

10. POLLIA Thunberg, Nov. Gen. Pl. 1: 11. 1781.

杜若属 du ruo shu

Aclisia E. Meyer.

Herbs perennial. Rhizomes horizontal, long. Stems erect or ascending, usually simple. Leaves alternate. Panicles terminal; cincinni with several flowers, proximal involucre bracts nearly leaflike, distal ones small; bracts enveloping inflorescence axis, membranous. Flowers actinomorphic. Sepals free, shallowly boat-shaped, often enlarging and persistent in fruit. Petals free, white, blue, purple, or greenish yellow, sometimes spotted, ovate-elliptic, ovate-orbicular, or obovate, sometimes clawed. Stamens 6, all fertile, equal or 3 smaller, or only anterior 3 fertile; filaments glabrous; anther locules oblong, longitudinally dehiscent; antherodes deltoid-lanceolate or sagittate. Ovary 3-loculed; ovules (1–)5–10 per locule. Fruit baccate, globose, 3-valved, indehiscent. Seeds (1–)5–8 per valve, purplish gray, polygonal, slightly flattened; hilum orbicular.

About 17 species: tropical, subtropical, and warm-temperate regions of the E hemisphere; eight species (one endemic) in China.

- 1a. Leaves with petiole 1–4 cm, leaf blade 5–15(–25) cm; inflorescences shorter than or nearly as long as distal leaves, cincinni usually several, not in whorls.
 - 2a. Cincinni pendulous, umbel-like, much shorter than leaves 8. *P. subumbellata*
 - 2b. Cincinni spreading or ascending, paniculate, nearly as long as distal leaves.
 - 3a. Petiole 2–4 cm, leaf blade 10–25 cm; fertile stamens 3 6. *P. siamensis*
 - 3b. Petiole less than 1.5 cm, leaf blade 5–15 cm; fertile stamens 6.
 - 4a. Peduncle 2–6 cm; petiole wingless 5. *P. miranda*
 - 4b. Peduncle less than 2 cm; petiole winged 4. *P. thyrsoflora*
- 1b. Leaves sessile or base attenuate into short, winged petiole, leaf blade more than (10–)15 cm (except in *P. macrobracteata*); inflorescences very short or very long, cincinni in whorls or, if not, flowers very dense or inflorescence branched.
 - 5a. Peduncle extremely short, less than 2 cm; whole inflorescence less than 6 cm, densely flowered; sepals persistent, abaxially pubescent 4. *P. thyrsoflora*
 - 5b. Peduncle more than 3 cm; whole inflorescence more than 8 cm, densely flowered or not; sepals persistent or not, abaxially puberulent or glabrous.
 - 6a. Inflorescence branched, branches long, with several nodes and leaf sheaths; leaves abaxially rather densely pubescent; fertile stamens 3 7. *P. secundiflora*
 - 6b. Inflorescence without such branches; leaves abaxially glabrous; fertile stamens 6.
 - 7a. Leaf sheaths less than 1 cm; involucre bracts ovate, herbaceous, apically broadly acute 3. *P. macrobracteata*
 - 7b. Leaf sheaths longer than 2 cm; involucre bracts lanceolate and apically acuminate if herbaceous, or apically emarginate if membranous.
 - 8a. Inflorescence much longer than distal leaves, peduncle more than 15 cm, cincinni often in whorls; sepals persistent; petals ca. 3 mm 1. *P. japonica*
 - 8b. Inflorescence shorter than distal leaves, peduncle less than 10 cm, cincinni dense, often not in whorls; sepals caducous; petals ca. 5 mm 2. *P. hasskarlii*

1. Pollia japonica Thunberg, Fl. Jap. 138. 1784.

杜若 du ruo

Herbs perennial. Stems erect or ascending, 30–50 cm × 3–8 mm, puberulent. Leaves sessile or base attenuate into winged petiole; leaf sheaths glabrous; leaf blade narrowly elliptic, 10–30 × 3–7 cm, subglabrous and scabrous adaxially, glabrous abaxially. Inflorescence much longer than distal leaves; peduncle 15–30 cm, puberulent; cincinni numerous, 2–4 cm, often in several distant whorls, some in panicles, puberulent; involucre bracts lanceolate, puberulent; bracts membranous. Sepals ovate-orbicular, ca. 5 mm, glabrous, persistent. Petals white, obovate-spatulate, ca. 3 mm. Stamens 6, all fertile, rarely staminodes 1 or 2 with shorter filaments. Fruit globose, ca. 5 mm in diam. Fl. Jul–Sep, fr. Sep–Oct.

