

7. TOURNEFORTIA Linnaeus, Sp. Pl. 1: 140. 1753.

紫丹属 *zi dan shu*

Argusia Boehmer ex Ludwig; *Arguzia* Ammann ex Steudel; *Messerschmidia* Linnaeus ex Hebenstreit.

Shrubs, climbing shrubs, trees, or herbs. Leaves alternate, petiolate, entire. Cymes terminal or axillary, corymbose, ebracteate. Calyx 4- or 5-parted, not changing in fruit; lobes narrow. Corolla white or pale green, usually funnelform; tube pubescent outside, usually exceeding calyx; throat unappendaged; lobes 4 or 5, overlapping or valvate in bud, spreading at anthesis. Filaments short, inserted on corolla tube; anthers ovate to oblong, mucronate or obtuse at apex. Disc slightly convex or sometimes nearly cupular. Ovary 4-loculed; ovules 1 per locule, pendulous. Style terminal; stigma entire or 2-cleft, base fleshy, ringlike, inflated. Drupes with watery, sticky, or corky mesocarp, endocarp divided at maturity into 2 2-seeded or 4 1-seeded mericarps, sometimes 1 seed sterile. Seeds oblique; cotyledons ovate or elliptic.

About 150 species: tropical and subtropical regions; four species in China.

Argusia (including *Messerschmidia*) has often been regarded as a distinct genus of three species of seashore plants. It is distinguished from *Tournefortia* by the corky mesocarp, which is an adaptation to dispersal by seawater. True *Tournefortia* has fleshy fruit, and none of its species is a seashore plant. For a detailed discussion of the generic limits of *Argusia* and *Tournefortia*, see Al-Shehbaz (J. Arnold Arbor., suppl. ser., 1: 1–169. 1991).

1a. Mesocarp watery, sticky; climbing shrubs, rarely trees.

2a. Fruit divided at maturity into 4 1-seeded mericarps; style short 1. *T. sarmentosa*

2b. Fruit divided at maturity into 2 2-seeded mericarps; style absent 2. *T. montana*

1b. Mesocarp corky; trees, shrubs, or herbs.

3a. Trees or shrubs; leaf blade oblanceolate, 7–13 cm; flowers sessile, in scorpioid cymes; fruit ca. 5 mm in diam., glabrous, globose 3. *T. argentea*

3b. Herbs; leaf blade linear to lanceolate, less than 5 cm; flowers pedicellate, in widely spaced unilateral cymes; fruit 7–9 mm in diam., scabrous, densely strigose, apex concave 4. *T. sibirica*

1. *Tournefortia sarmentosa* Lamarck, Tabl. Encycl. 2(1): 416. 1792.

台湾紫丹 *tai wan zi dan*

Shrubs climbing, 1–5 m tall. Petiole ca. 1 cm; leaf blade ovate to elliptic or lanceolate, usually densely minutely tuberculate, 6–10 × 2–5 cm, abaxially spreading short pubescent or subglabrous, adaxially hirtellous or strigose, base obtuse to rounded, apex acuminate. Cymes terminating leafy branches, sparsely branched; branches slender, usually 1–3 cm. Flowers sessile. Calyx 1–2 mm, strigose; lobes lanceolate-ovate to lanceolate. Corolla white, 3–4 mm; throat ca. 2.5 mm wide, sparsely strigose; lobes rounded, ca. 1.5 mm wide. Anthers sessile, less than ca. 1 mm, inserted ca. 1 mm above base of corolla tube. Ovary glabrous or apex sparsely short pubescent. Style short; stigma globose to terete, ca. 2 × as wide as style, apex obscurely 2-cleft. Fruit white, ca. 5 mm, divided at maturity into 4 1-seeded mericarps.

Taiwan [Indonesia, Philippines; NE Australia].

2. *Tournefortia montana* Loureiro, Fl. Cochinch. 1: 122. 1790.

紫丹 *zi dan*

Tournefortia boniana Gagnepain; *T. brachyantha* Merrill & Chun; *T. gaudichaudii* Gagnepain; *T. sampsonii* Hance.

Shrubs climbing, 1–2 m tall; branchlets pubescent. Petiole 5–10 mm; leaf blade lanceolate to ovate-lanceolate, 8–14 × 1.5–4 cm, sparsely strigose, base cuneate to rounded, apex acuminate to caudate-acute. Inflorescences terminating leafy branches, with sparse branches, 2–15 × 4–10 cm, strigose. Flowers unilateral, sessile. Calyx parted to middle or

slightly below, ca. 2 mm, strigose; lobes lanceolate to triangular-lanceolate. Corolla unknown. Stigma sessile at apex of globose ovary. Fruit subglobose, ca. 5 mm in diam.; endocarp divided at maturity into 2 2-seeded mericarps, usually 1 seed sterile.

Forests. Guangdong and coastal islands, Yunnan [Vietnam].

3. *Tournefortia argentea* Linnaeus f., Suppl. Pl. 133. 1781.

