
鼠李属 shu li shu

Shafts or small to medium-sized trees, deciduous or rarely evergreen, often spinose. Branches opposite or alternate, unarmed or terminating in a woody spine; winter buds naked (R. subg. Frangula) or with scales (R. subg. Rhamnus). Leaves opposite or alternate, rarely fasciculate on short shoots; stipules mainly subulate, caducous, rarely persistent; leaf blade always undivided, pinnately veined, margin serrate or rarely entire. Flowers mostly yellowish green, small, bisexual or unisexual, rarely polygamous, solitary or few in axillary cymes, cymose racemes, or cymose panicles. Calyx tube campanulate to cup-shaped; sepals 4 or 5, ovate-triangular, adaxially ± distinctly keeled. Petals 4 or 5, rarely absent, shorter than sepals, cucullate to hooded, often enfolding stamens, base shortly clawed, apex often 2-fid. Stamens 4 or 5, surrounded by and equaling petals or shorter; anthers dorsifixed. Disk thin, adnate and lining calyx tube. Ovary superior, globose, free, 2–4-loculed; styles ± deeply 2–4-cleft. Fruit a 2–4-stoned, berrylike drupe, obovoid-globose or globose; stones indehiscent or ventrally dehiscing. Seeds obovoid or oblong-obovoid, unfurrowed or abaxially or laterally with a ± long, narrow to gaping, often distinctly margined furrow; endosperm fleshy.

About 150 species: temperate to tropical regions, mainly in E Asia and North America, a few species in Europe and Africa; 57 species (37 endemic) in China.

The fruit of most species contain yellow dye; the seeds contain rich protein and oils and are used for making lubricating oil, printing ink, and soap. The roots and leaves of a few species are used medicinally.


The following species were described from China but could not be treated here because no material was seen by the authors:


Rhamnus daliensis G. S. Fan & L. L. Deng (Sida 17: 680. 1997), described from Yunnan.


Rhamnus mongolicola Y. Z. Zhao & L. Q. Zhao (Novon 16: 158. 2006), described from Nei Mongol.


1a. Winter buds naked, without scales, ferruginous or brown tomentulose; flowers always bisexual, 5-merous; seeds abaxially not furrowed ............................................................................................................................... 1. R. subg. Frangula

1b. Winter buds with few scales; flowers unisexual and plants dioecious, rarely polygamous, 4-merous, rarely

5-merous; seeds with distinct abaxial or lateral furrow ...................................................................................... 2. R. subg. Rhamnus


裸芽亚属 luo ya ya shu

Frangula Miller, Gard. Dict. Abr., ed. 4. 1754.

Trees or shrubs, unarmed. Young branches hairy, glabrescent. Winter buds naked, without scales. Leaves alternate, entire or dentate. Flowers bisexual, 5-merous. Calyx tube cup-shaped; sepals 5, adaxially ± distinctly keeled. Petals broadly obovate to obcordate, base shortly clawed, apex ± deeply emarginate. Stamens equaling petals or slightly longer. Disk thin, lining calyx tube. Ovary superior, globose, 2- or 3-loculed; style simple, with 2- or 3-lobed stigma. Berrylike drupe with 3 loosely adhering, ventrally dehiscing stones. Seeds lenticular, with cartilaginous beak, never furrowed abaxially.

About 50 species: mainly in North America, a few species in N Africa, E Asia, and Europe; five species (three endemic) in China.

1a. Leaves entire, broadly elliptic or oblong; flowers usually 2- to few fascicled at leaf axils, rarely solitary, peduncles

1b. Leaves dentate or subentire; flowers few to 10 in cymes or subumbels on peduncles, often hairy; style lobed, rarely simple.

2a. Leaves subentire or inconspicuously denticulate, abaxially incanous or yellow tomentose; style deeply 3-lobed to base .......................... 1. R. frangula

2b. Leaves dentate, abaxially pubescent to glabrous; style 2- or 3-semilobed or simple.

3a. Leaf blade obovate-elliptic or obovate, abaxially pubescent or tomentulose or at least densely pubescent on veins, petiole densely pubescent; style and stigma undivided .................................................. 2. R. crenata

3b. Leaf blade elliptic or oblong, abaxially glabrous or hirsute on veins, petiole glabrous or puberulent; style undivided, stigma 2- or 3-lobed.

4a. Leaf blade 6–11 × 2–4 cm, lateral veins 7–10 pairs, petiole 1.2–2.2 cm; peduncles 1.5–4 cm; stigma 2- or 3-lobed ........................................ 3. R. longipes

4b. Leaf blade 3–5 × 1–1.8 cm, lateral veins 5 or 6 pairs, petiole 0.5–1.2 cm; peduncles 0.2–1 cm; stigma 2-lobed ........................................................ 4. R. rhododendriphylla


欧鼠李 ou shu li

Frangula alnus Miller.

Shrubs or small trees, rarely to 7 m tall. Young branches greenish, sparsely puberulent; older branches brownish, with distinct transversely oriented lenticels. Petiole 1–1.9 cm, puberulent, ± glabrescent; leaf blade abaxially pale green, adaxially green, broadly elliptic or oblong, rarely obovate, 4–11 × 2.5–6 cm, papery, abaxially sparsely puberulent on midvein, adaxially glabrous, lateral veins 6–10 pairs, prominent on both surfaces, base broadly cuneate or subrounded, margin entire, apex sharply acuminate or rounded, rarely acute. Flowers solitary or 2–4-fascicled at leaf axils, glabrous. Pedicels 5–10 mm. Sepals keeled and slightly rostrate adaxially. Petals orbicular, apex slightly emarginate. Disk thin, lining calyx tube. Ovary glabrous, 2- or 3-loculed; style undivided; stigma slightly 2- or 3-lobed. Drupe red, turning purple-black at maturity, globose or obovate-globose, 5.6–6 mm, 6–7 mm in diam.; fruiting pedicel 3–6 mm, glabrous or sparsely puberulent, with 3 one-seeded stones. Fl. May–Aug, fr. Aug–Oct.

Mountain forests or thickets; below 2000 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, SW Zhejiang [Cambodia, Japan, Korea, Laos, Thailand, Vietnam].

The leaves of Rhamnus crenata, especially prior to fruiting, are quite similar to and often confused with those of Rhamnella franguloides, but the latter species differs in having stem and branches without tomentulose terminal buds, stipules persistent, peduncles glabrous, ovary 2-loculed, and style 2-fid.

The roots are poisonous. The roots and bark are often used as an insecticide. The roots and fruit contain yellow dye.

1a. Leaf blade abaxially pubescent or at least veins densely pubescent ............ 2a. var. crenata

1b. Leaf blade abaxially gray-white tomentose ........................................ 2b. var. discolor

2a. Rhamnus crenata var. crenata

长叶冻绿(原变种) chang ye dong lü (yuan bian zhong)

Celastrus esquirolianus H. Léveillé; C. koytchensis H. Léveillé; Frangula crenata (Siebold & Zuccarini) Miquel; F. crenata var. acuminatifolia (Hayata) Hatusima; Rhamnus acuminatifolia Hayata; R. cambodiensis Pierre ex Pitard; R. crenata var. cambodiensis (Pierre ex Pitard) Tardieu; R. crenata var. oreigenes (Hance) Tardieu; R. oreigenes Hance; R. pseudo-frangula H. Léveillé.

Leaf blade abaxially pubescent or at least veins densely pubescent.

Mountain forests or thickets; below 2000 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan [Cambodia, Japan, Korea, Laos, Thailand, Vietnam].


两色冻绿 liang se dong lü

Leaf blade elliptic or oblong, rarely ovate-elliptic, 6–12 × 2.5–4.5 cm, abaxially gray-white tomentose, lateral veins 8–12

2. Rhamnus crenata var. acuminatifolia (Hayata) Hatusima; R. crenata var. cambodiensis (Pierre ex Pitard) Tardieu; R. crenata var. oreigenes (Hance) Tardieu; R. oreigenes Hance; R. pseudo-frangula H. Léveillé.

Leaf blade abaxially pubescent or at least veins densely pubescent.

Mountain forests or thickets; below 2000 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan [Cambodia, Japan, Korea, Laos, Thailand, Vietnam].
pairs, margin crenate or obscurely serrate, apex acuminate or long acuminate.

- Mountain forests; 900–1200 m. SW Zhejiang (Longquan, Qingyuan).


长柄鼠李 chang bing shu li

*Frangula longipes* (Merrill & Chun) Grubov.

Shrubs or small trees, erect, to 8 m tall. Young branches and branchlets purple-brown, glabrous or sparsely puberulent. Stipules linear-lanceolate, 4–5 mm, caducous; petiole 1.2–2.2 cm, hairy, glabrescent; leaf blade shiny, yellow-green when dry, elliptic or oblong-lanceolate, 6–11 × 2–4 cm, subleathery, both surfaces glabrous, rarely sparsely hirsute on veins, midvein stout, prominent abaxially, impressed axially, lateral veins 7–10 pairs, base cuneate or subrounded, margin revolute, remotely obtusely crenulate, apex acuminate. Flowers 2 to few, crowded on 1.5–4 cm peduncles in axillary cymes, glabrous or sparsely pubescent. Pedicels 3–4 mm, puberulent. Sepals triangular, ca. equal to calyx tube, apex slightly acute. Petals obcordate, ca. 1.5 mm, apex rounded. Stamens longer than petals. Ovary globose, 2- or 3-loculed; style ca. 1.2 mm, 2- or 3-semilobed. Drupe red-purple or black at maturity, globose or obovoid-globose, 6–8 mm in diam., with 2 or 3 one-seeded stones; fruiting pedicel 6–8 mm, sparsely pubescent. Seeds 2(or 3), ca. 4 mm. Fl. Jun–Aug, fr. Aug–Nov.

- Dense mountain forests; 500–1700 m. Guangdong, Guangxi, Hainan, SE Yunnan.

This species differs from *Rhamnus crenata* in having subleathery leaves, longer petioles, 1.5–4 cm peduncles, and a larger drupe.

The seeds are used for making soap.


杜鹃叶鼠李 du juan ye shu li

Shrubs to 4 m tall. Branchlets purple-brown, longitudinally striate, sparsely puberulent, glabrous; old branches black-brown, irregularly fissured, glabrous. Stipules linear-lanceolate, caducous; petiole 5–12 mm, stout, slightly puberulent; leaf blade oblong or oblong-elliptic, 3–5 × 1–1.8 cm, subleathery, both surfaces glabrous, or abaxially barbellate at vein axils, lateral veins 5 or 6 pairs, midvein and lateral veins prominent abaxially, ± impressed axially, base broadly cuneate or subrounded, margin often revolute, shallowly serrulate, apex obtuse, shortly acute, or acuminate. Flowers yellow-green, campanulate, usually 3–5, rarely to 8, in axillary cymes; peduncles short, 2–5(–10) mm, sparsely yellow-brown puberulent. Pedicels 3–4 mm; bracts linear-lanceolate. Sepals triangular, ca. 1.5 mm, puberulent, inconspicuously 3-veined. Petals elliptic-spatulate, ca. 1 mm, apex emarginate. Ovary subglobose, glabrous; styles shortly 2-lobed. Drupe (immature) subglobose, ca. 3 mm in diam., base with shallow dish-shaped calyx tube, with 2 one-seeded stones; fruiting pedicel 4–5 mm, puberulent. Fl. Jun., fr. unknown.

- Summits of limestone mountains. W Guangdong (Yangchun), Guangxi (Xiangxian).

Material of this species was not seen by the second author.


毛叶鼠李  mao ye shu li

*Frangula henryi* (C. K. Schneider) Grubov.

Trees 3–10 m tall. Young branches puberulent, glabrescent; older branchlets sparsely pubescent, apex with ferruginous or brownish tomentose naked buds. Petiole 1.2–3.5 cm, puberulent; leaf blade adaxially dark green, shiny, narrowly elliptic or oblong-elliptic, 7–19 × 2.5–8 cm, papery, abaxially ± densely grayish to yellowish tomentose, adaxially glabrous or sparsely puberulent on midvein, lateral veins 9–13 pairs, prominent abaxially, slightly impressed adaxially, base cuneate, margin slightly revolute, subentire, or inconspicuously remotely denticulate, apex acuminate. Flowers few, in axillary cymes or cymose racemes, nearly sessile or with peduncles 2–12 mm, sparsely puberulent. Pedicels 3–6 mm, hairy. Sepals triangular, adaxially pubescent on midvein. Petals obcordate, apex deeply emarginate. Stamens longer than petals. Ovary globose, glabrous, rarely hairy, 3-loculed; style undivided, stigma 3-lobed. Drupe purple-black at maturity, obovoid-globose, ca. 5 mm, 5–7 mm in diam., apex emarginate, with 3 one-seeded stones; fruiting pedicel 7–11 mm, sparsely puberulent. Seeds brown, shiny, obovoid, ca. 3 mm. Fl. May–Aug, fr. Jul–Oct.

- Mixed forests, thickets; 1200–2800 m. Guangxi, Sichuan, Xizang, Yunnan.

This species is easy to distinguish by its large, abaxially gray-white or yellowish tomentose leaves, with usually entire margin and 9–13 pairs of lateral veins.

2. *Rhamnus* subg. *Rhamnus*

鼠李亚属  shu li ya shu

Shrubs or trees, usually spinescent, rarely unarmed, with terminal scaly buds and axillary buds. Leaves alternate, subopposite to opposite, or fascicled at short shoots. Flowers unisexual and plants dioecious, rarely polygamous, usually 4(or 5)-merous. Sepals adaxially with conspicuous or inconspicuous midvein. Petals spatulate, base shortly clawed, apex entire or 2-fid. Male flower with developed stamens; female flowers with rudimentary stamens. Disk thin, lining calyx tube. Ovary superior, globose, not immersed in disk, 2–4-loculed; style 2–4-cleft. Berrylike drupe subglobose or obovoid-globose, base with persistent calyx tube, with 2–4 one-seeded stones. Seeds with a ± long, narrow to gaping, often distinctly margined abaxial or lateral furrow.

About 150 species: mainly in E Asia, a few species in tropical Africa, Europe, and North America; 52 species (34 endemic) in China.


1a. Plants only with long shoots, without short shoots, unarmed; leaves alternate; flowers 4-or 5-merous; petals present or absent.

2a. Flowers polygamous, 4-merous; petals absent; ovary 4-loculed, rarely 3-loculed; flowers usually fascicled in axils of leaves; inflorescences never with leaflike bracts (*R.* sect. *Tetrarhamnus*).

3a. Leaf blade 2–4.5 cm, apex obtuse or rounded, margin entire, both surfaces yellow tomentulose, velutinous, lateral veins 5 or 6(–8) pairs ................................................................. 8. *R.* ninglangensis

3b. Leaf blade 5–20 cm, apex acuminate or long acuminate, margin serrate, abaxially puberulent on veins or barbate in axils of leaves, lateral veins 9–17 pairs.

4a. Deciduous trees or shrubs; young branches puberulent; leaves papery, abaxially sparsely pubescent on veins ............................................................ 7. *R.* sargentiana

4b. Evergreen trees or shrubs; young branches glabrous; leaves leathery, abaxially glabrous or barbellate in axils of leaves ............................................. 6. *R.* hemsleyana

2b. Flowers unisexual and plants dioecious, rarely polygamous, 5-merous; petals usually present; ovary 3-loculed; flowers solitary or few fascicled in axillary cymose racemes or cymose panicles; inflorescences with small, leaflike bracts (*R.* sect. *Pseudoceanothus*).

