

**149. CORETHRODENDRON** Fischer & Basiner, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 4: 315. 1845.

山竹子属 *shan zhu zi shu*

Xu Langran (徐朗然 *Xu Lang-rang*); Byoung-Hee Choi

Shrublets. Stems conspicuous. Stipules 2, opposite petiole, scarious, connate or free, deciduous. Leaves imparipinnate; leaflet blades opposite, margin entire. Racemes axillary, lax, many flowered; bracts marcescent or caducous. Bracteoles 2 at base of calyx. Calyx campanulate or obliquely campanulate; teeth 5, unequal or subequal. Corolla purple or pinkish purple, marcescent on mature legumes; standard longer than wings, slightly longer than keel, not turned backward at anthesis; keel with claw longer than half of lamina. Stamens diadelphous (9+1). Ovary sessile, hairy. Legume articulate, divided into several loments, indehiscent, adaxial suture grooved; loments compressed or biconvex, lanate, pubescent, or glabrous, with or without prickles.

Five species: China, Kazakhstan, Mongolia, Russia; five species (one endemic) in China.

- 1a. Leaves at apex without leaflet to only 1 at terminating rachis; legume densely lanate ..... 1. *C. scoparium*
- 1b. Leaves normally imparipinnate; legume glabrous to pubescent.
  - 2a. Calyx tube split between adaxial or lateral teeth; leaflet blades 15–31, broadly ovate to suborbicular.
    - 3a. Calyx obliquely campanulate, tube split between adaxial teeth ..... 2. *C. multijugum*
    - 3b. Calyx 2-labiate, tube split between adaxial and lateral teeth ..... 3. *C. krassnowii*
  - 2b. Calyx tube not split between teeth; leaflet blades (5–)11–19(–21), oblong, elliptic, broadly linear, or lanceolate.
    - 4a. Legume pubescent and prickly ..... 4. *C. fruticosum*
    - 4b. Legume glabrous ..... 5. *C. lignosum*

**1. *Corethrodendron scoparium*** (Fischer & C. A. Meyer) Fischer & Basiner, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 4: 315. 1845.

细枝山竹子 *xi zhi shan zhu zi*

*Hedysarum scoparium* Fischer & C. A. Meyer, Enum. Pl. Nov. 1: 87. 1841; *H. arbuscula* Maximowicz.

Shrublets, 0.7–2(–3) m tall. Stems pale yellow to brown, erect, with fibrous stripping. Stipules ovate-lanceolate, 5–6 mm, basally connate. Leaves 10–25 cm, basal ones 7–11-foliolate, apical ones 3- or 5-foliolate or sometimes none; leaflet blades linear-oblong to narrowly lanceolate, 1.5–3 × 0.3–0.6 cm, abaxially pilose, adaxially pubescent to glabrous. Racemes lax, with many flowers; bracts ovate, 1–1.5 mm; peduncle longer than leaves. Pedicel 2–3 mm. Calyx campanulate, 5–6 mm, pubescent; teeth triangular, unequal, abaxial 3 longer than adaxial 2. Corolla purple; standard obovate-orbicular, 1.5–1.9 cm; wings ca. 1/2 as long as standard; keel slightly shorter than standard. Ovary pubescent. Legume divided into 2–4 loments; loments broadly ovoid, 5–6 × 3–4 mm, inflated, densely white lanate. Fl. Jun–Sep, fr. Aug–Oct.  $2n = 16^*$ .

Sandy areas in deserts and semideserts; 600–1100 m. Gansu, W Nei Mongol, Ningxia, Qinghai, N Shaanxi, N Xinjiang [Kazakhstan, S Mongolia].

Plants of this species are important in arid regions for dune-fixing.

**2. *Corethrodendron multijugum*** (Maximowicz) B. H. Choi & H. Ohashi, Taxon 52: 573. 2003.

红花山竹子 *hong hua shan zhu zi*

*Hedysarum multijugum* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 27: 464. 1881; *H. multijugum* f. *albiflorum* Y. H. Wu.

