5 mm in diam.; pedicels 1–2 mm; petals subequal, ovate or obovate, ca. 3 mm; stamen fascicles 4, shorter than pistillode; fascicle stalk short, adnate to petal base and spreading as petal when flower is open, each fascicle with 60–70 anthers, 2-celled, cells longitudinally dehiscent; pistillode with dilated stigma; stigma fungiform, somewhat papillate on top. Female flowers and fruit unknown. Fl. Jun–Jul.

● Mixed forests on mountain slopes; ca. 600 m. S Guangxi.

11. Garcinia nujiangensis C. Y. Wu & Y. H. Li in Y. H. Li, Acta Phytotax. Sin. 19: 494. 1981.

怒江藤黄 nu jiang teng huang

Trees 10–15 m tall, 20–30 cm in diam. Bark gray-brown. Twigs gray-brown or dark brown, longitudinally sulcate, not lenticellate. Stipules 2; petiole 6–12 mm; leaf blade lanceolate, ovate-lanceolate, or oblong-lanceolate, 10–13(–18) × 3–5 cm,

papery, midvein raised on both surfaces; secondary veins 12–15 pairs, conspicuously raised abaxially, curved, joined at leaf margin; tertiary veins subparallel, not reticulate, base cuneate, margin narrowly cartilaginous, slightly involute, apex acuminate. Plant dioecious. Male flowers in 6–8- or more flowered, cymes; cymes 2 or 3, axillary, very short; peduncles ca. 2 mm, robust; pedicels 1–2 mm; sepals 4, suborbicular, subequal, membranous on margin; outer 2: thicker, fleshy; inner 2: thinner; petals yellowish, obovate, subequal, slightly smaller than sepals; stamen fascicles 4, filaments in each completely united, forming annular mass around pistillode, each fascicle with 50–60 anthers, 2-celled, cells longitudinally dehiscent; pistillode obovoid; stigma peltate, irregularly lobed on margin. Female flowers di- or trichotomous cymes, axillary; peduncle very short, 3–4 mm, with persistent basal bracts; pedicels 1.5–2 cm, sulcate; filaments of staminodes united into 1 whorl and enveloping pistil; anthers 20–25; ovary 6–8 mm, 1-loculed, dilated at middle; stigma peltate, 4-lobed, not papillate. Mature fruit yellowish, globose, ellipsoid or ovoid, 2.5–3.5 × 1.5–2(–2.5) cm, smooth, 1- or 2-seeded; stigma sometimes oblique. Seeds 1 or 2. Fl. Dec–Feb, fr. Aug–Sep.

● Dense forests on mountain slopes and valleys; (800–)1100–1700 m. SE Xizang (Mêdog), NW and W Yunnan (Gongshan, Longchuan, Yingjiang).

This species is similar to *Garcinia stipulata* T. Anderson but the latter differs in having fewer, indistinct, incurved reticulate, secondary, and tertiary leaf veins, male flowers in 4–6-flowered cymes, and female flowers solitary or geminate.

12. Garcinia cowa Roxburgh, Fl. Ind. 2: 622. 1832.

云树 yun shu

Garcinia roxburghii Wight; *G. wallichii* Choisy; *Oxycarpus gangetica* Buchanan-Hamilton.

Trees 8–12 m tall, 15–20 cm in diam. Bark dark brown. Branches many, borne toward top of trunk, horizontal but usually distally pendulous, slender; twigs dark brown, striate. Petiole 0.8–1.5(–2) cm; leaf blade lanceolate or oblong-lanceolate, 6–14 × 2–5 cm, papery, midvein raised abaxially, impressed adaxially; secondary veins 12–18 pairs, near margin joining together; tertiary veins conspicuous on both surfaces, base cuneate, sometimes slightly decurrent, margin cartilaginous, involute, apex acuminate or long acuminate, rarely acute or obtuse. Plant dioecious. Male flowers 3–8, terminal or axillary, in an umbel; umbel shortly pedunculate or rarely sessile, 4-bracteate at base; bracts subulate; pedicels 4–8 mm, slender; petals yellow, ca. 2 × as long as sepals; stamen fascicles 4, connate, forming a central capitate 4-sided mass of 40–50 anthers; filaments ± absent, at most short, anthers 4-celled, cells longitudinally dehiscent; pistillode absent. Female flowers usually solitary, axillary, larger than male; pedicels robust, 2–3 mm; staminodes united in lower half and enveloping ovary base; filaments long or short, usually shorter than ovary; ovary ovoid, 4–8-loculed; stigma radiately 4–8-lobed, papillate, 6–7 mm high. Mature fruit opaquely yellow-brown, ovoid-globose, oblique, 5–6 × 4–5 cm in diam., 4–8-sulcate, usually apiculate. Seeds 2–4, narrow, fusiform, slightly curved, ca. 2.5 cm, rough. Fl. May, fr. Jul–Oct. 2*n* = 52.

