

6. **COMBRETUM** Loefling, Iter Hispan. 308. 1758, nom. cons.

风车子属 feng che zi shu

Cacoucia Aublet; *Embryogonia* Blume; *Grislea* Linnaeus; *Poivrea* Commerson ex Candolle.

Lianas woody, or shrubs when lacking climbing support, rarely non-climbing shrubs, trees, or subherbaceous. Leaves opposite, whorled, or rarely alternate; petiole sometimes persistent and thornlike; leaf blade variable in shape, generally elliptic or oblong-elliptic to broadly ovate, hairy or glabrous, often conspicuously scaly, often with domatia. Inflorescences terminal, axillary, or extra-axillary, simple or branched spikes, racemes, or panicles. Calyx tube usually shorter than 2 cm, proximally ellipsoid or fusiform, slightly contracted above ovary, distally narrowly funnelform to saucer-shaped; lobes 4 or 5, rarely more, deltoid to subulate, sometimes almost absent. Petals 4 or 5, white, yellow, orange, red, or purple, small and inconspicuous or showy and exceeding calyx lobes. Stamens usually 8 or 10, usually exerted from calyx tube. Style not adnate to inside of calyx tube (in Chinese species). Fruit often shortly stipitate, dry, rarely fleshy, longitudinally 4- or 5-winged, -ridged, or -angled, broadly winged in Chinese species with wings equal, papery, transversely striate; endocarp not sclerenchymatous.

About 250 species: mostly in tropical and S Africa, also in tropics of America and Asia, and Madagascar; eight species (one endemic) in China.

Cacoucia chinensis A. Jussieu ex Candolle (Prodr. 3: 22. 1828) was said to have originated in China. The application of this name is unclear. The fruit was described as 5-angled.

Combretum chinense Roxburgh ex G. Don (Trans. Linn. Soc. London 15: 432. 1827) was said by its author to have originated from China. It was treated by Exell (in Steenis, Fl. Males., ser. 1, 4: 540. 1954), who apparently did not see the type, as a name of uncertain application. Nanakorn (Thai Forest Bull. 16: 171–175. 1986) designated *Roxburgh s.n.* in Herb. Lambert (G) as the lectotype and, having examined that specimen, accepted the name *C. chinense* for a species distributed from India to Indochina and Indonesia (but not in China) and similar morphologically to *C. yunnanense* (*C. griffithii* var. *yunnanense* in the present treatment).

- 1a. Flowers 5-merous; fruit 5-winged; calyx tube tomentose and/or villous, if scaly then hairs obscuring scales.
 - 2a. Calyx tube distally funnelform, 7–8 mm; stamens 7–8 mm, obviously exceeding petals; fruit densely villosulous (when young) and sparsely red scaly; leaf blade abaxially without tufts of hairs in axils of lateral veins; inflorescences densely compound spikes usually crowded at branchlet apex and forming a dense, leafy panicle 1. *C. pilosum*
 - 2b. Calyx tube distally cupular, 3–5 mm; stamens ca. 2 mm, not exceeding petals; fruit glossy, glabrous; leaf blade abaxially sometimes with tufts of hairs in axils of lateral veins; inflorescences laxly compound spikes usually grouped at branchlet apex and forming a ± lax, leafy panicle 2. *C. roxburghii*
- 1b. Flowers 4-merous; fruit 4-winged; calyx tube pubescent to glabrous, often scaly.
 - 3a. Branchlets, both surfaces of leaf blade, inflorescence axes, calyx tube, and fruit sparsely to densely covered with obvious, white to ferruginous, peltate scales ca. 0.2 mm in diam.; leaf blade apex abruptly caudate, cauda with rounded or obtuse tip 3. *C. punctatum*
 - 3b. Branchlets, leaf blade, inflorescence axes, and calyx tube without obvious, peltate scales, although often with minute scales or verrucae much less than 0.2 mm in diam.; leaf blade apex not caudate but often acuminate and then acumen with acute tip.
 - 4a. Inflorescences compound spikes, flower-bearing part of spikes very condensed and forming obconic to hemispheric capitula 4. *C. sundaicum*
 - 4b. Inflorescences simple or compound spikes, flower-bearing part of spikes broadly cylindric to long and slender.
 - 5a. Inflorescence of at least some branched spikes; fruit obovoid, globose, or oblate.
 - 6a. Inflorescences broadly cylindric spikes; calyx tube 12–15 mm, lobes reflexed, 2–3 mm; fruit ± obovoid, 2.5–4.5 cm, sparsely minutely tomentose when young, glabrous when mature, not scaly 5. *C. latifolium*
 - 6b. Inflorescences narrowly cylindric spikes; calyx tube 5–7 mm, lobes erect, 1–1.5 mm; fruit globose or oblate, 1.5–2.5 cm, glabrous, scaly 6. *C. alfredii*
 - 5b. Inflorescence of simple spikes only (even when grouped at branchlet apex and forming a panicle); fruit globose or ± so.
 - 7a. Both surfaces of leaf blade usually not ferruginous minutely scaly but often densely green or white verruculose, glabrous at maturity except abaxially often with tufts of hairs in axils of lateral veins (rarely abaxially persistently sparsely pilose, densely so on veins) 7. *C. wallichii*
 - 7b. Both surfaces of leaf blade ferruginous minutely scaly (more densely so abaxially), not verruculose, glabrous, or pilose and glabrescent with age but remaining pilose on veins 8. *C. griffithii*

1. *Combretum pilosum* Roxburgh, Fl. Ind., ed. 1832, 2: 231. 1832.