Forests in ravines; near sea level to 1200 m. SE Anhui (Huang Shan, Xiuning Xian), Fujian, N Guangdong, Guangxi, Guizhou, SW Hubei (Laifeng Tujia Zu Zizhixian, Xuan'en Xian), Hunan, Jiangxi, SE Sichuan (Pengshui Xian), Taiwan, Zhejiang [Japan, Korea].

A little over half the plants in N Guangdong have only several cincinni, which are not in whorls, and 1 or 2 of the stamens are reduced, with depauperate anthers. Such plants are easily misidentified as *Pollia siamensis*.

The root has sedative, stimulant, and carminative properties, and is used for the treatment of colds and vertigo.

2. Pollia hasskarlii R. S. Rao, Notes Roy. Bot. Gard. Edinburgh 25: 188. 1964.

大杜若 da du ruo

Herbs perennial. Stems ascending, to 1 m × 1 cm, glabrous. Leaves sessile or base attenuate into short petiole; leaf sheath 3–5 cm, glabrous; leaf blade elliptic or obovate-oblan-ceolate, 15–35 × 4–9 cm, glabrous on both surfaces. Inflorescence usually shorter than distal leaves; peduncle 5–10 cm, densely whitish glandular; cincinni numerous, ca. 2 cm, usually not in whorls, densely whitish glandular; involucre bracts ca. 10 mm, densely whitish glandular, caducous; bracts membranous. Sepals subovate, shallowly boat-shaped, 3–4 mm, abaxi-

ally puberulent glandular, caducous. Petals white or pale purple, obovate, ca. 5 mm. Stamens 6, all fertile. Fruit globose, 4–5 mm in diam. Fl. Mar–Jun.

Shaded places in ravines or dense forests; near sea level to 1700 m. N and SW Guangdong (Liashan Zhuang-Yao Zu Zizhixian, Xinyi Xian), Guangxi, SW Guizhou (Anlong Xian), SW Sichuan (Miyi Xian), SE Xizang (Mêdog Xian), S and W Yunnan [Bhutan, E India, Laos, Myanmar, Thailand, Vietnam].

3. *Pollia macrobracteata* D. Y. Hong, *Novon* 7: 252. 1997.

大苞杜若 da bao du ruo

Herbs perennial. Stems ascending, to more than 35 cm × 5 mm, glabrous. Leaves sessile; leaf sheath ca. 6 mm, sparsely puberulent on side opposite leaf blade, glabrous elsewhere; leaf blade elliptic, 7–12.5 × ca. 3 cm, glabrous on both surfaces. Inflorescence nearly as long as leaves; peduncle ca. 4.5 cm, puberulent; cincinni numerous, in 6 whorls or nearly so, ca. 2 cm, puberulent with hooked hairs; involucre bracts ovate, ca. 13 × 7.5 mm, distal ones slightly smaller, puberulent; bracts membranous; pedicels ca. 4 mm at anthesis. Sepals ovate-orbicular, boat-shaped, ca. 6 mm, sparsely puberulent abaxially, often persistent. Petals white, purple spotted, ovate-orbicular, ca. 6 mm. Stamens 6, all fertile. Fruit not seen. Fl. May–Jun.

- Forests on mountain summits. SW Guangxi (Longzhou Xian).

Pollia macrobracteata is related to *P. hasskarlii* and *P. japonica*, and all have 6 fertile stamens. It differs from *P. japonica* in having inflorescence and peduncle much shorter, and involucre bracts ovate, larger, and apically broadly acute; from *P. hasskarlii* in having involucre bracts larger and herbaceous, cincinni, peduncle, and pedicels longer, and roots that arise from stem nodes thicker; and from both species in having much smaller leaves with shorter leaf sheaths.