Shrublets, 30–70 cm tall. Stems caespitose, erect. Stipules ovate-lanceolate, 4–6 mm, basally connate. Leaves 6–18 cm, 15–29-foliolate; leaflet blades broadly ovate to suborbicular, 5–8(–15) × 3–5(–8) mm, abaxially pubescent, adaxially glabrous. Racemes lax, with many flowers; peduncle conspicuously longer than leaves. Pedicel 1–2 mm; bracteoles ± as long as pedicel. Calyx obliquely campanulate, 5–6 mm, pubescent; tube split ca. 1/2 between adaxial teeth; teeth subulate, 1/4–1/3 as long as tube, most abaxial one ca. 2 × as long as others. Corolla purple, pinkish purple, or rarely white; standard broadly ovate, 1.7–2 cm; wings ca. 1/2 as long as standard; keel slightly shorter than wings. Ovary pubescent. Legume usually divided into 2 or 3 loments; loments ellipsoid to semiglobose, 3.5–4.5 × 3–4 mm, pubescent and prickly. Fl. Jun–Aug, fr. Aug–Sep.

• Gravelly areas, stony slopes; 500–3800 m. Gansu, Hebei, W Henan, W Hubei, W Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, NW Sichuan, NE Xizang.

**3. *Corethrodendron krassnowii*** (B. Fedtschenko) B. H. Choi & H. Ohashi, Taxon 52: 573. 2003.

帕米尔山竹子 *pa mi er shan zhu zi*

*Hedysarum krassnowii* B. Fedtschenko, Bull. Herb. Boissier, sér. 2, 4: 916. 1904.

Shrublets, 60–100 cm tall. Stems erect, many branched, internodes short. Stipules brown, lanceolate, basally connate. Leaves 9–20 cm, 15–31-foliolate; leaflet blades elliptic to almost orbicular, 3–9 × 3–7 mm, abaxially slightly unevenly sericeous, adaxially glabrous, base subrounded to slightly cuneate, apex obtuse to slightly emarginate. Racemes lax, 6–16-flowered; peduncle ca. 2 × as long as leaves. Pedicel ca. 2 mm. Calyx teeth almost as long as tube. Corolla purple, 1.1–1.8 cm; standard obovate, apex emarginate; wings narrowly lanceolate,

to almost 2 × as long as keel; keel almost semiorbicular to oblong, shorter than standard. Legume sericeous; loment 1 or 2, 4–7 × 4–6 mm. Fl. Jun–Jul, fr. Jul.

Mountain slopes, roadsides; 2100–3000 m. W Xinjiang (Pamir Shan) [Kyrgyzstan, Tajikistan].

**4. *Corethroedron fruticosum* (Pallas) B. H. Choi & H. Ohashi, Taxon 52: 573. 2003.**

山竹子 shan zhu zi

Shrublets, 30–80 cm tall. Stems caespitose, erect. Stipules ovate-lanceolate, 4–5 mm, basally connate. Leaves 8–14 cm, 11–19-foliolate; leaflet blades elliptic to oblong, 1.4–2.2 × 0.3–0.6 cm, abaxially densely pubescent, adaxially sparsely pubescent. Racemes lax, with many flowers; bracts triangular-ovate, ca. 1 mm; peduncle longer than leaves. Pedicel 2–3 mm. Calyx campanulate, 5–6 mm, pubescent; teeth triangular, ± equal, ca. 1/2 as long as tube. Corolla purple; standard obovate-orbicular, 1.4–2 cm; wings ca. 1/3 as long as standard; keel slightly shorter than standard. Ovary pubescent. Legume divided into 2 or 3 loment; loment ellipsoid, 5–7 × 3–4 mm, inflated, pubescent, prickly or not. Fl. Jul–Aug, fr. Aug–Sep.

Sandy areas in steppes; 600–1100 m. Heilongjiang, Jilin, W Liaoning, NE Nei Mongol [E Mongolia, E Russia].

Plants of this species are cultivated for sand-dune stabilization and for fodder.

- 1a. Loment prickly ..... 4a. var. *fruticosum*  
1b. Loment not prickly ..... 4b. var. *mongolicum*

**4a. *Corethroedron fruticosum* var. *fruticosum***

山竹子(原变种) shan zhu zi (yuan bian zhong)

*Hedysarum fruticosum* Pallas, Reise Russ. Reich. 3: 753. 1776.

Loment pubescent and prickly.