长毛风车子 chang mao feng che zi

Combretum insigne Van Heurck & Müller Argoviensis; *Poivrea pilosa* (Roxburgh) Wight & Arnott.

Lianas to 20 m tall. Bark grayish brown. Branchlets, petioles, and inflorescence rachis densely ferruginous tomentose and white villous. Leaves opposite or subopposite; petiole 2–7 mm; leaf blade abaxially pale green, adaxially deep green, ovate-oblong, elliptic, or narrowly elliptic, 5–15 × 2–7 cm, abaxially glabrous or villosulous on midvein, adaxially sparsely white verruculose, tomentose when young, glabrous or villosulous on midvein and lateral veins when mature, without tufts of hairs in axils of lateral veins, base obtuse, truncate, or shallowly cordate, apex mucronate or acuminate; lateral veins in 5–8(–10) pairs. Inflorescences terminal and axillary, densely compound spikes 3–10 cm, usually crowded at branchlet apex and forming a dense, leafy panicle; bracts persistent at anthesis, oblong-ovate to lanceolate, ca. 5 mm, ferruginous tomentose. Calyx tube pale green, distally funnelform, 7–8 mm, abaxially ferruginous tomentose and villous; lobes 5, erect, deltoid, 1–2 mm, apex acute. Petals 5, reddish, pink, or yellowish, rarely white, oblong or oblong-oblancoate, 4–5 mm, villosulous. Stamens 10, exserted, 7–8 mm, obviously exceeding petals. Fruit pink or vivid pink, glossy, ellipsoid or obovoid, 5-winged, 2.5–3.5 × 2–2.5 cm, densely villosulous when young, glabrescent when old, sparsely red scaly. Fl. Dec–Apr, fr. Feb–Mar.

Forests, sparse forests, thickets, sparse dry scrub, among shrubs on stream banks, ravines; 100–800 m. Hainan, S Yunnan [Bangladesh, Cambodia, India, Laos, Myanmar, Thailand, Vietnam].

2. *Combretum roxburghii* Sprengel, Syst. Veg. 2: 331. 1825.

十蕊风车子 shi rui feng che zi

Combretum decandrum Roxburgh, Pl. Coromandel 1: 43. 1796, not Jacquin (1760); *Pentaptera roxburghii* Tulasne, nom. illeg. superfl.; *Poivrea roxburghii* Candolle, nom. illeg. superfl.

Lianas. Branchlets reddish villosulous when young. Leaves opposite; petiole 5–7 mm, with a tuft of hairs distally; leaf blade oblong-elliptic to obovate-oblong, 6–13(–15) × 3–6(–7) cm, both surfaces glabrous except abaxially very sparsely hairy, less sparsely so on veins, with or without tufts of hairs in axils of lateral veins, neither surface white verruculose, base obtuse or obtuse-rounded, apex obtuse, caudate; lateral veins in 6 or 7 pairs. Inflorescences terminal and axillary, laxly compound spikes 5–15 cm, usually grouped at branchlet apex and forming a ± lax, leafy panicle; bracts persistent at anthesis, lanceolate, 4–6 mm, tomentose. Calyx tube distally cupular, 3–5 mm, abaxially golden tomentose; lobes 5, broadly triangular, ca. 1 mm, apex aristate. Petals 5, obovate-oblong, ca. 2 mm, both surfaces yellow villous. Stamens 10, only slightly exserted, ca. 2 mm, not exceeding petals. Fruit glossy, cylindrical, 5-winged, 2–3 × 0.8–1 cm, glabrous, apex acuminate.

Habitat and elevation not recorded. S Guangxi, SW Yunnan [Bangladesh, India, Laos, Myanmar, Nepal, Sri Lanka, Thailand, Vietnam].

In botanical literature, this species has variously been called *Combretum decandrum*, by those presumably unaware of Jacquin's earlier

homonym for a New World species, or *C. roxburghii*, which was published by Sprengel (Syst. Veg. 2: 331. 1825) as a nomen novum for Roxburgh's name.

3. *Combretum punctatum* Blume, Bijdr. 640. 1826.

