

14. **POUZOLZIA** Gaudichaud-Beaupré, Voy. Uranie, Bot. 503. 1830.

雾水葛属 wu shui ge shu

Chen Jiarui (陈家瑞 Chen Chia-ju); Ib Friis, C. Melanie Wilmot-Dea

Shrubs, subshrubs, or herbs, without stinging hairs. Leaves alternate or rarely opposite; stipules often persistent, lateral, free; leaf blade 3-veined or triplinerved, margin serrate, dentate, or entire; cystoliths punctiform. Glomerules axillary or rarely at nodes along rachis of spikes, bisexual or rarely unisexual (plants monoecious or dioecious); bracts and bracteoles small. Male flowers: perianth lobes (3 or)4 or 5, connate ca. 1/2 of length, valvate, apex concave; stamens as many as perianth lobes; filaments inflexed in bud; rudimentary ovary present. Female flowers: perianth tubular, often ovoid, beaked, constricted, apex 2-4-toothed. Ovary included; style present; stigma filiform, villous along 1 side, deciduous with style; ovule orthotropous. Achene pericarp often crustaceous, lustrous. enclosed by marcescent, always accrescent, and often ribbed, rarely winged, perianth. $2n = 20, 22, 24, 26, 32$.

About 37 species: pantropical; four species (one endemic) in China.

Some woody taxa are used as sources of fiber.

- 1a. Herbs or subshrubs; leaves often opposite, margin entire 4. *P. zeylanica*
- 1b. Shrubs or small trees; leaves alternate, margin serrate or dentate.
 - 2a. Leaves abaxially appressed white or silvery tomentose.
 - 2b. Leaves abaxially pubescent 1. *P. sanguinea*
 - 3a. Male perianth lobes 3; leaf blade abaxially snow white tomentose 3. *P. niveotomentosa*
 - 3b. Male perianth lobes 4; leaf blade abaxially silvery tomentose 2. *P. calophylla*

1. *Pouzolzia sanguinea* (Blume) Merrill, J. Straits Branch Roy. Asiat. Soc. 84(Spec. No.): 233. 1921.

红雾水葛 hong wu shui ge

Shrubs 0.5-3 m tall; stems reddish; branchlets densely or sparsely strigose, upper shoots rarely leafless but with some glomerules at nodes. Leaves alternate; stipules lanceolate, 3-5 mm; petiole (1-)2.6-11(-17) cm; leaf blade lanceolate to rhombic-ovate, (1-)3-19 × (0.9-)1.5-9 cm, papery, secondary veins 2 apical pairs, abaxial surface strigose or densely appressed pubescent, adaxial surface scabrous, sparsely pubescent, base rounded or cuneate, margin 8-14(-19)-dentate, apex acute or acuminate. Glomerules often unisexual on distal nodes, bisexual on proximal nodes, mostly axillary but sometimes forming almost leafless lateral spikes, reddish, 3-7 mm in diam.; bracts narrowly ovate, 2-4 mm. Male flowers: perianth lobes 4, connate to middle, strigose, apex acute. Female flowers: perianth tube ellipsoid or rhomboid, 0.8-1.2 mm, to 2 mm in fruit, pubescent, inconspicuously ribbed, 3- or 4-toothed. Achenes gray-yellow, ovoid, slightly compressed, 1-1.6 mm. Fl. Apr-Jul, fr. Jul-Aug.

Warm evergreen broad-leaved forests, thickets, edges of woods, dry valleys, roadsides; 300-2300 m. Guangxi, Guizhou, Hainan, Sichuan, Taiwan, S Xizang, Yunnan [Bhutan, N India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Sikkim, Thailand, Vietnam].

Pouzolzia elegans has been recognized here at varietal rank under *P. sanguinea* because there are intermediates in leaf shape and leaf margin characters in Taiwan, Yunnan, and Nepal, and there is only partial geographic separation from *P. sanguinea*.