Sandy areas in steppes; ca. 1100 m. Heilongjiang, Jilin, W Liaoning, NE Nei Mongol [E Mongolia, E Russia].

**4b. *Corethroedron fruticosum* var. *mongolicum* (Turczaninow) Turczaninow ex Kitagawa, Lin. Fl. Manshur. 285. 1939.**

蒙古山竹子 meng gu shan zhu zi

*Hedysarum mongolicum* Turczaninow, Bull. Soc. Imp. Naturalistes Moscou 15: 781. 1842; *H. fruticosum* var. *gobicum* Y. Z. Zhao, R. Sha & R. Cao; *H. fruticosum* subsp. *mongolicum* (Turczaninow) B. Fedtschenko; *H. fruticosum* var. *mongolicum* (Turczaninow) Turczaninow ex Kitagawa.

Loment pubescent but not prickly.

- Sandy areas; 600–800 m. W Liaoning, NE Nei Mongol.

*Corethroedron fruticosum* var. *mongolicum* was reported from Ningxia (Fl. Ningxiaensis, ed. 2, 1: 487. 2007), but this occurrence needs to be confirmed.

**5. *Corethroedron lignosum* (Trautvetter) L. R. Xu & B. H. Choi, comb. nov.**

木山竹子 mu shan zhu zi

Shrublets, 60–100 cm tall. Stems caespitose, erect. Stip-

ules ovate-lanceolate, 4–5 mm, basally connate. Leaves 10–20 cm, (5–)11–21-foliolate; leaflet blades broadly linear, lanceolate, or elliptic, 2–3 × 0.2–0.4(–0.6) mm, abaxially pubescent, adaxially sparsely pubescent or glabrous. Racemes lax, with 8–12 flowers; bracts triangular, 1/4–1/3 as long as pedicel; peduncle longer than leaves. Pedicel 3–4 mm. Calyx campanulate, 4–5 mm, pubescent; teeth shortly triangular or triangular, ca. 1/3 or 1/2 as long as tube. Corolla purple; standard obovate, 1.8–2 cm; wings ca. 1/4 or 1/3 as long as standard; keels ± as long as wings. Ovary pubescent. Legume divided into 2 or 3 loment; loment ellipsoid, 4–6 × 3–4 mm, inflated, glabrous. Fl. Jul–Aug, fr. Aug–Sep.

Sandy areas. W Liaoning, Nei Mongol, E Ningxia, N Shaanxi, NW Shanxi [Mongolia].

- 1a. Calyx teeth triangular, ca. 1/2 as long as tube; wings ca. 1/3 as long as standard .... 5a. var. *lignosum*  
 1b. Calyx teeth shortly triangular, ca. 1/3 as long as tube; wings ca. 1/4 as long as standard ..... 5b. var. *laeve*

**5a. *Corethroedron lignosum* var. *lignosum***

木山竹子(原变种) mu shan zhu zi (yuan bian zhong)

Basionym: *Hedysarum lignosum* Trautvetter, Trudy Imp. S.-Peterburgsk. Bot. Sada 1: 176. 1872; *H. fruticosum* Pallas var. *hybridum* H. C. Fu; *H. fruticosum* subsp. *lignosum* (Trautvetter) B. Fedtschenko; *H. fruticosum* var. *lignosum* (Trautvetter) Kitagawa.

Calyx teeth triangular, ca. 1/2 as long as tube. Corolla wings ca. 1/3 as long as standard.

Sandy areas. W Liaoning, NE Nei Mongol [Mongolia].

**5b. *Corethroedron lignosum* var. *laeve* (Maximowicz) L. R. Xu & B. H. Choi, **comb. nov.****

塔落山竹子 ta luo shan zhu zi

Basionym: *Hedysarum laeve* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 27: 464. 1881; *H. fruticosum* subsp. *laeve* (Maximowicz) B. Fedtschenko; *H. fruticosum* var. *laeve* (Maximowicz) H. F. Fu ex L. R. Xu.

Calyx teeth shortly triangular, ca. 1/3 as long as tube. Corolla wings ca. 1/4 as long as standard.

- Sandy areas. Nei Mongol, E Ningxia, N Shaanxi, NW Shanxi.

Plants of this taxon are effective for dune-fixing.

HEDYSAREAE