Humid mixed forests on hills or in valleys; (100–)400–900(–1300) m. S and W Yunnan [E Bangladesh, Cambodia, India, Laos, Malaysia, Vietnam].

The mature fruit is edible. The seeds yield ca. 9% oil.

13. Garcinia oblongifolia Champion ex Bentham, Hooker's J. Bot. Kew Gard. Misc. 3: 311. 1851.

岭南山竹子 ling nan shan zhu zi

Trees or shrubs, 5–15 m tall, to 30 cm in diam. Bark dark gray. Branchlets usually with interrupted rings. Petiole ca. 1 cm; leaf blade oblong, obovate-oblong to oblanceolate, 5–10 × 2–3.5 cm, subleathery, midvein slightly raised adaxially, secondary veins 10–18 pairs, tertiary veins reticulate, base cuneate, margin reflexed, apex acute or obtuse. Plant dioecious; flowers solitary or in an umbel-like cyme; pedicels 3–7 mm. Male flowers: sepals suborbicular, equal, 3–5 mm; petals orange or yellowish, obovate-oblong, 7–9 mm; stamen fascicles not evident; anthers aggregated into a head, 2-celled, cells longitudinally dehiscent; pistillode absent. Female flowers: sepals and petals similar to those of males; staminode fascicles free, shorter than pistil; ovary ovoid, 8–10-loculed; style absent; stigma peltate, convex, radiately 8–10-lobed, papillate. Fruit ovoid or globose, 2–4 × 2–3.5 cm, subtended by persistent sepals at base and crowned by convex stigma. Seeds 1. Fl. Apr–May, fr. Oct–Dec.

● Dense or sparse forests on plains, hills, or in valleys; 200–400 (–1200) m. Guangdong, Guangxi, Hainan.

The fruit is edible. The seeds yield ca. 60% oil (seed pulp up to 70% oil). The oil is used as a lubricant and for manufacturing soap. The timber is used for making furniture and woodcuts. The bark contains 3%–8% tannin.

14. Garcinia erythrosepala Y. H. Li, Res, Bull. Trop. Pl. 15: 14. 1980.

红萼藤黄 hong e teng huang

Garcinia rubrisepala Y. H. Li, nom. illeg. superfl.

Trees ca. 4 m tall. Branches dark purple, finely striate with hollow pith; twigs purple-red, subterete, slender, finely striate. Petiole 5–8 mm; leaf blade abaxially gray-green, elliptic, oblanceolate, or elliptic-lanceolate, 4–7(–9) × 2–3.5 cm, membranous, both surfaces glabrous, midvein slender, raised abaxially, slightly impressed adaxially; secondary veins inconspicuous, 5–8 pairs, irregularly arranged; tertiary veins few, lax, inconspicuous, base cuneate or broadly cuneate, margin involute, apex acuminate or acute. Plant dioecious. Male flowers large, ca. 1 cm in diam., usually 2–5 in cluster, rarely solitary, usually inserted at apex of current year's branchlet, rarely axillary; pedicels purple-red, 4–6 mm, slender; sepals purple-red, elliptic, nearly equal; stamen fascicles connate, forming a central mass of ca. 40 stamens; filaments ca. 1/2 as long as anthers; anthers 4-celled, cells longitudinally dehiscent; pistillode absent. Female flowers and fruit unknown. Fl. Dec–Jan.

● Humid mixed forests; 300–400 m. W Yunnan (Yingjiang).