银毛树 *yin mao shu*

Argusia argentea (Linnaeus f.) Heine; *Messerschmidia argentea* (Linnaeus f.) I. M. Johnston; *Tournefortia arborea* Blanco.

Shrubs 1–5 m tall or small trees; branchlets stout, densely rust-colored or white pubescent. Leaves terminating branches, oblanceolate to obovate, 7–13 × 2–4 cm, densely covered with yellowish white filiform hairs, base attenuate, apex obtuse to rounded. Inflorescences terminal, corymbose, 5–10 cm in diam., densely rust-colored pubescent; cymes scorpioid. Calyx fleshy, sessile, 1.5–2 mm, 5-parted; lobes oblong or obovate to rounded, densely rust-colored pubescent outside, pubescent only at base or subglabrous inside, ca. 1/2 as long as corolla. Corolla white, tubular, 2.5–3 mm; lobes spreading, ovate, ca. 2 mm, longer than tube. Stamens somewhat exerted; filaments inserted ca. 4 mm above base of corolla tube; anthers ovate-oblong, ca. 1 mm. Ovary subglobose, glabrous. Style obscure; stigma 2-cleft, base ringlike, inflated. Fruit subglobose, ca. 5 mm in diam., glabrous. Fl. and fr. Apr–Jun.

Sandy beaches. Hainan, Taiwan [Indonesia, Japan, Philippines, Sri Lanka, Vietnam; Pacific Islands (New Caledonia, Polynesia)].

Arid slopes, sandy river banks; 500–1900 m. Hebei, Heilongjiang, Henan, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi [Kazakhstan, Russia].

4. *Tournefortia sibirica* Linnaeus, Sp. Pl. 1: 141. 1753.

砂引草 sha yin cao

Herbs perennial, 10–30 cm tall. Rhizomes creeping. Stems single or several, cespitose, erect, or ascending, usually branched, densely strigose or white villous. Leaves sessile or nearly so, lanceolate or oblanceolate to oblong or linear to linear-lanceolate, 1–5 cm × 6–10 mm, densely strigose or villous, base cuneate to rounded, apex acuminate to obtuse. Cymes terminal, scorpioid, 1.5–4 cm wide. Flowers pedicellate. Calyx lobes lanceolate, 3–4 mm, densely strigose. Corolla yellowish white, campanulate, 1–1.3 cm; tube longer than lobes, densely strigose outside; lobes ovate to oblong, recurved. Filaments ca. 0.5 mm, inserted at middle of corolla tube; anthers oblong, 2.5–3 mm, apex mucronate. Ovary slightly 4-cleft, 0.7–0.9 mm, glabrous. Style ca. 0.5 mm, thin; stigma slightly 2-cleft, 0.7–0.8 mm. Fruit elliptic to ovoid, 7–9 mm in diam., scabrous, densely strigose, apex concave; endocarp longitudinally ribbed, divided at maturity into 2 2-seeded pyrenes. Fl. May, fr. Jul. $2n = 26$.

Arid slopes, sandy areas; 0–1900 m. Gansu, Hebei, Heilongjiang, Henan, Gansu, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi [Japan, Kazakhstan, Korea, Mongolia, Russia; SW Asia, SE Europe].

- 1a. Leaf blade lanceolate or oblanceolate to oblong 4a. var. *sibirica*
- 1b. Leaf blade linear to linear-lanceolate 4b. var. *angustior*

4a. *Tournefortia sibirica* var. *sibirica*

砂引草 (原变种) sha yin cao (yuan bian zhong)

Argusia sibirica (Linnaeus) Dandy; *Messerschmidia arguzia* Linnaeus; *M. sibirica* (Linnaeus) Linnaeus; *M. sibirica* var. *latifolia* (A. de Candolle) H. Hara; *Tournefortia arguzia* Roemer & Schultes; *T. arguzia* var. *latifolia* de Candolle; *T. sibirica* var. *grandiflora* H. Winkler.

Leaf blade lanceolate to oblanceolate or oblong, 1–5 cm × 6–10 mm.

Sandy beaches, arid deserts and slopes; 0–1900 m. Gansu, Hebei, Henan, Ningxia, Shaanxi, Shandong [Japan, Korea, Mongolia, Russia; SW Asia, SE Europe].

4b. *Tournefortia sibirica* var. *angustior* (A. de Candolle) G. L. Chu & M. G. Gilbert in G. L. Chu, Kamelin, R. R. Mill, & M. G. Gilbert, Novon 5: 17. 1995.

细叶砂引草 xi ye sha yin cao

Tournefortia arguzia var. *angustior* A. de Candolle, Prodr. 9: 514. 1845; *Messerschmidia sibirica* subsp. *angustior* (A. de Candolle) Kitagawa; *M. sibirica* var. *angustior* (A. de Candolle) W. T. Wang; *M. sibirica* var. *rosmarinifolia* (Turczaninow) Popov; *T. sibirica* var. *rosmarinifolia* Turczaninow.

Leaf blade linear to linear-lanceolate.

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