5a. Flowers few, solitary or 2–6-fascicled in axils of leaves.

6a. Leaf blade to 4 cm, lateral veins 2–4 pairs.

7a. Leaves papery, petioles 2–7 mm; flowers solitary, unisexual and plants dioecious; petals present; pedicels 1–2 mm ................................................................. 9. *R.* heterophylla

7b. Leaves thinly leathery, petioles shorter than 2 mm; flowers polygamous; petals absent; pedicels 5–6(–10) mm ............................................................... 10. *R.* procumbens

6b. Leaf blade usually longer than 4 cm, lateral veins 4–6 pairs.

8a. Leaves leathery, lateral and reticulate veins adaxially conspicuously impressed; seeds broad at both ends, abaxially narrowly furrowed at middle part ............................................. 11. *R.* bodinieri

8b. Leaves papery to thickly papery, lateral veins prominent on both surfaces; seeds with base broader than middle, abaxially longitudinally furrowed in upper part .................... 12. *R.* xizangensis

5b. Flowers numerous, in cymose racemes or cymose panicles.

9a. Flowers polygamous or unisexual; inflorescences often with many persistent leaflike bracts; seeds shortly furrowed for 1/2 length.


10b. Drupe 5–6 mm in diam., sepals caducous, base with persistent calyx tube only ........ 14. *R.* hainanensis
9b. Flowers unisexual and plants dioecious; inflorescences without leaflike bracts or with few caducous leaflike bractlets; seeds abaxially longitudinally furrowed for 3/5 length.

11a. Leaves abaxially hairy or only hairy on veins and petioles; petals present.

12a. Leaves thickly leathery, abaxially densely tomentulose; seeds with equally broad, longitudinal furrow for 4/5 length .......................................................... 15. R. kwangsiensis

12b. Leaves papery or thickly papery, abaxially puberulent or only on veins; seeds abaxially furrowed for 3/4 length or for nearly entire length.

13a. Leaf blade narrowly elliptic or oblanceolate-elliptic; petiole shorter than 1 cm; flowers often in short cymose racemes; pedicel and calyx puberulent; seeds abaxially with furrow extending over nearly entire length ........................................... 16. R. esquirolii

13b. Leaf blade elliptic to broadly elliptic; petiole 1.2–2 cm; flowers usually in large panicles; pedicel and calyx glabrous; seeds abaxially furrowed for 3/4 length ....... 17. R. nigricans

11b. Leaves and petals glabrous or leaves abaxially clustered hairy in vein axes; petals present or absent.

14a. Leaf blade usually broadly elliptic or broadly oblong; young branches and inflorescence rachises puberulent; inflorescences to 12 cm; petals present .......................................................... 18. R. napalensis

14b. Leaf blade elliptic or oblong-elliptic; young branches and inflorescence rachises glabrous; inflorescences shorter than 5 cm; petals absent.

15a. Leaf blade papery or thinly leathery, apex caudate-acuminate, abaxially pale purple when dry, petiole to 18 mm ................................................................. 19. R. subapetala

15b. Leaf blade leathery, apex shortly acuminate or acuminate, abaxially not drying purple, petiole to 7 mm .................................................................................... 20. R. coriophylla

1b. Plants with both long and short shoots, apices of short shoots often terminating in a woody spine; leaves opposite or alternate on long shoots, clustered or fascicled on short shoots; flowers unisexual and plants dioecious, 4-merous; petals present (R. sect. Rhamnus).

16a. Leaves opposite or subopposite, rarely alternate.

17a. Leaves not longer than 3 cm, narrow, usually less than 1 cm wide, lateral veins in 2 or 3, rarely 4, pairs.

18a. Leaves subleathery, both surfaces glabrous, petioles 5–20 mm, glabrous; seeds abaxially shortly furrowed for 1/2 length, obcordate ............................................. 21. R. maximovicziana

18b. Leaves papery or thickly papery, both surfaces and petioles sparsely puberulent; seeds abaxially or laterally furrowed for ca. 4/5 of length.

19a. Leaf blade oblong or elliptic, petiole 1–3 mm.

20a. Branchlets dark brown; bark scabrous, longitudinally fissured; leaf blade usually elliptic, abaxially black when dry, clustered hairy at vein axes or glabrous, reticulate veins inconspicuous; seeds abaxially deeply furrowed for 4/5 length ....... 22. R. gilgiana

20b. Branchlets silvery-gray or gray-brown, slightly glabrous; leaf blade usually oblong or ovate-elliptic, abaxially golden-yellow or yellowish when dry, reticulate veins conspicuous, both surfaces puberulent, rarely subglabrous; seeds abaxially shallowly furrowed for nearly entire length ....................................................... 23. R. flavescens

19b. Leaf blade ovate, rhombic-obovate, or rhombic-elliptic, petiole 4–15 mm.

21a. Leaf blade papery, ovate or ovate-lanceolate, abaxially yellow when dry, veins or vein axes white puberulent; seeds abaxially with broad furrow ........................................... 24. R. hungeana

21b. Leaf blade thickly papery, rhombic-ovobate or rhombic-elliptic, abaxially gray-white when dry, areole of vein axes puberulent; seeds abaxially with narrow furrow ........ 25. R. parvifolia

17b. Leaves longer than 3 cm, ca. 1.5 cm wide, lateral veins (3 or)4–7 pairs.

22a. Leaf blade ovate-cordate or ovate-orbicular, base cordate or rounded, margin densely sharply serrate; fruiting pedicel 1.3–2.3 cm; seeds abaxially furrowed for 4/5 length .............................................. 26. R. arguta

22b. Leaf blade not ovate-cordate, base cuneate or subrounded, margin obtusely serrate or crenate-serrate; fruiting pedicel not longer than 1.2 cm.

23a. Petioles usually longer than 1–1.5 cm; seeds with short abaxial furrow restricted to 1/3 of length.

24a. Branchlets hairy or glabrous; leaves abaxially often turning yellow or golden-yellow when dry, veins and vein axes golden-yellow pubescent, petioles 5–15 mm ............. 37. R. utilis

24b. Branchlets glabrous; leaves abaxially greenish when dry, glabrous, or abaxially midvein sparsely white hairy, petioles 1.5–3 cm.

25a. Leaf blade glabrous, margin densely crenate, elliptic or broadly elliptic, lateral veins 3 or 4 pairs ................................................................................. 33. R. cathartica

25b. Leaf blade and petiole subglabrous, margin sparsely obtusely serrate, or
crenate, orbicular, narrowly to broadly elliptic, or oblong, lateral veins 4–6 pairs.

26a. Leaf blade suborbicular, ovate-rhombic, or elliptic; axillary buds small; seeds easily separated from endocarp, exposing a nearly circular, distinctly margined furrow ....................................................... 34. R. diamantiaca

26b. Leaf blade narrowly to broadly elliptic or oblong; axillary buds 4–8 mm; seeds exposing a short, never circular furrow.

27a. Branches terminating in a spine or large bud; leaf blade narrowly elliptic or narrowly oblong ....................................................... 35. R. ussuriensis

27b. Branches terminating in a large bud, rarely spinescent; leaf blade broadly elliptic or ovate-oblong .................................................. 36. R. davurica

23b. Petioles shorter than 1 cm; seeds abaxially or laterally longitudinally furrowed for more than 1/2 length (except in R. dumetorum).

27a. Branches terminating in a spine or large bud; leaf blade narrowly elliptic or narrowly oblong ............................................................ 35. R. ussuriensis

27b. Branches terminating in a large bud, rarely spinescent; leaf blade broadly elliptic or ovate-oblong .................................................. 36. R. davurica

28a. Young branches, annual branches, both surfaces of leaves, or veins and petioles puberulent; flowers and pedicels sparsely puberulent; leaf blade obovate-orbicular, ovate-orbicular, or suborbicular ............................................................. 27. R. globosa

28b. Young branches, annual branches, and petioles glabrous or nearly so; flowers and pedicels glabrous; leaf blade not obovate-orbicular or suborbicular.

29a. Leaves adaxially glabrous, abaxially vein axils clustered hairy.

30a. Leaf blade narrowly elliptic or oblanceolate-elliptic, 1–2.2 cm wide, apex caudate-acuminate or long acuminate, lateral veins (4 or)5 or 6(or 7) pairs, petiole 2–6 mm ................................................ 28. R. iteinophylla

30b. Leaf blade obovate or obovate-elliptic, 2–5 cm wide, apex shortly acuminate or acute, lateral veins 3–5 pairs, petiole 7–20 mm ............... 29. R. leptophylla

29b. Leaves adaxially sparsely pubescent at least on veins, abaxially areoles of veins clustered hairy or rarely glabrous.

31a. Branchlets pale gray or gray-brown; bark scabrous, not nitid; seeds black, abaxially at base with short furrow ............................................. 30. R. dumetorum

31b. Branchlets red-brown, purple-red, or dark brown; bark laevigate, shiny; seeds red-brown or brown, abaxially with longitudinal furrow extending over 2/3 of length.

32a. Leaf blade rhombic-obovate or rhombic-elliptic, both surfaces glabrous or abaxially areoles of vein axils sparsely puberulent, lateral veins 2–4 pairs ....................................................... 25. R. parvifolia

32b. Leaf blade elliptic, obovate-elliptic, or obovate-lanceolate, adaxially sparsely hirsutulous, abaxially glabrous or areoles of vein axils sparsely pilose, lateral veins 4 or 5 pairs.

33a. Leaf blade usually elliptic or obovate-lanceolate, abaxially yellowish or gray when dry, reticulate veins inconspicuous, vein axils often with areole, papery to thickly papery; young branches glabrous ....................................................... 31. R. tangutica

33b. Leaf blade usually obovate-lanceolate, abaxially often reddish when dry, reticulate veins conspicuous, vein axils without areoles, rarely with areoles, thinly papery or papery; young branches slightly pubescent or glabrous ......................... 32. R. virgata

16b. Leaves and branches alternate, rarely subopposite.

34a. Leaves usually shorter than 1.2 cm, narrow; seeds abaxially or laterally with over 2/3 entire length longitudinal furrow.

35a. Leaf blade linear, oblanceolate, or narrowly oblanceolate, both surfaces glabrous; seeds abaxially with narrow furrow for 4/5 entire length.

36a. Leaf blade narrowly lanceolate to narrowly obovate, 3–5 cm, apex acute or obtuse, petiole 3–15 mm; branches terminating in a spine; erect shrubs or small trees ........... 38. R. erythroxylum

36b. Leaf blade oblanceolate or narrowly oblanceolate, 1–2.5 cm, apex obtuse or emarginate, petiole 2–3 mm; branches terminating in a small bud, not spinescent; procumbent small shrubs ......................................................... 39. R. tsekweiensis

35b. Leaf blade elliptic, obovate-elliptic, or spatulate, both surfaces puberulent, or abaxially puberulent on veins, rarely glabrous; seeds with broad or narrow furrow.

37a. Leaves at both surfaces, or at least major veins, yellowish verrucose-pilosulose;
flowers and pedicels sparsely pilose .............................................................. 40. *R. aurea*

37b. Leaves glabrous or puberulent or abaxially vein axils clustered hairy; flowers and pedicels glabrous.

38a. Leaves leathery or nearly so; seeds abaxially or laterally with deep furrow.

39a. Branchlets spreading, often virgate, purple-red or dark purple, smooth, shiny; leaf blade subleathery, oblanceolate or obovate-elliptic, apex obtuse or emarginate, glabrous or subglabrous; seeds abaxially with broad furrow .... 41. *R. leptacantha*

39b. Branchlets not virgate, gray-brown or dark brown, scabrous, with longitudinally arranged slits, not shiny; leaf blade leathery, spatulate or rhombic-elliptic, apex truncate or acute, adaxially glabrous or midvein sparsely puberulent, abaxially with ± distinct bearded domatia in axils of primary and lateral veins; seeds abaxially with narrower furrow ............... 42. *R. rosthornii*

38b. Leaves papery; seeds abaxially with broad, shallow furrow.

40a. Leaf blade elliptic or oblong, margin entire or abaxially inconspicuously serrulate above middle, glabrous, lateral veins 3 or 4 pairs; flowers 10–20-clustered at leaf axils ......................................................... 43. *R. songorica*

40b. Leaf blade obovate or obovate-elliptic, rarely elliptic, both surfaces sparsely puberulent, margin sparsely serrulate, lateral veins 2 or 3 pairs; flowers 2–5-clustered at leaf axils or terminal on short shoots.

41a. Leaves 5–10 mm, obovate; profusely shortly branched, pulvinate compact shrubs, 10–25 cm tall ......................................................... 44. *R. minuta*

41b. Leaves ca. 2.2 mm, elliptic or ovate-elliptic; prostrate, small shrubs, to 200 cm tall ......................................................... 45. *R. prostrata*

34b. Leaves usually more than 3 × 2 cm; seeds abaxially or laterally with long or short furrow.

42a. Young branches, leaves, petioles, flowers, and pedicels glabrous.

43a. Leaf blade membranous, oblong-ovate or ovate-oricbicular, margin crenate to serrate; terminal bud not spinescent ................................................................. 46. *R. nakaharae*

43b. Leaf blade papery, elliptic, obovate-elliptic, or broadly elliptic, margin hooklike crenate; terminal bud spinescent.

44a. Leaf blade apically shortly acuminate, petiole 1–1.5 cm; seeds abaxially with margined furrow for 5/7 of length ......................................................... 49. *R. hupehensis*

44b. Leaf blade apically caudate-acuminate or long acuminate, petiole not longer than 1 cm; seeds with margined furrow for 1/2 of length.

45a. Petales 2–4 mm; seeds abaxially with margined furrow for 2/5–1/2 of length, apex without fissured line ......................................................... 47. *R. wilsonii*

45b. Petales 5–10 mm; seeds abaxially with margined furrow for 1/4–1/3 of length, apex with fissured line ......................................................... 48. *R. lamprophylla*

42b. Young branches, both surfaces of leaves, leaf veins, or vein axis hairy; flowers and pedicels puberulent or glabrous.

46a. Calyx and pedicel sparsely puberulent; annual branches, both leaf surfaces, or at least leaf veins pubescent.

47a. Leaf blade thickly papery, obovate-elliptic or obovate-oricbicular, adaxially veins conspicuously impressed, distinctly rugose when dry; seeds abaxially with margined furrow nearly as long as entire length, above furrow without fissured line .......... 50. *R. rugulosa*

47b. Leaf blade papery or thinly papery, veins adaxially not rugose when dry; seeds abaxially with fissured furrow for 1/4–2/5 of length, above furrow with fissured line.

48a. Leaf blade broadly elliptic, obovate-elliptic, or ovate-oricbicular, apex shortly acuminate or acuminate, petiole 7–25 mm; fruiting pedicel 7–14 mm .......... 51. *R. koraiensis*

48b. Leaf blade oblanceolate-oblong or elliptic, apex long acuminate or caudate-acuminate, petiole 3–8 mm; fruiting pedicel 4–7 mm ........................................ 52. *R. grandiflora*

46b. Calyx and pedicel glabrous; leaves subglabrous or ± hairy.

49a. Leaf blade membranous, ovate or elliptic-ovelate, glabrous, or midvein adaxially and veins abaxially sparsely pilose ......................................................... 53. *R. liukiuensis*

49b. Leaf blade papery; seeds abaxially with, long or short furrow.