15. Garcinia oligantha Merrill, Philipp. J. Sci. 22: 254. 1923.

单花山竹子 dan hua shan zhu zi

Shrubs 1–3 m tall. Twigs slender, conspicuously striate. Petiole 4–10 mm; leaf blade gray-green on both surfaces when dry, oblong-elliptic to lanceolate, rarely ovate, 5–8 × 1.5–3.5 cm, papery; secondary veins slender, obscure but ± visible, to 5 pairs, base abruptly or broadly cuneate, margin cartilaginous, involute, apex caudate-acuminate. Plant dioecious. Male flowers unknown. Female flowers solitary and axillary, purplish; pedicels absent or nearly so; sepals: outer 2 subovate, 2–3 mm; inner 2 elliptic, 4–5 mm; petals equal, suborbicular, 4–5 mm, apex obtuse; staminodes 12, usually shorter than pistil; filaments united forming a shallow cup, enveloping ovary base; ovary ovoid-oblong, 4-loculed; style very short; stigma peltate, papillate. Fruit fusiform or narrowly ellipsoid, 1.5–1.8 cm, to 1 cm in diam., smooth, with persistent sepals and remnants of staminodes at base. Seeds 2. Fl. Jun–Jul, fr. Oct–Dec.

Dense forests; 200–1200 m. Guangdong, Hainan [N Vietnam].

16. Garcinia subfalcata Y. H. Li & F. N. Wei, Bull. Bot. Res., Harbin 1(4): 139. 1981.

尖叶藤黄 jian ye teng huang

Trees ca. 7 m tall, ca. 15 cm in diam. Bark dark brown. Branches striate, twigs with broken rings. Petiole 0.4–1.2 cm; leaf blade narrowly elliptic or elliptic-lanceolate, 3.5–8 × 0.8–2.5 cm, papery, midvein raised abaxially, flat adaxially; secondary veins 7–13 pairs, near margin arching and anastomosing, tertiary veins sparse, inconspicuous, base attenuate, slightly decurrent, apex long acuminate, usually falcate, rarely obtuse. Plant dioecious. Male flowers unknown. Female flowers solitary or in pairs, usually at apex of branchlet, sometimes axillary; pedicels ca. 2 mm; sepals 4; outer 2: suborbicular, short; inner 2: narrowly elliptic, thicker; petals 4, nearly equal, oblong, slightly longer than sepals, ca. 5 mm; staminodes 4; anthers 4-celled; cells longitudinally dehiscent; connectives thickened; filaments robust, ca. 1 mm; ovary ovoid, sulcate outside; style nearly absent; stigma radiately lobed, papillate. Fruit globose, ca. 3 cm in diam., smooth, nearly sessile. Fl. Apr–May, fr. Sep–Oct.

● Valleys, mixed forests near water; 500–600 m. S Guangxi.

This species is similar to *Garcinia fusca* Pierre, from N Vietnam, but the latter differs in having more numerous secondary leaf veins (in 28–32 pairs), staminodes united into 4 bundles, and the stigma with papillae arranged in pairs.

17. Garcinia esculenta Y. H. Li, Acta Phytotax. Sin. 19: 495. 1981.

山木瓜 shan mu gua

Trees 15–20 m tall. Twigs gray-brown, finely striate, sometimes lenticellate. Petiole 1–1.5 cm; leaf blade abaxially brownish, elliptic, ovate-elliptic, or oblong-elliptic, 12–18(–20) × 4–7 cm, papery, midvein raised on both surfaces; secondary veins regular, 8–10 pairs; tertiary veins rather dense, inconspicuous, base cuneate, slightly decurrent, margin cartilaginous, involute, apex acute or obtusely acuminate. Plants dioecious. Male flowers 2 or 3 in cymule; cymules ca. 2 cm, 1–3 together at apex of young branchlet; peduncles robust, distinctly articulate, 0.8–1 cm; pedicels robust, shorter than 5 mm; sepals 2 large, 2 small, obovate; petals yellowish, 3 large and equal, inner 1 smallest, elliptic or oblong; anthers sessile, complanate, varying in form, 2-celled, cells longitudinally dehiscent; pistillode absent. Female flowers usually solitary at apex of branchlet, larger than males, ca. 1 cm in diam.; filaments of staminodes united and enveloping ovary base; ovary globose, 8–12-loculed, 1–1.2 cm; stigma entire, papillate. Fruit orange-green or orange, ovoid or oblate, 6–8 × 5–9 cm, 6–8(–11)-sulcate outside. Mature seeds 2–4, subrhomboid or obliquely ovoid, 2.5–3 cm. Fl. Aug–Oct, fr. Jun–Aug.

● Mixed forests in valleys; (900–)1300–1700 m. W Yunnan.