- 1a. Leaf blade lanceolate to ovate, 3-19 × 1.5-6 cm, margin with 8-19 teeth on each side; apex acuminate 1a. var. *sanguinea*
- 1b. Leaf blade rhombic-ovate or elliptic, rarely ovate, 1-4(-7) × 0.7-3(-4) cm, margin with 3-8 teeth each side, apex acute 1b. var. *elegans*

1a. *Pouzolzia sanguinea* var. *sanguinea*

红雾水葛(原变种) hong wu shui ge (yuan bian zhong)

Urtica sanguinea Blume, Bijdr. Fl. Ned. Ind. 501. 1826; *Boehmeria nepalensis* Weddell; *Pouzolzia ovalis* Miquel; *P. sanguinea* var. *nepalensis* (Weddell) Hara; *P. viminea* (Wallich) Weddell.

Leaf blade ovate to lanceolate, 3-14(-19) × 1.5-4(-6) cm, papery, abaxial surface sparsely or densely pubescent, base rounded or cuneate. Glomerules axillary, sometimes also on leafless lateral shoots. Achenes ovoid, ca. 1.6 mm. Fl. May-Jun. Fl. May-Jun, fr. Jul-Aug.

Warm evergreen broad-leaved forests, thickets on slopes, edges of woods, dry valleys, roadsides; 300-2300 m. Guangxi, Guizhou, Hainan, Sichuan, Taiwan, S Xizang, Yunnan [Bhutan, N India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Sikkim, Thailand, Vietnam].

1b. *Pouzolzia sanguinea* var. *elegans* (Weddell) Friis, Wilmot-Dea & C. J. Chen, **comb. nov.**

雅致雾水葛 ya zhi wu shui ge

Basionym: *Pouzolzia elegans* Weddell in Candolle, Prodr. 16(1): 230. 1869; *Boehmeria delavayi* Gagnepain; *B. elegantula* (W. W. Smith & Jeffrey) Handel-Mazzetti; *P. elegans* var. *delavayi* (Gagnepain) W. T. Wang; *P. elegans* var. *formosana* H. L. Li; *P. elegantula* W. W. Smith & Jeffrey.

Leaf blade rhombic-ovate, rhombic, or elliptic, 1-4(-7) × 0.7-3(-3.4) cm, papery or subleathery, both surfaces scabrous and appressed strigose, base broadly cuneate to obtuse, margin 3-8-dentate distally, apex acute. Glomerules unisexual or bisexual. Achenes ellipsoid or ovoid, ca. 1 mm.

• Thickets, dry valleys; 300-400 m in Guizhou and Taiwan, 1300-2300 m in SW China. Guizhou, SW Sichuan, Taiwan, SE Xizang, NW Yunnan.

2. *Pouzolzia calophylla* W. T. Wang & C. J. Chen, Acta Phytotax. Sin. 17(1): 108. 1979.

美叶雾水葛 mei ye wu shui ge

Pouzolzia argenteonitida W. T. Wang; *P. ovalis* var. *fulgens* Weddell; *P. sanguinea* (Blume) Merrill var. *fulgens* (Weddell) Hara.

Shrubs 1.5–4 m tall; branchlets densely appressed or, sometimes, patently strigose, seldom lateral superior shoots leafless, but with some glomerules at nodes. Leaves alternate; stipules lanceolate, 5–7 mm; petiole 0.4–1.6 cm; leaf blade lanceolate, rarely narrowly ovate, 2.5–13 × 0.7–4(–5) cm, papery, secondary veins 2 or 3 each side of midvein toward apex, abaxial surface silvery tomentose, densely appressed sericeous with strigose hairs on veins, adaxial surface glabrous or subglabrous, base cuneate or obtuse, margin (4–)8–18(–37)-dentate, apex acuminate to cuspidate. Glomerules unisexual or bisexual, 3–8 mm in diam.; bracts narrowly ovate or triangular, 0.6–2 mm; female glomerules without spinescent bracts. Male flowers: perianth lobes 4, connate 1/2 of length, strigose, apex acute to cuspidate. Female perianth tube fusiform or obovoid, 1–1.2 mm, ca. 2 mm in fruit, pubescent, inconspicuously ribbed, 3-toothed. Achenes gray-brown, ovoid or subellipsoid, slightly compressed, 1–1.2 mm. Fl. Jul–Aug, fr. Aug–Oct.