50a. Seeds abaxially with margined furrow for nearly entire length; leaves abaxially sparsely clustered hairy in vein axils.

51a. Leaf blade oblong or ovate-oblong ......................................................... 54. *R. wumingensis*

51b. Leaf blade ovate-elliptic, obovate-elliptic, or obovate ................................ 50. *R. rugulosa*
50b. Seeds abaxially with margined furrow for 1/3–1/2 of length; leaves adaxially glabrous, or pubescent on veins.

52a. Seeds abaxially with margined furrow for nearly 1/2 of length, above furrow without fissured line.

53a. Leaf blade usually broadly elliptic, abaxially pubescent especially on veins, petiole 2–4 mm ........................................ 47. *R. wilsonii*

53b. Leaf blade oblong or ovate-oblong, abaxially often turning red when dry, glabrous, petiole 4–9 mm ............................. 55. *R. brachypoda*

52b. Seeds abaxially with basal rim shortly furrowed for less than 1/3 of length, above furrow with fissured line.

54a. Branchlets gray-brown, not shiny, terminating in an obtuse spine; leaves often reflexed when dry, adaxially glabrous, abaxially veins or veins axes pilose, petioles 3–6 mm, glabrous or puberulent .... 56. *R. fulvotincta*

54b. Branchlets yellow-brown, shiny, terminating in a sharp spine; leaves not reflexed when dry, adaxially white adpressed hairy or pilose, abaxially veins or veins axes pilose or glabrous, petioles 6–25 mm, sparsely or densely pubescent .................. 57. *R. schneideri*


亮叶鼠李 liang ye shu li

Trees, rarely shrubs, evergreen, unarmed, to 8 m tall. Young branches grayish to brownish, glabrous. Stipules linear, 8–12 mm, caduceous; petiole short, 3–8(–15) mm, stout, adaxially canaliculate, often sparsely puberulent; leaf blade shiny, abaxially greenish or yellowish, adaxially green or dark green, narrowly elliptic, rarely narrowly oblong or oblanceolate, (4.5–)6–12 × 2.5–6 cm, leathery, abaxially often with bearded vein axils, adaxially glabrous, lateral veins 9–12(–15) pairs, ± prominent abaxially, slightly impressed adaxially, base cuneate or rounded, margin serrate-crenate, often slightly revolute, apex acuminate to long acuminate, rarely obtuse-rounded. Flowers polygamous, 4-merous, glabrous, 2–8 clustered at leaf axils. Sepals triangular, 3-veined, adaxially medially keeled. Petals absent. Stamens shorter than sepals. Ovary in bisexual flowers globose, 3- or 4-loculed; style 3- or 4-cleft to half. Female flowers with rudimentary stamens; ovary globose, abortive, without ovules; stigma short, undivided; disk slightly thick, dish-shaped, margin free. Drupes green, red at maturity, then turning black, globose, 4–5 mm in diam., with 3 or 4 stones. Seeds purple-black, obconical, ca. 2 mm, abaxially with furrow for entire length. Fl. Apr–May, fr. Jun–Oct.

- Subalpine mixed forests, forests in valleys, forest margins; 700–2300 m. W Guizhou, SW Shaanxi, Sichuan, NE Yunnan.

1a. Leaf blade 6–12 cm, abaxially glabrous or barbate in vein axils, petiole 3–8 mm ......................... 6a. var. *hemsleyana*

1b. Leaf blade 4.5–13.5 cm, abaxially glabrous, petiole 8–15 mm .................. 6b. var. *yunnanensis*

**6a. Rhamnus hemsleyana** var. *hemsleyana*

亮叶鼠李(原变种) liang ye shu li (yuan bian zhong)

*Maeoa blinii* H. Léveillé; *Rhamnus blinii* (H. Léveillé) Rehder.

Petiole 3–8 mm; leaf blade 6–12 cm, abaxially glabrous or barbate in vein axils.

- Forests in valleys, forest margins; 700–2300 m. W Guizhou, SW Shaanxi, Sichuan, NE Yunnan.


高山亮叶鼠李 gao shan liang ye shu li

*Rhamnus hemsleyana* var. *paucinervata* G. S. Fan & L. L. Deng.

Young branches glabrous. Petiole 8–15 mm, glabrous; leaf blade elliptic or oblong, 4.5–13.5 cm, both surfaces glabrous, lateral veins 8–14 pairs, margin inconspicuously sparsely serrate, apex acuminate to caudate-acuminate, rarely rounded. Fl. Apr–May, fr. Jun–Nov.

- Subalpine mixed forests, forest margins; 2200–2800 m. SW Sichuan, NW Yunnan.


多脉鼠李 duo mai shu li


Shrubs deciduous, dioecious, to 6 m tall, unarmed. Branches alternate; young branches puberulent; older branches glabrous. Stipules subulate; petiole 5–10 mm; leaf blade lanceolate-elliptic, 6–12 × 2–4.5 cm, papery, abaxially sparsely pubescent on veins and slightly barbate vein axils, adaxially glabrous, lateral veins 12–15(–18) pairs, prominent abaxially, slightly impressed adaxially, base cuneate, often slightly asymmetrical, margin finely serrate, slightly revolute, apex acute. Flowers 4-merous, few-clustered in leaf axils. Pedicels to 5 mm, slender. Calyx tube shallowly cup-shaped; lobes triangular, 1–1.5 mm, puberulent. Petals absent. Stamens shorter than sepals. Ovary 3- or 4-loculed. Drupe dark brown, blackish at maturity, globose, ca. 4 mm in diam., with 3 or 4 stones, with persistent calyx tube at base; fruiting pedicel 4–6 mm. Seeds not seen. Fl. Jul–Aug, fr. May–Jun of following year.

- Woods on mountain slopes; 1700–3800 m. Gansu, Hubei, Sichuan, Xizang, Yunnan.
8. Rhamnus ninglangensis Y. L. Chen, nom. nov.

宁蒗鼠李 ning lang shu li


Shrubs erect, to 1 m tall, unarmed. Young branches densely brownish puberulent; old branches slightly glabrescent. Petiole 8–10 mm, puberulent; leaf blade abaxially yellow, adaxially yellow-green when dry, broadly elliptic to ovate-ornicular, 2–4.5 × 1.5–3 cm, leathery or nearly leathery, both surfaces yellow velutinous-puberulent, lateral veins 5 or 6(--8) pairs, inconspicuously prominent on both surfaces, base rounded, margin entire, apex obtuse or rounded, slightly emarginate. Flowers bisexual, 2- or 3-clustered in leaf axils. Pedicels slender, slightly puberulent. Calyx tube puberulent; lobes 4 or 5, triangular, ca. 1.5 mm, puberulent. Petals absent. Stamens shorter than sepals. Ovary 4-loculed. Drupe black at maturity, obvoid-globose, ca. 4 mm in diam., with 3 or 4 stones, with persistent calyx tube at base, fruiting pedicel 6–8 mm, sparsely puberulent. Fl. unknown, fr. Jul–Aug.

- Stony slopes, steep alpine slopes; below 3000 m. SW Sichuan (Muli), NW Yunnan.

9. Rhamnus heterophylla Oliver, Hooker’s Icon. Pl. 18: t. 1759. 1888 ["heterophyllus"].

异叶鼠李 yi ye shu li

Rhamnus cavaleriei H. Léveillé (10 May 1911), not H. Léveillé (5 Dec 1911); R. heterophylla var. oblongifolia E. Pritzel.

Shrubs low, climbing, dioecious, to 2 m tall, unarmed. Young branches and branchlets slender, densely pubescent. Stipules subulate or linear-lanceolate, shorter than petioles, persistent; petiole 2–7 mm, densely pubescent; leaf blade abaxially pale green, adaxially vivid green, oblong, ovate-elliptic, or ovate-oblong, 1.5–4.5 × 1–2.2 cm, papery to subleathery, abaxially with distinct midvein, apex acute, often mucronulate. Flowers unisexual, 5-merous, solitary or 2- or 3-clustered in axis of small leathlike bracts. Pedicels 1–2 mm, sparsely puberulent. Sepals puberulent, adaxially 3-veined. Male flowers: petals spatulate, apex emarginate, with rudimentary pistil; ovary abortive. Female flowers: petals 2-fid, caducous, with very small rudimentary stamens; ovary globose, 3-loculed; style short, 3-cleft to half. Drupe black at maturity, globose, with persistent calyx tube at base, with 3 stones; fruiting pedicel 1–2 mm. Seeds abaxially with margined furrow extending over 4/5 of length. Fl. May–Aug, fr. Nov–Dec.

- Forest margins, thickets on mountain slopes; 300–1500 m. SE Gansu, Guizhou, W Hebei, S Shaanxi, Sichuan, Yunnan.

The fruit contains yellow dye, and the young leaves are used as a substitute for tea.

This species is variable. Pritzel (Bot. Jahrb. Syst. 29: 459. 1900) published Rhamnus heterophylla var. oblongifolia as different from var. heterophylla based on "leaves larger, narrowly lanceolate"; however, we reduced it here in synonymy.


蔓生鼠李 man sheng shu li

Shrubs small, climbing, with prostrate branches, unarmed. Branchlets slender, with numerous tuberculate lenticels; annual branches puberulent. Stipules needle-shaped, 3–4 mm, persistent; petals very short, 1–2 mm, puberulent; leaf blade abaxially yellow-green, adaxially deep green, shiny, lanceolate, 1.5–2.5 × 0.8–1.5 cm, thinly leathery, abaxially puberulent on veins, adaxially glabrous, lateral veins 3 or 4 pairs, prominent abaxially, conspicuously impressed adaxially, base broadly cuneate, margin slightly revolute, serrulate, apex acute. Flowers polygamous, 5-merous, 1–3-clustered in axis of small leathlike bracts, bracts narrowly elliptic, to 1 cm. Pedicels 5–6(–10) mm, puberulent. Bisexual flowers broadly campanulate. Sepals broadly ovate-triangular, ca. 2 mm, sparsely puberulent, adaxially with distinct midvein, apex acute. Petals absent. Stamens ca. 1 mm. Disk disk-shaped, thin. Ovary 3-loculed; style 3-fid or cleft to half. Drupe black at maturity, ca. 5 mm in diam., with persistent calyx tube at base, with 3 or sometimes 2 stones; fruiting pedicel 7–8 mm. Fl. Jun–Jul, fr. Aug–Sep. 2n = 24.

Subalpine slopes; 2400–3000 m. S Xizang (Gyirong) [Bhutan, NW India, Nepal].

This species is very similar to Rhamnus heterophylla, but the latter differs in having flowers unisexual and plants dioecious, petals present, pedicels very short, 1–2 mm, seeds abaxially with furrow for ca. 4/5 of length, leaves papery, and petals 2–7 mm.


陷脉鼠李 xian mai shu li

Rhamnus bodinieri f. silvicola C. K. Schneider.

Shrubs evergreen, dioecious, ca. 3 m tall, unarmed. Annual branches puberulent. Stipules needle-shaped, caducous; petiole 3–9(--12) mm, puberulent; leaf blade abaxially pale yellow-green, adaxially dark green, elliptic or oblong, 2.5–10 × 1.2–3.5 cm, leathery, abaxially glabrous, or clustered hairy in vein axils, adaxially sparsely pubescent on midvein, lateral veins 5 or 6 pairs, distinctly prominent abaxially, impressed adaxially, base cuneate or subrounded, margin distinctly revolute, sparsely acutely hooked-serrate, apex acute, rarely obtuse or rounded, midvein often elongated into micro. Flowers unisexual, 5-merous, broadly campanulate, sparsely puberulent, solitary or 2- or 3- or 3–7-clustered in axis of small leathlike bracts; bracts narrowly elliptic, to 2 cm. Sepals 2–2.5 mm, adaxially with conspicuous midvein, apex acute. Petals absent. Pedicels 3–6 mm, sparsely puberulent. Male flowers with rudimentary pistil; ovary abortive; style short, 3-fid or 3-cleft to half. Female flowers small, with rudimentary stamens; ovary globose, 3-loculed; style longer and stout, deeply 3-cleft; disk disk-shaped, thin. Drupe purple-red, blackish at maturity, globose or obovoid, ca. 5 mm, ca. 4 mm in diam., with persistent calyx tube at base, with 3 stones; fruiting pedicel 4–10 mm. Seeds abaxially with margined furrow extending over 4/5 of length. Fl. May–

Dense mountain forests, thickets; 1000–2000 m. NW Guangxi, W Guizhou, S and SE Yunnan [Nepal].

This species differs from *Rhamnus xizangensis* in having leathery leaves, with margins revolute when dry, acutely hooked-serrate, and lateral veins 5 or 6 pairs, adaxially conspicuously impressed.


**藏鼠李** 西藏鼠李

Shrubs or small trees, evergreen, dioecious, to 2 m tall, unarmed. Young branches slender, puberulent; branchlets red-brown, with numerous tuberculate lenticels or laevigate. Stipules linear-lanceolate, persistent; petiole 4–8 mm, slightly puberulent; leaf blade abaxially pale green, adaxially dark green, elliptic or elliptic-lanceolate, 4–10 × 1.5–2.4 cm, papery to thickly papery, abaxially clustered hairy in vein axils, rarely sparsely pubescent on veins, adaxially sparsely puberulent on veins or only on midvein, lateral veins 4 or 5 pairs, inconspicuously reticulate, prominent on both surfaces, base cuneate, margin slightly revolute when dry, serrulate, apex acuminate or shortly acuminate, rarely acute, often mucronulate. Flowers green, unisexual, 5-merous, broadly campanulate, usually 2–6-clusted in axils of small leaflike bracts; bracts elliptic-ovibicular, to 2.5 cm. Sepals ovate-triangular, adaxially distinctly keeled and hooded apically. Pedicels 3–6 mm, sparsely puberulent. Male flowers with rudimentary pistil; style short, 3-fid. Female flowers solitary or 2 or 3-clustered, with very small rudimentary stamens; ovary globose, 3-loculed; style 3-cleft to half. Disk shallowly cup-shaped or disk-shaped, thin. Drupe purple-red at maturity, subglobose or obovoid-globose, ca. 5 mm in diam., with persistent calyx tube at base, with 3 stones; fruiting pedicel 6–10 mm, puberulent. Seeds abaxially with margined furrow for 4/5 of length. Fl. May-Jul, fr. Jul-Oct.

Material of this species was not seen by the second author.


**广西鼠李** 广西鼠李

Shrubs ± scandent, dioecious, unarmed. Young branches with numerous tuberculate lenticels, sparsely puberulent when young; old branches glabrescent. Petiole 7–15 mm, puberulent; leaf blade shiny on both sides, green-yellow when dry, elliptic or oblong-ovate, 5–11 × 2.5–4.5 cm, papery, abaxially golden-yellow puberulent on veins, rarely subglabrous, adaxially glabrous, lateral veins 5–7 pairs, distinctly prominent abaxially, slightly impressed or not adaxially, base rounded, margin serrulate or obtusely serrate, apex acuminate or acute. Flowers unisexual, 5-merous, solitary or 2–4 in axillary, cyrmos racemes; bracts very small, to 4 mm. Pedicels 2–3 mm, sparsely puberulent. Sepals caducous, oblong-lanceolate, adaxially with inconspicuous midvein, apex acute. Petals broadly elliptic, apex nearly truncate. Stamens equaling petals, slightly shorter than sepals. Ovary globose, 3-loculed; style (2 or)3-fid, ca. 1.5 × as long as ovary. Drupe deep red or purple-red at maturity, obovoid-globose or globose, 6–7 mm, 5–6 mm in diam., with persistent calyx tube at base, with 3 stones; fruiting pedicel 5–7 mm. Seeds abaxially with margined furrow for 1/2 of length. Fl. Aug–Nov, fr. Mar of following year.