This species is related to *Garcinia gummi-gutta* (Linnaeus) N. Robson (*G. cambogia* Desrousseaux) but the latter differs in having male flowers with a pistillode, stamens 10–20 or more, with filaments, rudimentary stigmas 3 or 4, very short or absent, and female flowers with stigmatic rays 8–10-tuberculate, free nearly to the base.

The fruit is edible, juicy, and slightly sour.

18. Garcinia tetralata C. Y. Wu ex Y. H. Li, Res. Bull. Trop. Pl. 15: 14. 1980.

双籽藤黄 shuang zi teng huang

Trees 5–8(–15) m tall, ca. 15 cm in diam. Branches usually pendulous; twigs greenish, angular. Petiole 0.8–1.2 cm; leaf blade elliptic or narrowly elliptic, 8–13(–15) × 3–6 cm, papery, midvein raised abaxially, impressed adaxially; secondary veins 13–16 pairs, raised on both surfaces, slender, oblique and connected at leaf margin; tertiary veins reticulate, base cuneate, slightly decurrent, margin cartilaginous, involute, apex acute or shortly acuminate. Flowers unknown. Fruit solitary, axillary in foliar or leafless axils, globose, 2–2.5 cm in diam., smooth, nearly sessile; stigma persistent, 4-lobed, each lobe 4- or 5-papillate. Seeds 2. Fr. May.

● Mixed forests on hills or in basins; 800–1000 m. S and SW Yunnan (Cangyuan, Gengma, Jinghong).

This species is related to *Garcinia anomala* Planchon & Triana but the latter differs in having 2 bracts under each flower, the stigma broad, discoid, with the margin revolute, slightly lobed, and the fruit 1- or 2-seeded.

19. Garcinia lancilimba C. Y. Wu ex Y. H. Li, Acta Phytotax. Sin. 19: 493. 1981.

长裂藤黄 chang lie teng huang

Trees small, 3–6 m tall. Twigs pendulous, 4-angled, gray-yellow when young. Petiole 2–4(–6) mm; leaf blade abaxially greenish, ovate-lanceolate, oblong-lanceolate, or lanceolate, 6–10 × (1.5–)2–3.5 cm, papery, midvein raised on both surfaces; secondary veins many, 20–30 pairs, obliquely ascending, joined at leaf margin; tertiary veins obscure, base cuneate or attenuate, apex obtusely long acuminate or caudate. Plant monoecious; flowers usually solitary, sometimes in pairs, axillary, yellowish, ca. 4 mm in diam. when open; pedicels ca. 6 mm; sepals and petals nearly equal. Male flowers: stamens 4-fascicled, fascicle

stalk short, anthers 2-celled, cells longitudinally dehiscent. Female flowers: ovary subglobose, 2-loculed; stigma peltate, concave, smooth, entire. Mature fruit globose; 1–1.5 cm in diam., smooth. Seeds 1 or 2. Fl. Apr–May, fr. Feb–Apr.

● Humid dense forests on shady slopes or hills and in valley forests; 600–1000(–1800) m. S Yunnan.

This species is related to *Garcinia bonii* Pitard, from N Vietnam, but the latter differs in having the pedicel only 2–4 mm, the stigma lobed and tuberculate, and the ovary 4-loculed.

20. Garcinia linii C. E. Chang, Bull. Taiwan Prov. Pingtung Inst. Agric. 6: 1. 1964.

兰屿福木 lan yu fu mu

Trees small, 10–15 m tall. Twigs yellowish brown, robust; young ones tetragonous. Petiole 5–12 mm; leaf blade adaxially dark green, ovate to elliptic, 7.5–12 × 4–6.3 cm, subleathery, secondary veins slightly raised abaxially, base broadly cuneate, margin involute, apex obtuse to acute or rounded. Plant dioecious; flowers solitary, axillary; pedicels 6–10 mm. Male flowers: sepals 4, 2 large, 2 small; outer 2: orbicular or elliptic-spatulate; petals obovate, 9–10 mm; stamens 4-fascicled, each fascicle with robust stalk and many anthers; anther cells oblong, longitudinally dehiscent; pistillode cylindric, slender. Female flowers unknown. Fruit ellipsoid or globose, 2–3 × ca. 2 cm, smooth.

● Mountain slopes. E Taiwan.

This species is related to *Garcinia dives* Pierre, from the Philippines, but differs in having broader leaves and solitary, axillary flowers.