Evergreen, broad-leaved forests, thickets, valleys; 1600–2800 m. SE Xizang, NW Yunnan [Bhutan, NE India, Myanmar, Nepal].

This species and *Pouzolzia sanguinea* differ clearly in leaf indumentum (as indicated in the key) and merit the rank of distinct species. *Pouzolzia calophylla* is variable in trichomes on branchlets, number of teeth on leaf margins, and veins on the abaxial leaf surface. It seems, therefore, impossible to maintain *P. argenteonitida*, which is treated here as a synonym.

3. *Pouzolzia niveotomentosa* W. T. Wang, Acta Bot. Yunnan. 3: 13. 1981.

雪毡雾水葛 xue zhan wu shui ge

Pouzolzia spinosobracteata W. T. Wang.

Shrubs 2–4 m tall; branchlets sparsely strigose. Leaves alternate; stipules lanceolate, 6–9 mm, ciliate; petiole 0.6–1.2 cm; leaf blade narrowly ovate or narrowly elliptic, 8.5–14 × 3–6.2 cm, thinly papery, secondary veins 2 apical pairs, abaxial surface densely snow white tomentose, adaxial surface glabrous or subglabrous, base rounded or obtuse, margin denticulate, apex shortly acuminate or acute. Glomerules unisexual or bisexual, 7–9 mm in diam.; female glomerules 2–4 mm, in fruit 10–14 mm in diam.; bracts ovate, ca. 1 mm, membranous. Male flowers: pedicel 1.5–3 mm; perianth lobes 3, connate to middle, strigose, apex hornlike, cuspidate; some undeveloped male flowers and especially their pedicels in mature glomerules specialized into aculei, unequal, 3–12 mm, puberulent. Female perianth tube fusiform, narrowly ovoid, ca. 1.6 mm, ca. 2.2 mm in fruit, pubescent, 3-ribbed, 3-toothed. Achenes brown, narrowly ovoid, slightly compressed, 2–2.2 mm. Fl. Jun–Jul, fr. Aug–Sep.

• Thickets, dry valleys; 300–1300 m. S Sichuan, N Yunnan.

We believe that *Pouzolzia spinosobracteata* is based on material which developed abnormally because of insect damage.

4. *Pouzolzia zeylanica* (Linnaeus) Bennett, Pl. Jav. Rar. 67. 1838.

雾水葛 wu shui ge

Herbs perennial, erect or ascending, rarely prostrate, almost simple or few branched at base, 12–40 cm tall; rootstock often tuberous; branches sometimes with short branchlets, strigillose. Leaves often opposite, sometimes alternate on lower or upper stems; stipules triangular, 2–6 mm; petiole 0.2–1.8 cm; leaf blade ovate or broadly ovate, lanceolate or narrowly lanceolate, usually 1.2–9 × (0.6–)0.8–3 cm, smallest ones on short branchlets, herbaceous, secondary vein 1 or 2 pairs, abaxial surface sparsely or sometimes densely strigillose or strigose along veins, adaxial surface glabrous or sparsely strigillose; base cuneate to rounded, rarely subcordate, margin entire, apex subobtuse, acuminate, or shortly so. Glomerules often bisexual, 2.5–5 mm in diam., bisexual ones in nodes of proximal leaves, female in distal axils; bracts triangular, 2–3 mm, ciliate. Male flowers: perianth lobes 4, narrowly oblong or oblong-oblancoate, connate to middle, 1.2–1.5 mm, puberulent, apex acute or cuspidate. Female perianth tube ellipsoid or rhombic, 0.8–1 mm, 1.5–1.8 mm in fruit, puberulent, inconspicuously ca. 9-ribbed or 4-winged, apex 2-toothed. Achenes white, light to dark yellow or light brown, ovoid, 1–1.2 mm. Fl. Jul–Aug, fr. Aug–Oct.