Material of this species was not seen by the second author.


**海南鼠李** 海南鼠李

Shrubs scandent, rarely erect, dioecious, unarmed. Young branches with numerous tuberculate lenticels, sparsely puberulent when young; old branches glabrescent. Petiole 7–15 mm, puberulent; leaf blade shiny on both sides, green-yellow when dry, elliptic or oblong-ovate, 5–11 × 2.5–4.5 cm, papery, abaxially golden-yellow puberulent on veins, rarely subglabrous, adaxially glabrous, lateral veins 5–7 pairs, distinctly prominent abaxially, slightly impressed or not adaxially, base rounded, margin serrulate or obtusely serrate, apex acuminate or acute. Flowers unisexual, 5-merous, solitary or 2–4 in axillary, cymose racemes; bracts very small, to 4 mm. Pedicels 2–3 mm, sparsely puberulent. Sepals caducous, oblong-lanceolate, adaxially with inconspicuous midvein, apex acute. Petals broadly elliptic, apex nearly truncate. Stamens equaling petals, slightly shorter than sepals. Ovary globose, 3-loculed; style (2 or)3-fid, ca. 1.5 × as long as ovary. Drupe deep red or purple-red at maturity, obovoid-globose or globose, 6–7 mm, 5–6 mm in diam., with persistent calyx tube at base, with 3 stones; fruiting pedicel 5–7 mm. Seeds abaxially with margined furrow for 1/2 of length. Fl. Aug–Nov, fr. Mar of following year.

**海南鼠李** 海南鼠李

This species is very similar to *Rhamnus formosana*, but the latter differs in having smaller drupes and fruit with persistent sepals.

The seeds are used for making oils, printing ink, and dyes.
Shrubs, often scandent, dioecious, 3–5 m tall, unarmed. Branchlets brown, with inconspicuous tuberculate lenticels, puberulent. Stipules subulate, persistent; petiole 3–11 mm, rarely to 15 mm, densely or sparsely puberulent; leaf blade abaxially pale green, adaxially deep green, shiny, narrowly elliptic, ob-lanceolate-elliptic, or narrowly oblong, 5–19 × 1.7–6 cm, papery, abaxially glabrous or scattered grayish puberulent on veins, or barbate in vein axils, adaxially glabrous, lateral veins 6–8 pairs, prominent abaxially, impressed adaxially, base rounded or cuneate, margin flat or ± revolute, serrulate or inconspicuously so, apex acuminate to long acuminate, rarely acute. Flowers unisexual, 5-merous, usually few in 1–3 cm axillary, cymose racemes; bracts leaflike, to 4 cm; rachis, pedicels, and flowers puberulent. Pedicels 1–3 mm. Sepals triangular, apex acute. Petals small, caducous. Male flower with rudimentary pistil. Female flowers with minute, rudimentary stamens; ovary globose, 3-loculed; style 3-fid or cleft to half. Drupe purple-red, turning black at maturity, obovoid-globose, 5–6 mm in diam., with persistent calyx tube at base, with 3 stones. Seeds obovoid-oblong, abaxially with a margined furrow extending over nearly entire length. Fl. May–Jul, fr. Aug–Nov.

Material of this species was not seen by the second author.

16a. var. esquirolii

Shrubs, often scandent, dioecious, 3–5 m tall, unarmed. Branchlets brown, with inconspicuous tuberculate lenticels, puberulent. Stipules subulate, persistent; petiole 1.3–2 cm, sparsely puberulent; leaf blade abaxially dark green, broadly elliptic or elliptico-oblong, 6–17(–20) × 3.5–7 cm, abaxially puberulent or only on veins, adaxially with small granules, glabrous or subglabrous, lateral veins 6 or 7 pairs, prominent abaxially, impressed adaxially, base rounded, margin slightly revolute, densely cartilaginous puberulate, apex shortly acuminate or caudate. Flowers unisexual, 5-merous, puberulent, in axillary, bracteate, rather short cymose racemes or branched cymose panicles, with minute bracteoles; bracts small, leaflike. Pedicels ca. 1.5 mm, stout, glabrous. Sepals triangular, glabrous. Petals oblong, less than 1/2 as long as sepals. Style of female flowers 3-cleft. Drupe purple-black at maturity, obovoid-globose or globose, with persistent calyx tube at base, with 3 stones. Seeds abaxially with a margined furrow extending over 3/4 of length. Fl. May–Jul, fr. after Jul.

16b. var. glabrate

Shrubs, erect or scandent, rarely trees, deciduous, dioecious, unarmed. Young branches puberulent, glabrescent; older branches with numerous conspicuous lenticels. Leaves alternate; petiole 1.3–2 cm, glabrous; leaf blade abaxially deep green, broadly elliptic or elliptico-oblong, 6–17(–20) × 3.8–8.5 cm, papery or subleathery, abaxially with clustered hairy vein axils, adaxially glabrous, lateral veins 5–9 pairs, major veins ± prominent abaxially, impressed adaxially, base rounded, margin crenate or obtusely serrate, slightly revolute, apex rounded, shortly acuminate, or acuminate. Flowers unisexual, 5-merous, in axillary cymose racemes or branched cymose panicles to 12 cm; rachis puberulent; bracts leaflike, to 5 cm. Sepals triangular, ca. 1.5 mm, puberulent, apex acute. Petals deeply cucullate, equaling stamens or slightly shorter, base clawed, apex obtuse or emarginate. Disk circular, thin, glabrous. Female flowers with caducous petals; stamens rudimentary; ovary globose, 3-loculed; style 3-fid or cleft to half. Drupe reddish purple when young, purplish black at maturity, obovoid-globose, 5–6 mm in diam., with persistent calyx tube at base, with 3 stones. Seeds

17. Rhamnus nigricans

Shrubs or small trees, dioecious, to 5 m tall, unarmed. Young branches pubescent; branchlets slender, with numerous tuberculate lenticels. Leaves alternate; stipules caducous; petiole 1.2–2 cm, sparsely puberulent; leaf blade turning black when dry, adaxially ± shiny, papery or thickly papery; lower leaf blades smaller, elliptic, oblong, or broadly elliptic, 7–16 × 3.5–7 cm, abaxially puberulent or only on veins, adaxially with small granules, glabrous or subglabrous, lateral veins 6 or 7 pairs, prominent abaxially, impressed adaxially, base rounded, margin slightly revolute, densely cartilaginous puberulate, apex shortly acuminate or caudate. Flowers unisexual, 5-merous, puberulent, in axillary, bracteate, rather short cymose racemes or branched cymose panicles, with minute bracteoles; bracts small, leaflike. Pedicels ca. 1.5 mm, stout, glabrous. Sepals triangular, glabrous. Petals oblong, less than 1/2 as long as sepals. Style of female flowers 3-cleft. Drupe purple-black at maturity, obovoid-globose or globose, with persistent calyx tube at base, with 3 stones. Seeds abaxially with a margined furrow extending over 3/4 of length. Fl. May–Jul, fr. after Jul.

Material of this species was not seen by the second author.

17a. var. nipalensis

Shrubs, or small trees, dioecious, to 5 m tall, unarmed. Young branches pubescent; branchlets slender, with numerous tuberculate lenticels. Leaves alternate; stipules caducous; petiole 1.2–2 cm, sparsely puberulent; leaf blade turning black when dry, adaxially ± shiny, papery or thickly papery; lower leaf blades smaller, elliptic, oblong, or broadly elliptic, 7–16 × 3.5–7 cm, abaxially puberulent or only on veins, adaxially with small granules, glabrous or subglabrous, lateral veins 6 or 7 pairs, prominent abaxially, impressed adaxially, base rounded, margin slightly revolute, densely cartilaginous puberulate, apex shortly acuminate or caudate. Flowers unisexual, 5-merous, puberulent, in axillary, bracteate, rather short cymose racemes or branched cymose panicles, with minute bracteoles; bracts small, leaflike. Pedicels ca. 1.5 mm, stout, glabrous. Sepals triangular, glabrous. Petals oblong, less than 1/2 as long as sepals. Style of female flowers 3-cleft. Drupe purple-black at maturity, obovoid-globose or globose, with persistent calyx tube at base, with 3 stones. Seeds abaxially with a margined furrow extending over 3/4 of length. Fl. May–Jul, fr. after Jul.

Material of this species was not seen by the second author.

17b. var. nigricanoides

Shrubs, or small trees, dioecious, to 5 m tall, unarmed. Young branches pubescent; branchlets slender, with numerous tuberculate lenticels. Leaves alternate; stipules caducous; petiole 1.2–2 cm, sparsely puberulent; leaf blade turning black when dry, adaxially ± shiny, papery or thickly papery; lower leaf blades smaller, elliptic, oblong, or broadly elliptic, 7–16 × 3.5–7 cm, abaxially puberulent or only on veins, adaxially with small granules, glabrous or subglabrous, lateral veins 6 or 7 pairs, prominent abaxially, impressed adaxially, base rounded, margin slightly revolute, densely cartilaginous puberulate, apex shortly acuminate or caudate. Flowers unisexual, 5-merous, puberulent, in axillary, bracteate, rather short cymose racemes or branched cymose panicles, with minute bracteoles; bracts small, leaflike. Pedicels ca. 1.5 mm, stout, glabrous. Sepals triangular, glabrous. Petals oblong, less than 1/2 as long as sepals. Style of female flowers 3-cleft. Drupe purple-black at maturity, obovoid-globose or globose, with persistent calyx tube at base, with 3 stones. Seeds abaxially with a margined furrow extending over 3/4 of length. Fl. May–Jul, fr. after Jul.

Material of this species was not seen by the second author.

Sparse or dense forests, thickets; below 1800 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Xizang, Yunnan, Zhejiang [Bhutan, India, Malaysia, Myanmar, Nepal, Thailand].

The leaves of this species often turn gray-black when dry. In Zhejiang and Fujian, the leaves are often used for dyeing tissues; in Jiangxi, the plant is used for making paper. The fruit and leaves are used medicinally.


紫背鼠李 zi bei shu li

Shrubs scandent, rarely small trees, dioecious, 3–9 m tall, unarmed. Branchlets brown, with numerous tuberculate lenticels. Leaves alternate; stipules lanceolate, 1–1.5 mm, caducous; petiole 5–18(–25) mm, glabrous; leaf blade adaxially yellow-purple or pale purple when dry, stiffly papery or subleathery; small leaf blades 2–6 cm; large leaf blades oblong-elliptic or oblong, 7.5–15 × 2–6.5 cm, abaxially glabrous or clustered hairy in vein axils, adaxially glabrous, lateral veins 5–8 pairs, midvein prominent abaxially, impressed adaxially, with ± conspicuous reticulate veins, base cuneate or rounded, margin slightly revolute when dry, shallowly or inconspicuously serrate, apex caudate-acuminate or acuminate, rarely rounded, erect or curved mucronate, mucro 1–2 mm. Flowers green, unisexual, 5-merous, solitary or 2- or 3-fascicled in axillary, lax erect or curved mucronate, mucro 1–2 mm. Flowers green, unisexual, 5-merous, in rather small, axillary cymose racemes. Sepals narrowly triangular, thick, abaxially sparsely puberulent, adaxially thickened at apex. Petals absent. Pedicels ca. 1 mm. Female flowers with rudimentary stamens; ovary oblate, 3-loculed; style short, 3-lobed, free. Drupe purple-red at maturity, obovoid-globose, 3–5 mm in diam., with persistent calyx tube at base, with 3 stones; fruiting pedicel ca. 2 mm. Seeds 3. Fl. Jun–Aug, fr. Aug–Dec.

● Forests and thickets on limestone slopes, roadsides; ca. 800 m. Guangdong, Guangxi, Guizhou, Yunnan.

1a. Leaf margin obscurely serrulate, blade to 10 cm ................................. 20a. var. coriophylla

1b. Leaf margin conspicuously sharply serrulate, blade to 14 cm .......................... 20b. var. acutidens

20a. Rhamnus coriophylla var. coriophylla

革叶鼠李(原变种) ge ye shu li (yuan bian zhong)

Leaf blade to 10 cm, margin obscurely serrulate.

● Forests and thickets on limestone slopes; ca. 800 m. Guangdong, Guangxi, Yunnan.


锐齿革叶鼠李 rui chi ge ye shu li

Leaf blade to 14 × 5.5 cm, margin conspicuously sharply serrulate, apex long acuminate or caudate-acuminate.

● Roadsides; ca. 800 m. Guizhou (Dushan).


黑桦树 hei hua shu

Shrubs much branched, dioecious, to 2.5 m tall, spinoose. Branches opposite or subopposite, terminating in a spine, puberulent or glabrous, shiny or slightly scabrous. Leaves opposite or subopposite on long shoots, fascicled at ends of short shoots; stipules narrowly lanceolate, ca. 4 mm; petiole 5–20 mm, glabrous or subglabrous; leaf blade abaxially pale green, adaxially green, elliptic, ovate-elliptic, or broadly ovate, rarely spatulate, 1–3.5 × 0.6–1.2 cm, leathery, both surfaces glabrous, lateral veins 2 or 3 pairs, prominent abaxially, slightly impressed adaxially, base cuneate or subrounded, margin entire or inconspicuously serrate, apex rounded-obtuse, rarely emarginate. Flowers unisexual, 4-merous, usually few to 10-clustered at ends of short shoots. Pedicels 4–5 mm. Drupe red, turning black at maturity, obovoid-globose or subglobose, ca. 4 mm, 4–6 mm in diam., with persistent calyx tube at base, mostly with 2(or 3) stones; fruiting pedicel 4–6 mm, glabrous. Seeds brownish, obcordate, abaxially with a dark margin, broadly furrow extending over 1/2–3/5 of length. Fl. May–Jun, fr. Jun–Sep.

Thickets on mountain slopes; 900–2700 m. Gansu, N Hebei, Nei Mongol, Ningxia, Shaanxi, Shanxi, NW Sichuan [Mongolia].

1a. Leaf blade elliptic or ovate-elliptic, rarely spatulate, 10–35 × 6–12
21a. *Rhamnus maximovicziana* var. *maximovicziana*

**黑桦树** (原变种)  hei hua shu (yuán biàn zhòng)


Leaf blade elliptic or ovate-elliptic, rarely spatulate, 10–35 × 6–12 mm.

Thickets on mountain slopes; 900–2700 m. Gansu, N Hebei, Nei Mongol, Ningxia, Shaanxi, Shanxi, NW Sichuan [Mongolia].


**矩叶黑桦树**  ju ye hei hua shu

Leaf blade narrowly oblong, 25–35 × 6–9 mm.

- Nei Mongol.