4. *Pollia thyrsoiflora* (Blume) Endley ex Hasskarl in Miquel, *Pl. Jungh.* 2: 150. 1852.

密花杜若 mi hua du ruo

Tradescantia thyrsoiflora Blume, *Enum. Pl. Javae* 1: 6. 1827.

Herbs perennial. Stems ascending, 12–25 × 0.5–1 cm, sparsely hispidulous. Leaves sessile or with winged petiole to 3 cm; leaf sheath ca. 2 cm, rather densely hispidulous; leaf blade oblanceolate or narrowly elliptic, 15–25 × 3–5 cm, glabrous adaxially, hispidulous abaxially. Inflorescence shorter than distal leaves; peduncle absent or to 1 cm, glabrous or hispidulous; cincinni numerous, ca. 2 cm, not in whorls, glabrous or hispidulous; involucre bracts deltoid-orbicular, basal one ca. 1.5 × 1.5 cm, glabrous or hispidulous; bracts membranous, very short at anthesis, to 4 mm in fruit, persistent. Sepals ovate-elliptic, shallowly boat-shaped, ca. 5 mm, puberulent abaxially. Petals white, ovate-orbicular, ca. 6 mm. Stamens 6, all fertile. Fruit ovoid-globose, 4–5 mm in diam. Fl. Mar–Apr.

Humid soils in ravine forests. Hainan, S Yunnan (Xishuangbanna Dai Zu Zizhizhou) [India, Indonesia, Laos, Malaysia, Philippines, Thailand, Vietnam].

5. *Pollia miranda* (H. Léveillé) H. Hara, *J. Jap. Bot.* 59: 182. 1984.

小杜若 xiao du ruo

Tovaria miranda H. Léveillé, *Mem. Pontif. Accad. Romana Nuovi Lincei* 23: 361. 1905; *Pollia japonica* Thunberg var. *minor* (Honda) E. H. Walker; *P. japonica* var. *miranda* (H. Léveillé) Kitamura; *P. minor* Honda; *P. omeiensis* D. Y. Hong.

Herbs perennial. Stems ascending, 20–50 cm × less than 3 mm, glabrous or subglabrous. Leaves with petiole nearly absent or to 1.5 cm; leaf sheath 1–2 cm, puberulent; leaf blade elliptic or ovate-elliptic, 5–15 × ca. 2.5 cm, granulate-scabrous adaxially, sparsely hispidulous or glabrous abaxially. Inflorescence nearly as long as distal leaves; peduncle 2–6 cm, hirsutulous; cincinni 2 to several, 1–3.5 cm, alternate, not in whorls, hirsutulous; proximal involucre bracts 5–8 mm, distal ones much smaller, sheathlike and enveloping cincinnus axis, hirsutulous; bracts membranous; pedicels short, ca. 4 mm in fruit. Sepals ovate-orbicular, boat-shaped, ca. 2.5 mm, glabrous, persistent. Petals white, pink spotted, ovate-orbicular, ca. 4 mm. Stamens 6, all fertile. Fruit globose, ca. 5 mm in diam. Fl. Jun–Aug.

Ravine forests; near sea level to 1600 m. Guangxi, EC and S Guizhou, Sichuan, Taiwan, SE Yunnan (Malipo Xian, Xichou Xian) [Japan].

Pollia miranda has been misidentified by many authors as *P. zollingeri* (Hasskarl) C. B. Clarke (from Indonesia), to which it is similar in habit. However, *P. zollingeri* has only 3 fertile stamens and 3 smaller staminodes.

6. *Pollia siamensis* (Craib) Faden ex D. Y. Hong in K. F. Wu, *Fl. Reipubl. Popularis Sin.* 13(3): 89. 1997.

长柄杜若 chang bing du ruo

Aneilema siamense Craib, *Bull. Misc. Inform. Kew* 1912: 415. 1912.