Grasslands, thickets by streams, wet places, sunny and somewhat moist places by rice fields; 100–800(–1300) m. S Anhui, Fujian, S Gansu, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, E and S Yunnan, W Zhejiang [India, Indonesia, Japan, Kashmir, Malaysia, Myanmar, Nepal, Papua New Guinea, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam; Australia, Maldives, Polynesia, Yemen (Socotra); introduced in Africa and the New World].

- 1a. Stems erect, to ca. 60 cm; leaves all alternate, leaf blade lanceolate or narrowly lanceolate, to 9 cm 4c. var. *angustifolia*
- 1b. Stems erect, ascending or prostrate; leaves often opposite on lower part of stems, leaf blade ovate or broadly ovate, 0.5–4 cm.
 - 2a. Stems erect or ascending, few-branched; leaves ovate, 1.2–3.8 × 0.6–2.6 cm, smallest near stem apex 4a. var. *zeylanica*
 - 2b. Stems prostrate, much branched; leaves narrowly ovate to lanceolate, 0.5–1 cm 4b. var. *microphylla*

4a. *Pouzolzia zeylanica* var. *zeylanica*

雾水葛(原变种) wu shui ge (yuan bian zhong)

Parietaria zeylanica Linnaeus, Sp. Pl. 2: 1052. 1753; *Pouzolzia indica* (Linnaeus) Gaudichaud-Beaupré; *P. indica* var. *alienata* (Linnaeus) Weddell; *Urtica alienata* Linnaeus.

Stems erect or ascending, few-branched. Leaves opposite

or alternate on lower part of stems, leaf blades ovate, 1.2–3.8 × 0.6–2.6 cm, smallest near stem apex.

Grasslands, thickets by streams, sunny and somewhat moist places by rice fields; 300–800(–1300) m. S Anhui (Huang Shan), Fujian, S Gansu, Guangdong, Guangxi, Hubei, Hunan, Jiangxi, Sichuan, E and S Yunnan, W Zhejiang [India, Indonesia, Japan, Kashmir, Malaysia, Myanmar, Nepal, Papua New Guinea, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam; Australia, Maldives, Polynesia, Yemen (Socotra); introduced in Africa and the New World].

4b. *Pouzolzia zeylanica* var. *microphylla* (Weddell) W. T. Wang in W. T. Wang & C. J. Chen, *Fl. Reipubl. Popularis Sin.* 23(2): 365. 1995.

多枝雾水葛 duo zhi wu shui ge

Pouzolzia indica subvar. *microphylla* Weddell in Candolle, *Prodr.* 16(1): 221. 1869; *Parietaria cochinchinensis* Loureiro.

Stems prostrate, much branched, to 2 m. Leaves opposite on lower part of stem, alternate nearer stem apex; uppermost leaf blades narrowly ovate to lanceolate, 0.5–1 cm.

Grasslands on hills or plains, sunny and somewhat moist places by rice fields; 100–500 m. Fujian, Guangdong, Guangxi, S Jiangxi, Taiwan, SE Yunnan [Asia].

4c. *Pouzolzia zeylanica* var. *angustifolia* (Wight) C. J. Chen, **comb. nov.**

狭叶雾水葛 xia ye wu shui ge

Basionym: *Pouzolzia angustifolia* Wight, *Icon. Pl. Ind. Orient.* 6: 43, t. 2100, f. 39. 1853; *P. indica* (Linnaeus) Gaudichaud-Beaupré var. *angustifolia* (Wight) Weddell.

Stems erect, ca. 60 cm tall. Leaves all alternate; leaf blade lanceolate or narrowly lanceolate, 2.5–9 × 0.8–3 cm, herba-

ceous, abaxial surface strigose along veins, adaxial surface glabrous. Fl. May–Jul, fr. Jul–Sep.

Wet places; 100–300 m. S Guangdong, S Guangxi [Indonesia, Malaysia].