**川滇鼠李**  chuan dian shu li

Shrubs 1–2 m tall, much spinescent. Branchlets spreading, opposite, subopposite, or alternate, brown-black, gray when young, puberulent, terminating in a spine; old branches gray-brown or brown, glabrous, irregularly fissured. Leaves opposite or subopposite, rarely alternate, or fascicled at short shoots; stipules linear-subulate, shorter than petioles, caducous; petiole 1–3 mm, puberulent; leaf blade abaxially pale green, turning black when dry, adaxially dark green, elliptic or ovate-elliptic, rarely lanceolate or lanceolate-oblong, 1.5–3 cm × 5–10 mm, papery to thickly papery, abaxially clustered hairy in vein axils or subglabrous, lateral veins 3 or 4 pairs, nearly inconspicuous, base cuneate, margin often revolute, inconspicuously crenulate or subentire, apex obtuse or rounded, sometimes emarginate, rarely slightly acute. Flowers yellow-green, turning black when dry, unisexual, 4-merous, usually 3–5-fascicled in leaf axils of short shoots. Male flowerscampanulate, 3.5–4 mm, sparsely puberulent; sepals ovate-triangular, 2–2.5 mm, apex acuminate; petals oblong-lanceolate, small, ca. 1 mm; stamens nearly equaling petals; rudimentary ovary minute; style 2-fid; pedicels 1–3 mm, puberulent. Drupe brown, subglobose, 4–5 mm in diam., with shallow, cup-shaped, persistent calyx tube at base, with 2 or 3 stones; fruiting pedicel 2–3 mm, glabrous. Seeds pale brown, elliptic, 4–4.5 mm, abaxially with a margined furrow extending over 4/5 of length. Fl. Apr–May, fr. Jun–Aug.

- Understories of mixed forests and thickets; 2200–2700 m. SW Sichuan, NW Yunnan.

This species is very similar to *Rhamnus leptacantha*, but the latter differs in having branches glabrous and leaves subleathery, spatulate, and glabrous on both surfaces.


**淡黄鼠李**  dan huang shu li

Shrubs dioecious, 1–2 m tall, spinose. Branchlets opposite or subopposite, rarely alternate, silvery-gray or gray-brown, puberulent, glabrescent, terminating in a spine; old branches gray-brown, longitudinally fissured, glabrous. Leaves opposite or subopposite on long shoots, fascicled on short shoots; stipules linear-subulate, ca. equal to petioles, puberulent, persistent; petiole 1–3 mm, puberulent; leaf blade abaxially pale yellow or golden-yellow when dry, adaxially gray-green, oblong or ovate-elliptic, rarely ovate, small, (0.7–1)–2.5 × 0.4–1(–1.3) cm, papery, both surfaces puberulent or subglabrous, lateral veins 3 or 4 pairs, slightly prominent abaxially, slightly impressed adaxially, conspicuously reticulate abaxially, base broadly cuneate or subrounded, rarely inequilateral, margin inconspicuously crenulate, often black mucronulate, rarely subentire, apex obtuse or rounded, emarginate, rarely acute. Flowers unisexual, 4-merous. Female flowers solitary in leaf axils of short shoots, yellow-green, campanulate; sepals ovate-triangular, 1–1.5 mm, abaxially puberulent, 3-veined, apiculate; petals minute, caducous; stamens very short; ovary globose, 2- or 3-loculed; style 4-cleft. Drupe red-brown, subglobose, 3–4 mm in diam., with shallowly cup-shaped, persistent calyx tube at base, with 2(or 3) stones; fruiting pedicel 2–3 mm, puberulent. Seeds yellowish, oblong-obovoid, 3–5.5 mm, abaxially with a margin, broad, shallow furrow extending over nearly whole length. Fl. Jun–Jul, fr. Jul–Sep.

- Thickets on subalpine slopes; 2500–3000 m. SW and W Sichuan, E Xizang.

This species is similar to *Rhamnus prostrata* but differs in having branchlets opposite or subopposite, silvery-gray or gray-brown; leaves opposite or subopposite, ovate or ovate-elliptic, puberulent; flowers solitary in leaf axils of short shoots; and seeds abaxially with margined, broad, shallow furrow for almost entire length.

Material of this species was not seen by the second author.


**卵叶鼠李**  luan ye shu li

Shrubs dioecious, to 2 m tall, spinose. Branchlets opposite or subopposite, rarely alternate, gray-brown puberulent, terminating in a purple-red spine; axillary buds minute. Leaves opposite or subopposite, rarely alternate, or fascicled on short shoots; stipules subulate, persistent; petiole 5–12 mm, puberulent; leaf blade abaxially often turning yellow, adaxially green, ovate, ovate-lanceolate, or ovate-elliptic, 1–4 × 0.5–2 cm, papery to subleathery, abaxially white pubescent on veins or vein axes, adaxially glabrous, lateral veins 2 or 3 pairs, prominent on both surfaces, base rounded or cuneate, margin crenulate, apex obtuse or slightly acute. Flowers yellow-green, small, unisexual, 4-merous, usually 2- or 3-fascicled on short shoots or solitary in leaf axils. Sepals broadly triangular, abaxially puberulent, acut e. Petals minute. Pedicels 2–3 mm. puberulent. Female flowers with rudimentary stamens; ovary globose, 2-loculed; style 2-fid or cleft to half. Drupe purple or black-purple at maturity, obovoid-globose or globose, 5–6 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 2–4 mm, puberulent. Seeds ovoid-globose, ca. 5 mm, abaxially with

- Thickets, open slopes; ca. 1800 m. Hebei, Henan, W Hubei, Jilin, Shandong, Shanxi.

This species is quite similar to _Rhamnus parvifolia_, but the latter differs in having leaves rhombic-oblanceolate or rhombic-elliptic, abaxially with clustered hairs in vein axils; branchlets purple or dark brown, shiny; and seeds abaxially with margined, narrow furrows.

The leaves and bark contain dye used for dyeing tissues.


小叶鼠李 xiao ye shu li

_Rhamnus globosa_ Bunge var. *ziziphioides* Tang; _R. oivakensis_ Hayata; _R. parvifolia_ var. *tumetica* (Grubov) N. W. Ma; _R. pianensis_ Kanehira; _R. polymorpha_ Turczanianow; _R. tumetica_ Grubov.

Shrubs dioecious, 1.5–2 m tall, spinose, much branched. Branchlets opposite or subopposite, puberulous, puberulent when young, later glabrescent, slightly shiny, silvery-gray, terminating in a spine; buds ovoid, ca. 2 mm, scales few, yellow-brown. Leaves opposite or subopposite, rarely alternate, or fascicled on short shoots; stipules subulate, puberulent; petiole 4–15 mm, adaxially puberulent; leaf blade abaxially greenish, gray-white when dry, adaxially dark green, rhombic-obovate or rhombic-elliptic, rarely obovate-orbicular or suborbicular, 1.2–4 × 0.8–2(–3) cm, papery, abaxially glabrous or sparsely puberulent in areoles of vein axils, adaxially glabrous or sparsely pubescent, lateral veins 2–4 pairs, prominent on both surfaces, base cuneate or subrounded, margin crenate-dentate, apex obtuse or subrounded, rarely acute. Flowers yellow-green, unisexual, 4-merous, usually few clustered on short shoots. Pedicels 4–6 mm, glabrous. Female flowers: style 2-cleft to half. Drupes nearly dry, black at maturity, obovoid-globose, 4–5 mm in diam., with 2 stones, with persistent calyx tube at base. Seeds brown, obovoid-oblong, abaxially with a yellow margined lateral furrow extending over 4/5 of length. Fl. Apr–May, fr. Jun–Sep.

Thickets, grasslands, stony slopes, on open shiny rocks: 400–2300 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Taiwan [Korea, Mongolia, Russia (E Siberia)].

This species is variable in leaf shape and closely related to _Rhamnus tangutica_, but the latter differs in having leaves usually elliptic or obovate-elliptic, abaxially turning yellow when dry, and branchlets glabrous, shiny.


锐齿鼠李 rui chi shu li

Shrubs or small trees, dioecious, 2–4 m tall, spinose, divaricate. Branchlets opposite or subopposite, gray-brown, terminating in a spine; young branches puberulent, glabrescent. Leaves opposite or subopposite, rarely alternate, or fascicled on short shoots; stipules persistent, linear-lanceolate, puberulent; petiole 6–10 mm, densely pubescent; leaf blade abaxially pale green, adaxially green, suborbicular, obovate-orbicular, or oval-orbicular, rarely orbicular-elliptic, 1–6 × 2.5–4 cm, papyry or thin papery, abaxially throughout or on veins pubescent, adaxially initially densely pubescent, glabrescent, or only veins and margin becoming sparsely pubescent, lateral veins (2

26a. _Rhamnus arguta_ var. _arguta_

锐齿鼠李(原变种) rui chi shu li (yuan bian zhong)

_ Rhamnus arguta_ var. _butilifolia_ Liou & Li; _R. arguta_ var. _cuneatifolia_ Wang & Li; _R. arguta_ var. _roundifolia_ Wang & Li.

Both surfaces of leaves and petioles glabrous.

- Thickets on slopes; below 2000 m. Hebei, Heilongjiang, Liaoning, Shaanxi, Shandong, Shanxi.

The seeds are used for extracting oil. The stems, leaves, and seeds are used for making insecticide.


毛背锐齿鼠李 mao bei rui chi shu li

Leaves abaxially or at least veins and petioles puberulent.

- Forests and thickets on slopes; 900–1600 m. Hebei, Shanxi.

27. _Rhamnus globosa_ Bunge, Enum. Pl. China Bor. 14. 1833 ["globosa"].

圆叶鼠李 yuan ye shu li

_Rhamnus chlorophora_ Decaisne; _R. globosa_ var. _meyeri_ (C. K. Schneider) S. Y. Li & Z. H. Ning; _R. meyeri_ C. K. Schneider.

Shrubs, rarely small trees, dioecious, 2–4 m tall, spinose, divaricate. Branchlets opposite or subopposite, gray-brown, terminating in a spine; young branches puberulent, glabrescent. Leaves opposite or subopposite, rarely alternate, or fascicled on short shoots; stipules persistent, linear-lanceolate, puberulent; petiole 6–10 mm, densely pubescent; leaf blade abaxially pale green, adaxially green, suborbicular, obovate-orbicular, or oval-orbicular, rarely orbicular-elliptic, 1–6 × 2–4 cm, papery or thin papery, abaxially throughout or on veins pubescent, adaxially initially densely pubescent, glabrescent, or only veins and margin becoming sparsely pubescent, lateral veins (2

or 3 or 4 pairs, prominent abaxially, impressed adaxially, base broadly cuneate or subrounded, margin irregularly crenate-serrate, apex acute or shortly acuminate, rarely rounded-obtuse. Flowers unisexual, 4-merous, usually few to 20-fascicled on terminal branches or in leaf axils of lower parts of long shoots, rarely 2- or 3-fascicled in leaf axils of annual branches; petals, calyx, and pedicels sparsely puberulent. Pedicels 4–8(–10) mm. Style 2- or 3-fid or cleft to half. Drupe black at maturity, glo- 
calyx, and pedicels sparsely puberulent. Pedicels 4–8(–10) mm.

to 2.8 in diam., with persistent calyx tube at base, with 2( or 3) stones; fruiting pedicel 5–8 mm, sparsely pubescent. Seeds black-

Brown, shiny, abaxially or laterally with margined furrow ex-

- Understories of forests and thickets, slopes; below 1600 m.

Anhui, Gansu, Hebei, S and W Henan, Hunan, Jiangsu, Jiangxi, Liaoning, SW Shaanxi, Shandong, Shanxi.

Oil extracted from the seeds is used for making lubricating oil. The bark, fruit, and roots are used for making a green dye.


桃叶鼠李

Shrubs dioecious, to 1.5 m tall, spinose or unarmed. Young branches glabrous or subglabrous; branchlets opposite or sub- 

opposite, rarely alternate, gray-brown or purple-black, some-
times terminating in a spine; terminal buds small with few scales; axillary buds inconspicuous. Leaves opposite or subopposite, rarely alternate, fascicled on short shoots; stipules lance-

olate, longer than petioles, sparsely ciliate, persistent; petiole 2–6 mm, puberulent; leaf blade abaxially pale green, adaxially green, narrowly elliptic or narrowly oblong-elliptic, 4–10 × 1–2.2 cm, papery, abaxially clustered hairy only in vein axils, adaxially puberulent initially on veins, glabrescent, lateral veins (4 or) 5 or 6(or 7) pairs, prominent abaxially, conspicuously im-

pressed adaxially, base cuneate, margin crenate-dentate, apex crenate-acuminate or acuminate, mucronulate; mucro ca. 2 mm, erect or curved. Flowers unisexual, 4-merous. Pedicels ca. 5 mm. Petals present. Male flowers few- to 10-fascicled on short shoots, with rudimentary pistil. Female flowers 1- to few fas-

cicled in leaf axils on short shoots; rudimentary stamens mi-
tine; ovary 3-loculed; style 3-fid or cleft to half. Drupe purple-

black, obovoid-globose, often slightly asymmetric, 3.5–4 mm in diam., with persistent style at apex, persistent calyx tube at base, and 2 or 3 stones; fruiting pedicel 5–7 mm, glabrous. Seeds abaxially with margined furrow extending over 2/3 of length.

- Forests, thickets, slopes; 1000–2000 m. W Hubei, E Sichuan, SE Yunnan (Guangnan).


薄叶鼠李

Shrubs, rarely small trees, dioecious, to 5 m tall, spinose, divaricate. Branchlets opposite or subopposite, shiny, brown or yellow-brown, rarely purple-red, smooth, glabrous, terminating

in a spine; buds small, glabrous. Leaves opposite or subopposite, or fascicled on short shoots; stipules linear, caducous; petioles 0.7–2 cm, adaxially canaliculate, glabrous or sparsely puberulent; leaf blade abaxially pale green, adaxially dark green, obovate to obovate-elliptic, rarely elliptic or oblong, 3–8 × 2–5 cm, papery, abaxially distinctly bearded at vein axils, adaxially glabrous or sparsely hairy on midvein, lateral veins 3–5 pairs, prominent abaxially, impressed adaxially, base cuneate, margin crenate to serrate, apex shortly cuspidate to acuminate. Flowers unisexual, 4-merous. Pedicels 4–5 mm, glabrous. Petals present. Male flowers 10–20-fascicled on short shoots. Female flowers few- to 10-fascicled at apices of short shoots or in leaf axils of lower part of long shoots; rudimentary stamens minute; style 2-cleft to half. Drupe black at maturity, globose, 4–6 mm in diam., with persistent calyx tube at base and minute apical mucro, with 2 or 3 stones; fruiting pedicel 6–8(–10) mm. Seeds dark brownish, broadly obovoid, abaxially with margined furrow extending over 2/3–3/4 of length. Fl. Mar–May, fr. May–Oct.

- Thickets, forest margins, valleys, slopes, roadsides; 1700–2600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hu-

nan, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan, Zhejiang.

The entire plant is used medicinally.

30. Rhamnus dumetorum C. K. Schneider in Sargent, Pl. Wil-

son. 2: 237. 1914.

刺鼠李

Shrubs dioecious, 3–5 m tall, unarmed. Branchlets pale gray-brown, scabrous or shiny. Leaves opposite or subopposite, or fascicled on short shoots; stipules lanceolate, shorter than or nearly equaling petiole; petiole 2–7 mm, puberulent; leaf blade abaxially pale green, adaxially green, elliptic, rarely obovate, oblong-elliptic, or oblong, 2.5–9 × 1–3.5 cm, abaxially sparsely or clustered hairy on veins and vein axils, rarely glabrous, or densely pubescent on veins, adaxially sparsely puberulent, lateral veins 4 or 5 or 6 pairs, prominent abaxially, slightly impressed adaxially, abaxially often with shallow are-

ola in vein axils, base cuneate, margin inconspicuously un-
dulate or crenulate, or crenate-serrate, apex acute or acuminate, rarely subrounded. Flowers unisexual, 4-merous. Pedicels 2–4 mm. Petals present. Male flowers few. Female flowers few- to 10-fascicled at apices of short shoots, puberulent; style 2-fid or cleft to half. Drupe globose, ca. 5 mm in diam., with persistent calyx tube at base, with 1 or 2 stones; fruiting pedicel 3–6 mm, sparsely puberulent. Seeds black or purple-black, abaxially with short furrow at base, upper part fissured. Fl. Apr–May, fr. Jun–Oct.