Herbs perennial. Stems erect or ascending, 30–100 cm × 4–10 mm, glabrous or subglabrous. Leaves with petiole 2–4 cm; leaf sheath 2–4 cm, glabrous or sparsely puberulent; leaf blade elliptic to narrowly ovate, 10–25 × 2.5–8 cm, glabrous or subglabrous adaxially, glabrous or nearly so abaxially. Inflorescence nearly as long as distal leaves; peduncle 5–10 cm, densely glandular with short hairs; cincinni numerous, 2–4 cm, usually alternate, sometimes partly in whorls, densely glandular with short hairs; proximal involucre bracts leaflike, but much smaller than leaves, distal ones lanceolate, only ca. 10 mm, densely glandular with short hairs; bracts membranous, often persistent. Sepals ovate-orbicular, boat-shaped, ca. 3 mm, glabrous. Petals white, ovate-elliptic, shallowly boat-shaped, ca. 4 mm. Stamens 6; fertile stamens 3, anterior; staminodes 3, with shorter filaments. Fruit globose, ca. 5 mm in diam. Fl. Apr–Aug.

Forests or humid sandy soils; near sea level to 1200 m. SW Guangxi (Longzhou Xian, Pingxiang Shi), Hainan, S Yunnan [Indonesia, Laos, New Guinea, Philippines, Thailand, Vietnam].

Pollia siamensis has been considered conspecific with *P. secundiflora*. However, the two species seem distinct in Chinese material.

7. *Pollia secundiflora* (Blume) R. C. Bakhuizen van den Brink in Backer, *Bekn. Fl. Java* 10, Fam. 211, 10. 1949.

长花枝杜若 chang hua zhi du ruo

Commelina secundiflora Blume, *Enum. Pl. Javae* 1: 3.

1827; *Aclisia gigantea* Hasskarl; *A. indica* Wight; *A. sorzogonensis* E. Meyer; *Pollia sorzogonensis* (E. Meyer) Endley.

Herbs perennial. Stems erect, to 20 cm × 7 mm, sparsely white-pubescent. Leaves sessile; leaf sheath ca. 2.5 cm, rather densely pubescent; leaf blade elliptic, ca. 20 × 5 cm, verrucose adaxially, densely puberulent abaxially. Inflorescence longer than distal leaves; proximal inflorescence branches with peduncle to more than 20 cm, densely brown-yellow hooked hirsute; cincinni numerous, ca. 2 cm, in whorls or not, densely brown-yellow hooked hirsute; proximal involucre bracts leaf-like, nearly as large as leaves, distal ones much smaller, to 5 mm, densely brown-yellow hirsute; bracts membranous. Sepals ovate-orbicular, boat-shaped, ca. 3 mm, glabrous, persistent. Petals white, obovate, shallowly boat-shaped, ca. 5 mm. Stamens 6; fertile stamens 3, anterior; staminodes 3, with shorter filaments. Fruit globose, ca. 6 mm in diam. Fl. Apr.

Dense forests on low mountains. NE Guangxi (Longsheng Ge Zu Zizhixian), S Guizhou, Hainan, Hong Kong, EC Hunan (Nanyue), S Yunnan (Jinping Xian) [India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

8. *Pollia subumbellata* C. B. Clarke, J. Linn. Soc., Bot. 11: 451. 1871.

伞花杜若 san hua du ruo

Herbs perennial. Stems erect or ascending, 20–30 cm × 3–5 mm, sparsely puberulent. Leaves mostly aggregated at apex of stems; leaf sheath 0.5–2.5 cm, sparsely puberulent, mouth ciliate; petiole 1–2.5 cm; leaf blade elliptic to narrowly ovate, 8–15 × 3–6 cm, glabrous adaxially, glabrous or puberulent abaxially. Inflorescence much shorter than leaves; peduncle extremely short or absent, puberulent; cincinni numerous, not in whorls, ca. 3 cm, puberulent; involucre bracts small, less than 10 mm, puberulent; bracts membranous; pedicels straight or arcuate, ca. 4 mm in fruit. Sepals ovate-orbicular, shallowly boat-shaped, ca. 3 mm, persistent. Petals blue, white, or greenish yellow, ovate-orbicular, ca. 2 mm. Stamens 6; fertile stamens 3; staminodes 3, with shorter filaments. Fruit globose, 4–5 mm in diam. Fl. Jun–Jul.

Ravine forests; near sea level to 1400 m. W Guangxi (Napo Xian, Pingguo Xian), S Yunnan [Bhutan, NE India, Sikkim].

Flora of China 24: 32–34. 2000.