- Understories of forests and thickets, thickets on slopes; 900–

3300 m. Anhui, SE Gansu, Guizhou, W Hubei, Jiangxi, S Shanxi, Sichuan, Xizang, NW Yunnan, Zhejiang.

1a. Leaf margin serrulate or inconspicuously undulate, petiole and veins on abaxial leaf surface sparsely puberulent .......... 30a. var. dumetorum

1b. Leaf margin crenate-serrate, petiole and veins on abaxial leaf surface densely pubescent ......................... 30b. var. crenoserrata
30a. Rhamnus dumetorum var. dumetorum

刷枝鼠李(原变种)  ci shu li (yuan bian zhong)

Petiole sparsely puberulent; leaf blade abaxial surface sparsely puberulent on veins, margin serrulate or inconspicuously undulate.

- Forest understories, thickets on slopes; 900–3300 m. Anhui, SE Gansu, Guizhou, W Hubei, Jiangxi, S Shanxi, Sichuan, Xizang, NW Yunnan, Zhejiang.

This species differs from Rhamnus tangutica and R. virgata in having branchlets pale gray-brown; bark scabrous, not shiny; petioles shorter; and seeds black, abaxially with short furrow at base only.

30b. Rhamnus dumetorum var. crenoserrata

帚枝鼠李  yuan chi ci shu li

Petiole densely pubescent; leaf blade abaxial surface densely pubescent on veins, margin crenate-serrate.

- Understories of forests and thickets; 2000–2200 m. W Sichuan, E Xizang, NW Yunnan.


甘青鼠李  gan qing shu li

Rhamnus leptophylla C. K. Schneider var. scabrella Rehder; R. potaninii J. J. Vassiljev; R. virgata Roxburgh var. parvifolia Maximowicz.

Shrubs, rarely trees, dioecious, 2–6 m tall, spinose. Branchlets opposite or subopposite; young branches green, glabrous or subglabrous; older branches red-brown or black-brown, smooth, shiny, terminating in a spine. Leaves opposite or subopposite, or fascicled on short shoots; stipules linear, often persistent; petiole to 1.3 cm; leaf blade abaxially pale green, turning yellow when dry, adaxially dark green, elliptic, ovobate-elliptic, or ovobate, 2.5–6 × 1–3.5 cm, papery or thickly papery, abaxially sparsely puberulent on veins and vein axils, adaxially sparsely shortly hairy or subglabrous, lateral veins 4 or 5 pairs, base cuneate, margin obtuse or crenulate, apex shortly acuminate or acute, rarely subrounded. Flowers unisexual, 4-merous. Petals present. Male flowers few to 10. Female flowers 3–9-fascicled on short shoots; style 2-fid. Drupe black at maturity, obovate-globose, 4–6 mm in diam., with persistent calyx tube at base, with 2 stones; fruiting pedicel 6–8 mm, glabrous. Seeds red-brown, abaxially-laterally with margined furrow extending over 3/4–4/5 of length. Fl. May–Jun, fr. Jun–Sep.

- Forests and thickets in valleys; 1200–3700 m. S Gansu, W Henan, Qinghai, C Shanxi, W Sichuan, E Xizang.

The fruit is used for making dye.

This species is quite similar to Rhamnus virgata, but the latter differs in having young branches hairy and leaves thin, concordous on both surfaces, turning red when dry, with conspicuous reticulate veins.

32. Rhamnus virgata Roxburgh, Fl. Ind. 2: 351. 1824.

帚枝鼠李  zhou zhi shu li

Shrubs or trees, dioecious, to 6 m tall, spinose. Branchlets opposite or subopposite; young branches densely hirsute; older branches virgate, shiny, red-brown or purple-red, smooth, glabrous, terminating in a spine. Leaves opposite or subopposite, or fascicled on short shoots; stipules lanceolate, often persistent; petiole 4–10(–15) mm, adaxially canaliculate and puberulent or densely hirsute; leaf blade vivid greenish, turning red when dry, obovate-lanceolate, obovate-elliptic, or elliptic, 2.5–8 × 1.5–3 cm, papery or thinly papery, abaxially pilose on veins or only in vein axils, or subglabrous or densely hirsute, adaxially pilose or subglabrous or pilose only on veins, lateral veins 4 or 5 pairs, reticulate veins conspicuous, base cuneate, margin crenate-serrulate, apex acuminate or shortly acuminate, rarely acute. Flowers unisexual, 4-merous. Petals present, 3–4 mm, sparsely puberulent or glabrous. Female flowers few, fascicled on short shoots, with rudimentary stamens; style 2-cleft. Drupe bluish black, subglobose, with persistent calyx tube at base, 4–5 mm in diam., with 2 stones; fruiting pedicel 2–5 mm. Seeds red-brown, abaxially with margined furrow extending over 2/3–3/4 of length. Fl. Apr–May, fr. Jun–Oct.

- Forests, thickets on mountains and slopes; 1200–3800 m. Guizhou, SW Sichuan, E and SE Xizang, Yunnan [Bhutan, India, Nepal, Thailand].

1a. Annual branches glabrous; abaxial leaf surface subglabrous or sparsely pubescent on veins or vein axils, petioles adaxially puberulent ........................................... 32a. var. virgata

1b. Annual branches, petioles, and both surfaces of leaves or veins abaxially densely hirsute ........................................... 32b. var. hirsuta

32a. Rhamnus virgata var. virgata

帚枝鼠李(原变种)  zhou zhi shu li (yuan bian zhong)

Rhamnus leptophylla C. K. Schneider var. milensis C. K. Schneider.

Annual branches glabrous. Petiole adaxially puberulent only; leaf blade abaxially sparsely pubescent or subglabrous on veins or vein axils.

- Forests, thickets on slopes; 1200–3800 m. Guizhou, SW Sichuan, E and SE Xizang, Yunnan [Bhutan, India, Nepal, Thailand].


糙毛帚枝鼠李  cao mao zhou zhi shu li


Annual branches, petioles, and both surfaces of leaves or veins abaxially densely hirsute.

- Mountain thickets; 2000–2900 m. SW Sichuan, E Xizang, NW Yunnan [India].

**药鼠李** 耀舒李

Shrubs or trees, dioecious, 5–8 m tall, spinose. Young branches glabrous; branchlets opposite or subopposite, purple-red or silvery-gray, terminating in a spine; terminal buds elliptic, with few scales, margin ciliate. Leaves subopposite or alternate, or fascicled on short shoots; petiole 1–2.7 cm, adaxially canaliculate, sparsely hairy or subglabrous; leaf blade elliptic, ovate-elliptic, or ovate, 3–6.5 × 1.5–3 cm, papery, both surfaces glabrous, lateral veins 3 or 4 pairs, proximal pair often slightly stronger than others, base rounded or broadly cuneate, margin densely crenate-serrate, apex shortly acuminate, acute, or rounded-obtuse. Flowers unisexual, 4-merous, usually 10-fascicled on short shoots or in leaf axils of lower part on long shoots. Pedicels 2–4 mm. Male flowers with petals; ovary rudimentary. Female flowers apetalous, with minute rudimentary stamens; ovary 3-loculed; style long, 3-fid. Drupe black, globose, to 1 cm in diam., with 3 stones, with persistent calyx tube at base. Seeds yellow, abaxially-laterally narrowly furrow slit extending over 3/4 of length. Fl. May–Jun, fr. Jul–Sep. 2n = 24.

Thickets, valleys, slopes; 1200–1400 m. N Xinjiang [Russia (W Siberia); NW Africa, C and SW Asia, Europe].

The fruit is used medicinally for treating constipation.


**金刚鼠李** 金刚 Actressu shu li

*Rhamnus virgata* Roxburgh var. *sylvestris* Maximowicz.

Shrubs dioecious, to 2 m tall, spinose. Branchlets opposite or subopposite, dark purple, smooth, glabrous, terminating in a spine; axillary buds small, scales glabrous. Leaves opposite or subopposite, rarely alternate; stipules linear-lanceolate, margin ciliate, caducous; petiole 1–2(–3) cm; leaf blade suborbicular, ovate-rhombic, or elliptic, 3–7 × 1.5–3.5(–4.5) cm, papery or thinly so, both surfaces glabrous, rarely abaxially pilose in vein axils and adaxially pilose on midvein, lateral veins 4 or 5 pairs, base cuneate or subrounded, margin crenate-serrate, apex acute or acuminate. Flowers unisexual, 4-merous, usually few fascicled on short shoots or in lower leaf axils of long shoots. Pedicels 3–4 mm. Petals present. Drupe black or purple-black, subglobose or obovate-globose, 4–6 mm in diam., with (1 or)2 stones, with persistent calyx tube at base; fruiting pedicel 7–8 mm. Seeds black-brown, with short abaxial furrow extending over 1/3 of length. Fl. May–Jun, fr. Jul–Sep.

Mixed forests, riverbanks. Heilongjiang, Jilin, Liaoning [Japan, N Korea, Russia (Far East)].


**乌苏里鼠李** 乌苏里鼠李


Shrubs spinose, dioecious, to 5 m tall, glabrous or subglabrous. Branchlets opposite or subopposite, slightly virgate, gray-brown, smooth, often terminating in a spine; axillary and terminal buds ovoid, with few scales, 3–4 mm. Leaves opposite or subopposite, or fascicled on short shoots; stipules lanceolate, caducous; petiole 1–2.5 cm; leaf blade shiny, narrowly elliptic or narrowly oblong, rarely lanceolate-elliptic or elliptic, 3–10.5 × 1.5–3.5 cm, papery, both surfaces glabrous or hairy only on midvein, lateral veins 4 or (5 or) 6 pairs, prominent on both surfaces, base cuneate or rounded, slightly oblique, margin obtusely serrate or crenate-serrate, with glandular teeth, apex acute or shortly acuminate. Flowers unisexual, 4-merous. Pedicels 6–10 mm. Petals present. Female flowers few- to 20-fascicled in leaf axils of long shoots or on short shoots; sepals ovate-lanceolate, 3–4 × as long as calyx tube, with rudimentary stamens; style 2-fid or cleft to half. Drupe black, globose or obovoid-globose, 5–6 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 6–10 mm. Seeds black-brown, ovoid, abaxially-laterally with short margined furrow slit at upper part. Fl. Apr–Jun, fr. Jun–Oct.

Mountain forests, thickets on slopes, riverbanks; below 1600 m. Heilongjiang, N Hubei, Jilin, Liaoning, Nei Mongol, E Shandong (Kun-yu Shan) [Japan, N Korea, Mongolia, Russia (Far East, W Siberia)].

This species is quite similar to *Rhamnus davurica*, but the latter differs in having broader elliptic or ovate leaves and terminal buds not changed into a spine.

36. **Rhamnus davurica** Pallas, Reise Russ. Reich. 3: 721. 1776 [*"davurica"*].

**鼠李** 鼠李

Shrubs or small trees, dioecious, to 10 m tall, unarmed, much branched. Branchlets opposite to subopposite, or fascicled on short shoots, brown or red-brown, glabrous or slightly smooth, often terminating in a large bud; terminal and axillary buds ovoid, large, 5–8 mm; scales pale brown, conspicuously white ciliate. Leaves opposite or fascicled on short shoots; petiole 1.5–4 cm, glabrous or pilose; leaf blade broadly elliptic or ovate, rarely oblanceolate-elliptic, 4–13 × 2–6 cm, papery, abaxially sparsely pilose on veins, adaxially glabrous or sparsely pilose on veins, lateral veins 4 or (5 or) 6 pairs, prominent on both surfaces, base cuneate or subrounded, sometimes slightly oblique, margin finely crenate, with glandular teeth, apex acute or shortly acuminate to acuminate, rarely obtuse or rounded. Flowers yellowish green, unisexual, 4-merous. Sepals very thin, translucent, 3-veined. Petals present. Male flowers 7–8 mm, very narrow; calyx tube narrowly funnel-shaped, ovary rudimentary. Female flowers 1–3 in leaf axils or few- to 20-fascicled on short shoots, with rudimentary stamens; style 2- or 3-fid or cleft to half, 7–8 mm. Drupe black, globose, 5–6 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 1.1–2.2 mm. Seeds yellow-brown, ovoid-globose, abaxially-laterally narrowly furrowed for entire length. Fl. May–Jun, fr. Jul–Oct. 2n = 24*.

Forests on slopes, forest margins, thickets, wet places along canals; below 1800 m. Heilongjiang, Jilin, Liaoning, Shanxi [N Korea, Mongolia, Russia (Far East, Siberia)].

The bark and fruit are used for making a yellow dye, the hard wood for making furniture, and oil extracted from the seeds for making lubricating oil. The fleshy fruit is used medicinally.

凍绿 dong lü

Shrubs or small trees, dioecious, to 4 m tall, mainly spino-ose, rarely unarmed. Branches opposite to subopposite; young branches whitish to grayish pubescent, glabrescent, terminating in a bud or spine; old branches brown or purple-red, smooth. Leaves opposite to subopposite or fascicled on short shoots; stipules lanceolate, often pilose, persistent; petiole 0.5–1.5 cm, adaxially canaliculate; leaf blade abaxially yellow-green, adaxially dark green, shiny, elliptic, oblong, or obovate-elliptic, 4–15 × 2–6.5 cm, papery to subleathery, abaxially golden-yellow pubescent on veins, adaxially mostly glabrous, lateral veins 5 or 6–8 pairs, prominent on both surfaces, base cuneate or rarely rounded, sometimes slightly asymmetric, margin finely serrate, apex acute. Flowers unisexual, 4-merous. Pedicels 5–7 mm, glabrous, white pilose, or gray pubescent. Calyx puberulent or apex acute. Flowers yellow-green, unisexual, 4-merous. Pedicels (5–12 mm, glabrous. Seeds abaxially-laterally with marginal short furrow at base. Fl. Apr–Jun, fr. May–Aug.

- Forests, thickets, mountains, hills, grassy slopes; below 3300 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Zhejiang [Japan, Korea].
- Thickets on slopes, forest understoreys. Gansu, Guangxi, Guizhou, Henan, Hebei, Shanxi, Sichuan.


凍绿 mao dong lü


Young branches, annual branches, and petioles sparsely or densely grayish pubescent. Leaves smaller, both surfaces golden-yellow pubescent especially abaxially. Pedicels sparsely puberulent.

- Forests on slopes; 2600–3300 m. S Gansu, N Sichuan.


高山凍绿 gao shan dong lü

Branches terminating in a bud, but without spine. Leaf blade abaxially white hirsute, adaxially pubescent on veins, base inequilateral, margin conspicuously deeply serrate or double serrate.

- Forests in valleys; 2600–3300 m. S Gansu, N Sichuan.

**38. Rhamnus erythroxylum** Pallas, Reise Russ. Reich. 3: 722. 1776.

柳叶鼠李 liu ye shu li

Shrubs, rarely trees, dioecious, to 2 m tall, very spino-ose. Young branches brown or purple-brown, smooth, glabrous; branchlets alternate, terminating in a spine. Leaves alternate or fascicled on short shoots; stipules subulate, caducous; petiole 3–15 mm, glabrous or puberulent; leaf blade abaxially brownish, narrowly lanceolate to narrowly obovate, 3–5 cm × 3–10 mm, papery, both surfaces glabrous, lateral veins 4 or 5 pairs, venation abaxially distinctly prominent, adaxially inconspicuous, base cuneate, margin remotely serrulate, apex acute or obtuse. Flowers yellow-green, unisexual, 4-merous. Pedicels ca. 5 mm, glabrous. Petals present. Male flowers few or 20-fascicled on short shoots, broadly campanulate; sepals subequal to calyx tube. Female flowers: sepals narrowly lanceolate, ca. 2 × as long as calyx tube, with rudimentary stamens; ovary 2- or 3-loculed; styles 2(0 or 3)-fid or cleft to half. Drupe black at maturity, globose, 5–6 mm in diam., usually 2(0 or 3) stones, with persistent calyx tube at base; fruiting pedicle 6–8 mm. Seeds pale brown, obovoid, 3.4 mm, abaxially with narrow margin furrow extending over 4/5 of length. Fl. May, fr. Jun–Jul.

- Thickets, hills, open slopes, stony and rocky slopes, dry sands; 1000–2100 m. Gansu, Hebei, Nei Mongol, Qinghai, W Shaanxi, Shanxi [Mongolia, Russia (Siberia); SW Asia (Caucasus)].

The leaves are strongly fragrant and are used as a substitute for tea in Shaanxi.

**鄂西鼠李**

Shrubs prostrate, 8–20 cm tall. Spines not seen; annual branches pale yellow, slender, glabrous, terminal buds not becoming spinose; old branches often tortuous, striate or irregularly fissured. Leaves alternate or subopposite or fascicled on short shoots; stipules subulate, nearly equaling petioles or shorter, persistent; petiole 2–3 mm, adaxially canaliculate, glabrous; leaf blade abaxially golden-yellow when dry, adaxially green, narrowly ob lanceolate or oblanceolate, small, 1–2.5 × 0.3–0.6 cm, papery or thinly leathery, both surfaces glabrous, lateral veins 3–5 pairs, curved, midvein and lateral veins slightly prominent abaxially, impressed adaxially, conspicuously reticulate, base narrowly cuneate, margin sparsely crenulate or entire or subentire at lower part, slightly revolute, apex rounded-obtuse or emarginate. Flowers not seen. Drupes 1 or 2 at lower part of branchlets or in leaf axils of short shoots, obovoid-globose, 4–5 mm in diam., with shallow cup-shaped persistent calyx tube at base; fruiting pedicel 5–8 mm, glabrous, with 2(2 or 3) stones. Seeds pale brown, shiny, obovoid-oblong, 4–5 mm, abaxially with margined furrow for 4/5 of length. Fl. unknown, fr. Jul–Aug.

- Rock crevices, stony sands. W Hubei (Zigui).

This species is closely related to **Rhamnus erythroxylum** but differs from the latter in having a prostrate, low habit; terminal buds small, never spinose; leaves small, ob lanceolate or narrowly ob lanceolate, with margin sparsely crenulate and apex rounded-obtuse; and stipules subulate, persistent.

Material of this species was not seen by the second author.


**铁马鞭**

Shrubs small, dioecious, to 1 m tall, spinose. Young and annual branches puberulent; branchlets alternate or subopposite, gray-brown or black-brown, scabrous, terminating in a spine. Leaves alternate or fascicled on short shoots; petiole 1.5–3 mm, densely pilose; leaf blade golden-yellow when dry, elliptic, obovate-elliptic, or obovate, rarely oblong, 1–2 cm × 5–10 mm, papery or subleathery, abaxially densely pilose especially on veins, adaxially pilose, lateral veins 3 or 4 pairs, prominent abaxially, ± impressed adaxially, base cuneate, margin often revolute, serrulate, apex obtuse or rounded, rarely emarginate. Flowers unisexual, 4-merous, usually 3–6-fascicled on short shoots. Pedicels 2–3 mm, pilose. Petals lanceolate, subequaling stamens. Styles in female flowers 2-fid to half. Drupe black at maturity, subglobose, 3–4 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 2–3 mm, pilose. Seeds brown, smooth, abaxially with margined furrow for 3/4–4/5 of length. Fl. Apr, fr. May–Aug.

- Forests on mountain slopes; 1800–2400 m. Yunnan.

This species is quite similar to **Rhamnus rosthornii**, but the latter differs in having leaves larger, leathery, glabrous on both surfaces, or pilose on midvein abaxially and clustered hairy in vein axils adaxially; also, the flowers and fruiting pedicels are glabrous.


**纤花鼠李**

Shrubs spreading, dioecious, to 3 m tall, much spinose. Branches alternate or subopposite, often terminating in a woody spine; young branches yellow-green, pilose; older branches purple-red or dark purple, shiny, smooth, glabrous, with longitudinally fissured outer bark. Leaves alternate to subopposite, or fascicled on short shoots; stipules linear, ca. 1/2 as long as petiole; petiole 1–2 mm, puberulent; leaf blade axially pale green, adaxially grayish green, oblanceolate, obovate-elliptic, or oblong, small, narrow, 6–18 × 3–6 mm, subleathery, both surfaces glabrous or puberulent only at base; lateral veins 2–4 pairs, base cuneate, margin sparsely serrate, apex obtuse or emarginate. Flowers yellow-green, unisexual, 4-merous, glabrous. Pedicels 2–4 mm, slender. Male flowers 2–5-fascicled on short shoots, ca. 2.5 mm; sepals ovate-lanceolate, apex acute, ca. 2 × as long as petals; rudimentary ovary very small, narrow. Female flowers 2- or 3-fascicled at apices of branches or in leaf axils of lower part of annual branches; styles 2-fid. Drupe brown, subglobose, 3–4 mm in diam., with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel 4–5 mm, glabrous. Seeds yellow-brown, oblong-ovoid, abaxially-laterally with margined, broadly gaping furrow extending over 4/5 of length. Fl. Apr–Jun, fr. Jun–Sep.

- Forests and thickets on slopes; 700–1200 m. NW Hubei, E Sichuan.


**小冻绿树**

*Rhamnus cavaleriei* H. Léveillé (5 Dec 1911), not H. Léveillé (10 May 1911); *R. leveilleana* Fedde.

Shrubs or small trees, dioecious, to 3 m tall, spinose. Branches alternate or subopposite, terminating in a spine; young branches greenish pilose; old branches gray-brown or black-brown, glabrous, longitudinally fissured. Leaves alternate or fascicled on short shoots; stipules linear-lanceolate, puberulent, equaling petiole or slightly longer, persistent; petiole 2–4 mm, pilose; leaf blade abaxially pale green, adaxially dark green, shiny, spatulate, rhombic-elliptic, or obovate-elliptic, 1–2.5 × 0.5–1.2 cm, leathery or thinly leathery, abaxially often with bearded domatia in axes of primary and lateral veins, adaxially glabrous, lateral veins 2–4 pairs, rather inconspicuous on both sides, base cuneate, rarely subrounded, margin crenate or obtusely serrate, slightly revolute, apex truncate or rounded, rarely acute. Flowers unisexual, 4-merous, glabrous. Pedicels 2–3 mm. Petals present. Female flowers few fascicled on short shoots or in leaf axils of annual branches; rudimentary stamens quite small; styles apically 2-cleft. Drupe black at maturity, globose, 3–5 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 2–4 mm, glabrous. Seeds reddish brown, shiny, obovoid-globose, abaxially with margined furrow for 4/5 of length. Fl. Apr–May, fr. Jun–Sep.

- Forests at riversides, thickets, sunny slopes; 600–2600 m.

*新疆鼠李* xin jiang shu li

Shrubs knotty branched (crooked), dioecious, to 1 m tall, spinose. Branchlets alternate, red-brown, puberulent or subglabrous, terminating in an obtuse spine. Leaves alternate or fascicled on short shoots; stipules subulate, persistent; petiole 2–3 mm; leaf blade abaxially yellow-green, adaxially gray-green, elliptic or oblong, rarely lanceolate-elliptic, 1–2.2 × 0.3–1.2 cm, papery, abaxially finely pubescent at base, adaxially glabrous, with stout primary vein and 3 or 4 pairs of lateral veins, primary vein prominent on both sides, lateral veins inconspicuous, base cuneate, margin entire or above middle inconspicuously serrulate, apex obtuse. Flowers unisexual. Male flowers few fascicled on short shoots, 4-merous. Pedicels 2–3 mm. Petals present. Female flowers yellow-green; sepals ovate, 3-veined; petals oblong-ovate; rudimentary stamens present; ovary globose, 3-loculed; styles cleft to half. Drupe black at maturity, globose, ca. 6 mm in diam., with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel ca. 3 mm. Seeds brown, shiny, oblong-ovoid, abaxially with cartilaginous margined, shallow furrow for 4/5 of length. Fl. Apr–May, fr. Jun–Aug.

Forests, thickets, dry pebbly and stony mountain slopes; 1000–2000 m. W Xinjiang [Russia].

According to the original description, the leaves are entire, but plants from Xinjiang differ in having sparsely crenulate leaves of slightly thin texture.


*矮小鼠李* ai xiao shu li

Shrubs creeping or pulvinate, dioecious, small, 10–25 cm tall, spinose, profusely shortly branched. Branchlets strict, alternate, dark gray or gray-brown, smooth or longitudinally fissured, terminating in a spine. Leaves very small, alternate or fascicled on short shoots; stipules linear-lanceolate, subequaling petiole; petiole 1–2 mm, puberulent; leaf blade bright green, unicolored on both surfaces, obovate, obovate-elliptic, or oblong, very small, 5–10 × 2.5–6 mm, papery, glabrous or puberulent, lateral veins 2 or 3 pairs, inconspicuous, base broadly cuneate, margin sparsely acutely denticulate, apex obtuse or rounded, rarely acuminate. Flowers unisexual, broadly campanulate, 1.5–2 mm, glabrous, usually 2- or 3-fascicled in leaf axils of short shoots, shortly pedicellate. Drupe yellow or dark brown at maturity, obovoid-globose, 3–4.5 mm in diam., with 2 or 3 stones, base with cup-shaped persistent calyx tube. Seeds brown, shiny, oblong-ovoid, oblique, ca. 3 mm, abaxially with margined, narrow furrow extending over nearly whole length.

Rock crevices in subalpine and alpine zones; 2800–4000 m. SW Xinjiang [Russia].


*平卧鼠李* ping wo shu li

Shrubs low, prostrate, deciduous, dioecious, 1–2 m tall, spinescent. Branches alternate, short; young branches spreading, red-brown, puberulent or glabrous; flowering branches often crooked, gray-brown or red-brown, slightly scaly, terminating in a spine. Leaves alternate or fascicled on short shoots; stipules red-brown, subulate-lanceolate, shorter than petiole or slightly longer, puberulent, persistent; petiole 1–3 mm, puberulent; leaf blade abaxially yellow-green, turning yellow when dry, adaxially green, elliptic or ovate-elliptic, rarely oblong, small, 0.2–2.2 cm × 4–10 mm, papery, both surfaces puberulent or subglabrous, lateral veins 2–4 pairs, abaxially slightly conspicuous, often connected near margin, base broadly cuneate, margin inconspicuously denticulate or subentire, apex obtuse or rounded, sometimes emarginate. Flowers yellow-green, unisexual, usually 3- or 4-fascicled on short shoots. Pedicels short, puberulent. Calyx cup-shaped; sepals ovate-triangular. Petals narrowly obovate, ciliate, very small. Disk glabrous. Style 3- or 4-fid. Drupe purple-red, turning black at maturity, obovoid-globose, ca. 5 mm in diam., with 3 or 4 stones, with cup-shaped persistent calyx tube at base; fruiting pedicel 3–4 mm, subglabrous. Seeds yellow-brown, with brownish dots, ovoid-oblong, ca. 3 mm, abaxially with shallow margined furrow extending over 4/5 of length. Fl. May–Jun, fr. Jun–Aug.

Rock crevices in subalpine and alpine zones, stony slopes; 2800–3900 m. W Xizang [Afghanistan, E and W India, Kashmir, Pakistan].

This species is quite similar to *Rhamnus minuta*, but the latter is shorter (not more than 25 cm tall), with obovate or obovate-elliptic leaves not more than 1 cm.


*台中鼠李* tai zhong shu li


Shrubs dioecious, unarmed, glabrous. Branches alternate, spreading; young branches grayish, longitudinally fissured; older branches dark brown, scabrous, terminal buds with distinctly elongated, reddish, glabrous scales, to 2 cm. Stipules reddish, subulate-lanceolate, caducous; petiole ca. 1 cm, glabrous; leaf blade abaxially pale green, adaxially green, oblong-ovate or ovate-orbicular, (5–)7–10 × 3–5 cm, membranous or thinly papery, both surfaces glabrous, lateral veins 4–6 pairs, curved, slightly prominent abaxially, inconspicuous adaxially, base subrounded, rarely cuneate, margin crenate-serrate, apex acuminate to caudate-acuminate, rarely acute. Flowers yellow-green, unisexual, 4-merous, usually 5- or 6-fascicled in leaf axils, campanulate or narrowly campanulate, glabrous. Pedicels ca. 1 cm, slender. Sepals lanceolate, ca. 3 mm, with 3 veins. Male flowers: petals spatulate-oblanceolate, 1.5–2 mm; rudimentary ovary minute. Female flowers: petals rudimentary; stamens minute, ca. 0.5 mm; ovary globose; styles ca. 2 mm, 3- or 4-fid; stigma spreading, incurved. Drupe ellipsoid-globose, ca. 4 mm in diam., with 3 or 4 stones. Seeds brownish, obovoid, abaxially with whitish margined, narrow furrow extending over ca. 1/2 of seed length. Fl. Feb, fr. Feb–Nov.

- Forests on slopes; ca. 1300 m. Taiwan.

山鼠李 shan shu li

Shrubs dioecious, 1–3 m tall, armed or unarmed. Branchlets alternate to subopposite, silvery-gray or gray-brown, sometimes terminating in an obtuse spine; terminal buds with few scales; scales pale green, ciliate. Leaves alternate to rarely subopposite, or fascicled at base of annual branches or on short shoots; petiole 2–4 mm, glabrous; leaf blade elliptic or broadly elliptic, rarely obovate-lanceolate or obovate-elliptic, 5–15 × 2–6 cm, papery or thinly papery, both surfaces glabrous or abaxially pubescent especially on veins, lateral veins 5–7 pairs, prominent abaxially, slightly impressed adaxially, reticulate veins conspicuous, base cuneate, margin hooked-crenate, apex acuminate or long acuminate. Flowers yellow-green, unisexual, 4-merous, few- to 20-fascicled at base of annual branches or on short shoots; petals present. Female flowers few to 10 in axils. Pedicels 6–10 mm. Male flowers with petals present. Female flowers with rudimentary stamens; ovary globose, 3-loculed; styles longer than ovary, (2 or) 3-fid or nearly cleft to half. Drupe purple-black or at maturity, obovoid-globose, ca. 9 mm, 6–7 mm in diam., with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel 6–15 mm, glabrous. Seeds dark brown, obovoid-oblong, ca. 6.5 mm, abaxially with margined furrow extending over 2/5–1/2 of length, without fissured line. Fl. Apr–May, fr. Jun–Oct.

- Forests, forests margins, thickets, slopes, roadsides; 300–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang.

1a. Young branches, petioles, and leaves glabrous; leaf blade elliptic or broadly elliptic, 2–6 cm wide ................................. 47a. var. wilsonii

1b. Young branches, petioles, and abaxial leaf surface especially along veins pubescent; leaf blade usually broadly elliptic, to 7.5 cm wide ......................................... 47b. var. pilosa

47a. **Rhamnus wilsonii** var. wilsonii

山鼠李(原变种) shan shu li (yuan bian zhong)

Young branches, petioles, and leaves glabrous. Leaf blade elliptic or broadly elliptic, rarely obovate-lanceolate or obovate-elliptic, 2–6 cm wide.

- Forests and thickets along canals, slopes, roadsides; 300–1500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang.

47b. **Rhamnus wilsonii** var. pilosa Rehder, J. Arnold Arbor. 7: 167. 1927.

毛山鼠李 mao shan shu li

Young branches, petioles, and abaxial leaf surface especially along veins pubescent. Leaf blade usually broadly elliptic, to 7.5 cm wide.

- Forest margins, thickets, slopes; 400–1600 m. Anhui, Fujian, Jiangxi, Zhejiang.


钩齿鼠李 gou chi shu li

**Rhamnus hamatidens** H. Léveillé.

Shrubs or small trees, dioecious, to 6 m tall, spinescent. Branchlets alternate, rarely subopposite, gray-brown or yellow-brown, terminating in a spine; buds small, with few scales, glabrous. Leaves alternate or fascicled on short shoots; stipules caducous; petiole 5–10 mm; leaf blade narrowly elliptic or elliptic, rarely lanceolate or obovate-elliptic, 5–12 × 2–5.5 cm, papery or thinly papery, both surfaces glabrous, lateral veins 4–6 pairs, base cuneate, margin hooked incurved-crenate, apex crenate-acuminate, rarely acute. Flowers yellow-green, unisexual, 4-merous. Pedicels 5–9 mm. Male flowers 2 to few in leaf axils or on short shoots or fascicled in lower parts of annual branches; petals present. Female flowers few to 10 in fascicles; styles 2- or 3-fid or nearly cleft to half. Drupe black at maturity, obovoid-globose, 6–7 mm, ca. 5 mm in diam., with 2( or 3) stones, with persistent calyx tube at base; fruiting pedicel 6–10 mm. Seeds dark brown, obovoid-obovoid, abaxially with short margined furrow extending over 1/4 of length, fissured at upper part. Fl. Apr–May, fr. Jun–Sep.

- Forests, mountain thickets, shaded places; 400–1600 m. Fujian, Guangxi, Guizhou, W Hubei, Hunan, Jiangxi, E Sichuan, SE Yunnan.


湖北鼠李 hu bei shu li

Shrubs 1.5–2 m tall, unarmed. Young branches alternate, yelow-green, glabrous, longitudinally striate when dry, ± with lenticels; old branches fissured, gray-brown, terminating in a large, ovoid bud 3–6 mm; scales few, pale yellow, black-brown at base, ciliate. Leaves alternate or fascicled at short shoots; stipules caducous; petiole 1–1.5 cm, adaxially canaliculate, glabrous; leaf blade abaxially pale green, adaxially dark green, elliptic or oblong-ovate, rarely lanceolate-elliptic, 5–11 × 2.5–5 cm, papery or thinly papery, both surfaces glabrous, lateral veins 5–7 pairs, prominent abaxially, impressed adaxially, base cuneate, margin sparsely serrate, apex shortly acuminate or acuminate. Flowers unisexual, few fascicled at short shoots. Drupes usually 1 or 2 on short shoots, black at maturity, obovoid-globose, 5–7 mm in diam., with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel 7–8 mm. Seeds purple-black, shiny, obovoid-obovoid, 5–7 mm, abaxially with margined furrow extending over 5/7 of length. Fl. unknown, fr. Jun–Oct.

- Forests, thickets, slopes; 1700–2300 m. W Hubei.


皱叶鼠李 zhou ye shu li

Shrubs dioecious, more than 1 m tall, spinescent. Young branches gray-green, turning red-purple, puberulent or glabrous; old branches alternate, dark red or purple-black, shiny, smooth, glabrous, terminating in a spine; axillary buds ovoid, small, with few scales, sparsely hairy. Leaves alternate on long
shoots, or 2–5-fascicled on short shoots; stipules linear, caducous; petiole 5–16 mm, white pilose; leaf blade abaxially gray-green or gray-white, adaxially dark green, obovate-elliptic, obovate, or ovate-elliptic, rarely ovate or broadly elliptic, 3–10 × 2–6 cm, thickly papery, both surfaces densely whitish pubescent, lateral veins 5–7(–8) pairs, prominent abaxially, impressed adaxially, base round or cuneate, margin obtusely serrulate or shallowly denticulate, or inconspicuously denticulate at lower margin, apex acute or shortly acuminate, rarely subrounded. Flowers yellow-green, unisexual, 4-merous, sparsely pilose. Pedicels ca. 5 mm, sparsely hairy. Male flowers few to 20; calyx tube narrowly campanulate; sepals narrowly triangular; petals present. Female flowers 1–10-fascicled on lower part of annual branches or on short shoots; calyx tube hemispherical; sepals narrowly triangular; petals absent; stamens rudimentary; ovary globose; style long, shortly 2- or 3-cleft apically. Drupe purple-black or black at maturity, obovoid-globose or globose, 6–8 mm, ca. 4 mm in diam., with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel 5–16 mm, sparsely hairy. Seeds brown, shiny, oblong-obovoid, ca. 7 mm, abaxially with margined furrow ca. as long as seeds. Fl. Apr–May, fr. Jun–Sep.

- Mountain forests and thickets, 500–1500 m. W Hubei, E Sichuan.


oblong, ca. equal to stamens, 2–2.5 mm, apex obtuse or mucronulate; rudimentary ovary minute; styles 2-fid. Female flowers: petals very short, fibrous; ovary subglobose; styles 3-cleft to half; stigma incurved. Drupe globose, 3–5 mm in diam., with 2 or 3 stones, with persistent, shallow, cup-shaped calyx tube at base; fruiting pedicel 4–7 mm, puberulent. Seeds dark brown, abaxially with margined short furrow for 1/4 of length. Fl. May–Jun, fr. Jul–Oct.

- Understories of forests on slopes, thickets; 1000–1800 m. Guizhou, Sichuan.

This species is very similar to *Rhamnus lanampophylla* but differs in having branchlets, leaves, and petals initially pilose and flowers larger (5–6 mm), puberulent.

Material of this species was not seen by the second author.


琉球鼠李 liu qiu shu li


Shrubs dioecious, to 4 m tall, unarmed. Young branches glabrous, alternate, purplish to grayish brown, without spines. Leaves alternate or fascicled on short shoots; stipules linear, 3–5 mm; petiole 8–15–(20) mm, adaxially canaliculate, sparsely puberulent; leaf blade pale green abaxially, deeply green adaxially, ovate or broadly elliptic-ovate, 4–(8–)10 × 3–6 cm, membranous or thinly papery, abaxially sparsely pilose on major veins or in vein axils, adaxially glabrous, lateral veins 4 or 5 pairs, prominent abaxially, impressed adaxially, base obtuse to acute, margin serrate, apex acute or acuminate. Flowers unisexual, glabrous, usually fascicled on short shoots or in leaf axils of lower parts of branches. Calyx tube campanulate; sepals triangular-lanceolate, apex acute. Petals much shorter than sepals, lanceolate, caducous. Stamens equaling petals. Ovary slightly inferior, 2- or 3-loculed; style 2- or 3-branched. Drupe reddish when mature, globose, 2- or 3-grooved longitudinally, glabrous, with 2 or 3 stones, with persistent calyx tube at base; fruiting pedicel 6–7 mm, glabrous. Seeds unknown. Fl. Feb–Mar, fr. Jun–Aug.

Sparse forests; high elevations. C Taiwan [Japan (including Ryukyu Islands)].


武鸣鼠李 wu ming shu li

Shrubs 3–4 m tall, spinescent. Young branches alternate, spreading, yellow-green or gray-green, smooth, glabrous, terminating in a spine; old branches red-brown, glabrous, with irregular scaly slits. Leaves alternate or 2–4-fascicled on short shoots; stipules caducous; petiole 6–25 mm, adaxially canaliculate, pilose; leaf blade abaxially pale green, adaxially gray-green, oblong or ovate-oblong, 3–6 × 2–3 cm, papery, abaxially glabrous, or sparsely hbarbate only in vein axils, adaxially glabrous, lateral veins 4–6 pairs, midvein and lateral veins prominent abaxially, impressed adaxially, conspicuously reticulate, base subrounded or broadly cuneate, margin crenate-serrulate, apex shortly acuminate or obtusely acute, rarely subrounded. Flowers not seen. Drupes 1–3 in leaf axils of lower part or on short shoots, red-brown, obovoid-globose, 5–6 mm in diam., with 2 or 3 stones, with shallow, cup-shaped, persistent calyx tube at base; fruiting pedicel 6–12 mm, glabrous. Seeds yellow-brown, oblong-obovoid, ca. 5 mm, abaxially with margined furrow nearly equal to length of seeds. Fl. unknown, fr. Jun–Aug.

- Dense forests, thickets, slopes; low elevations. Guangxi.

Material of this species was not seen by the second author.


山绿柴 shan liu chai

Shrubs dioecious, 1.5–3 m tall, spinescent. Young branchlets, alternate, red-brown or gray-brown, slightly smooth, black-brown or brown pilose, hairs ± deciduous, terminating in a spine; old branches red-brown, glabrous, often with irregular slits. Leaves alternate or fascicled on short shoots; stipules linear-lanceolate, ca. 1/2 as long as petiole, caducous; petiole 4–9 mm, adaxially canaliculate, pilose; leaf blade abaxially often turning reddish or yellow-green when dry, adaxially green or yellow-green, oblong, ovate-oblong, or obovate, rarely elliptic or suborbicular, 3–10 × 1.5–4.5 cm, papery or thickly papery, abaxially glabrous, often with verrucose process, adaxially sparsely puberulent at least on major veins, rarely subglabrous, lateral veins 3–5 pairs, prominent abaxially, base broadly cuneate or subrounded, margin hooked incurved-serrate, apex acuminate or acute, rarely obtuse or subrounded. Flowers yellow-green, unisexual, 4-merous, 1–3 in leaf axils of lower part of branchlets or on short shoots. Female flowers: calyx tube campanulate; sepals lanceolate, 2–2.5 mm, inconspicuously 3-veined, puberulent; ovary subglobose; styles 3-cleft to half; stigma recurved. Pedicels 2–3 mm, sparsely puberulent. Drupe black at maturity, obovoid-globose, 6–7 mm in diam., with (2 or)3 stones, with shallow, cup-shaped calyx tube at base; fruiting pedicel 2–4 mm, puberulent. Seeds brown, oblong-obovoid, ca. 6 mm, abaxially with margined furrow for 1/2 of length. Fl. May–Jun, fr. Jul–Nov.

- Sparse forests in valleys, thickets on slopes, roadsides; 500–1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Zhejiang.

This species is similar to *Rhamnus fulvotincta* but differs in having branchlets, leaves, and petals brown or black-brown pilose, flowers and pedicels puberulent, and seeds abaxially with margined furrow to 1/2 as long as whole length.


黄鼠李 huang shu li

Shrubs 1–2 m tall, spinescent. Annual branchlets puberulent or subglabrous; branchlets usually alternate, rarely opposite or subopposite, gray-brown, terminating in an obtuse spine; axillary buds small. Leaves alternate, rarely subopposite; stipules
subulate, ca. 1/2 as long as petiole, caducous; petiole 3–6 mm, puberulent or subglabrous; leaf blade abaxially pale green, turning yellow when dry, adaxially green, elliptic or ovate-elliptic, rarely lanceolate-elliptic, 3–6.5 × 1.5–2.5 cm, papery or thickly papery, abaxially pilose on veins or in vein axils, adaxially glabrous, lateral veins 3–5 pairs, slightly prominent abaxially, ± impressed adaxially, inconspicuously reticulate, base cuneate, margin ± revolute when dry, serrulate, apex acute. Flowers not seen. Drupe solitary or 2–4-fascicled in leaf axils at base of branchlets, black, obovoid-globose, ca. 5 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel 6–8 mm. Seeds brown, oblong-ovoid, abaxially with margined short furrow for 1/4–1/3 of length. Fl. unknown, fr. Jul–Oct.

Forest margins and thickets on limestone slopes; ca. 400 m. Guangdong, Guangxi, Guizhou.

Material of this species was not seen by the second author.


**長梗鼠李** chang geng shu li

Shrubs spreading, dioecious, 2–3 m tall, spinescent. Branches alternate; young branches green, glabrous or pilose at base; older branches yellow-brown or dark purple, smooth, glabrous, terminating in a spine; buds ovoid-orbicular, with few scales, margin ciliate. Leaves alternate or fascicled on short shoots; stipules linear, caducous; petiole 6–15(–25) mm, adaxially canaliculate, pilose; leaf blade abaxially pale green, adaxially green, elliptic, ovate, or ovate-elliptic, 2.5–8 × 2–4 cm, papery or submembranous, abaxially veins or vein axils pilose or glabrous, adaxially white adpressed hairy or pilose, lateral veins (3–)5 or 6 pairs, prominent on both surfaces, base cuneate or subrounded, margin crenate-serrate, apex acute or acuminate. Flowers yellow-green, unisexual, 4-merous, usually few to 11-fascicled on short shoots. Petals present. Female flowers: pedicels 9–13 mm, glabrous; sepals reflexed, lanceolate, ca. 3 mm; ovary obovoid; styles 2-fid or cleft to half. Drupe black, obovoid-globose or globose, 4–5 mm in diam., with 2 stones, with persistent calyx tube at base; fruiting pedicel (6–)10–18 mm, glabrous. Seeds dark brown, abaxially from base with margined furrow for 1/5 of length. Fl. May–Jun, fr. Jul–Oct.

Mountain forest and thicket margins, open sunny slopes; 400–2200 m. Hebei, Heilongjiang, Jilin, Liaoning, Shandong, Shanxi [N Korea].

1a. Leaf lateral veins 5 or 6 pairs; fruiting pedicel 10–16 mm ............................... 57a. var. *schneideri*

1b. Leaf lateral veins 3 or 4 pairs; fruiting pedicel 6–8 mm ................................ 57b. var. *manshurica*

**57a. Rhamnus schneideri** var. *schneideri*

**長梗鼠李(原变种) chang geng shu li (yuan bian zhong)**

*Rhamnus glabra* (Nakai) Nakai; *R. globosa* Bunge var. *glabra* Nakai.

Leaf lateral veins 5 or 6 pairs. Fruiting pedicel 10–16 mm.

Mountain forest and thicket margins; 800–2200 m. Hebei, Heilongjiang, Jilin, Liaoning, Shanxi.


**东北鼠李 dong bei shu li**


Leaf blade small, lateral veins 3 or 4 (or 5) pairs, abaxially glabrous, adaxially pilose. Fruiting pedicel 6–8 mm.

Thickets, open sunny slopes; 400–2200 m. Hebei, Jilin, Liaoning, E Shandong (Kunyu Shan, Laoshan), Shanxi [N Korea].