盾鳞风车子 dun lin feng che zi

Lianas to 8 m tall; stems to 3 cm in diam. Surface scales obvious, white to ferruginous, peltate, ca. 0.2 mm in diam. Branchlets together with petioles glabrous and sparsely to densely scaly. Leaves opposite; petiole 5–12 mm; leaf blade lanceolate, ovate-lanceolate, or narrowly elliptic, 5–10 × 3–6(–7) cm, both surfaces glabrous, sparsely to densely scaly, abaxially more densely so, base obtuse-rounded, apex abruptly caudate, cauda with rounded or obtuse tip; lateral veins in 4–6 pairs. Inflorescences terminal and axillary, compound, spikes 4–12 cm, usually grouped at branchlet apex and forming a panicle; axes glabrous, densely scaly; distal, flower-bearing part of spikes very condensed, capitate, not longer than 0.5 cm, or broadly cylindrical or cylindrical, 1–5 cm; bracts caducous, linear, very small. Flowers fragrant. Calyx tube distally funnelform-cupular, 5–7 mm, abaxially glabrous, densely scaly, adaxially with a ring of dense, coarse hairs not or only slightly exserted; lobes 4, broadly triangular, 0.5–1 mm, apex obtuse. Petals 4, white, 1.5–2 mm, clawed; limb obovate, narrowly elliptic, or oblanceolate. Stamens 8, exserted, ca. 4 mm. Fruit mid-brown, variable in shape and size, oblate, suborbicular, broadly ovoid, obovoid, or pyriform, 4-winged, 1.3–4 × 1.3–3.5 cm, glabrous, sparsely to densely scaly. Fl. Mar–Apr, fr. Apr–Jul.

Forests, thickets, scrub; 500–1500 m. SW Guangdong, S Guangxi, Hainan, S Yunnan [Bangladesh, Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam].

Exell (in Steenis, Fl. Males., ser. 1, 4: 539. 1954) recognized *Combretum punctatum* and *C. squamosum* as subspecies, with *C. punctatum* subsp. *punctatum* in montane regions and subsp. *squamosum* in the lowlands. The present authors follow Exell, but prefer the rank of variety, for consistency within this treatment.

- 1a. Flower-bearing part of spikes very condensed, capitate, not longer than 0.5 cm; calyx tube ca. 7 mm; petal limb obovate 3a. var. *punctatum*
- 1b. Flower-bearing part of spikes broadly cylindrical or cylindrical, 1–5 cm; calyx tube ca. 5 mm; petal limb narrowly elliptic or oblanceolate 3b. var. *squamosum*

3a. *Combretum punctatum* var. *punctatum*

盾鳞风车子(原变种) dun lin feng che zi (yuan bian zhong)

Flower-bearing part of spikes very condensed, capitate, not longer than 0.5 cm. Calyx tube ca. 7 mm. Petal limb obovate. Fl. Apr.

Thickets, scrub; 1100–1500 m. SW Yunnan [Indonesia, Malaysia, Philippines, Thailand, Vietnam].

3b. *Combretum punctatum* var. *squamosum* (Roxburgh ex G. Don) M. G. Gangopadhyay & Chakrabarty, J. Econ. Taxon. Bot. 17: 680. 1993.

水密花 shui mi hua

Combretum squamosum Roxburgh ex G. Don, Trans. Linn. Soc. London 15: 438. 1827; *C. distillatorium* Blanco; *C. lepidotum* C. Presl; *C. punctatum* subsp. *squamosum* (Roxburgh ex G. Don) Exell; *C. squamosum* var. *dissitum* Craib; *C. squamosum* var. *luzonicum* C. Presl; *Poivrea squamosa* (Roxburgh ex G. Don) Walpers.

Flower-bearing part of spikes broadly cylindrical or cylindrical, 1–5 cm. Calyx tube ca. 5 mm. Petal limb narrowly elliptic or oblanceolate. Fl. Mar–Apr, fr. Apr–Jul.

Forests, thickets; 500–1500 m. SW Guangdong (Xuwen), S Guangxi (Shiwan Dashan), Hainan, S Yunnan [Bangladesh, Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam].

4. *Combretum sundaicum* Miquel, Fl. Ned. Ind., Eerste Bijv. 327. 1861.

榄形风车子 lan xing feng che zi

Combretum oliviforme A. C. Chao; *C. oliviforme* var. *yaxianense* Y. R. Ling.

Lianas to 2.5 m tall. Branchlets together with petioles glabrous and densely scaly. Leaves opposite; petiole 10–17 mm; leaf blade broadly elliptic, 7–13 × 5–8.5 cm, both surfaces glabrous, abaxially densely yellowish or brownish minutely scaly, adaxially white scaly and densely verruculose, base obtuse or subacute, apex obtuse and mucronate or shortly acuminate; lateral veins in 7 or 8 pairs. Inflorescences terminal and axillary, dichasially compound spikes 5–13 cm, usually grouped at branchlet apex and forming a panicle; axes densely villosulous, inconspicuously scaly; distal, flower-bearing part of spikes very condensed and forming obconic to hemispheric capitula; bracts caducous, linear, very small. Calyx tube distally narrowly funnelform, 11–13 mm, abaxially glabrous but yellow scaly at first, becoming smooth after anthesis, adaxially with a ring of dense, coarse hairs not exerted; lobes 4, reflexed, ± deltoid, ca. 2 mm, apex acute or shortly acuminate. Petals 4, white, oblong-elliptic or obovate, ca. 1.5 mm, apex obtuse-rounded or retuse. Stamens 8, exerted, 5–6 mm. Fruit subglobose, 4-winged, 2–3.5 × 2–2.5 cm, yellow or red scaly. Fl. Jul–Aug, fr. Aug.

Dense woods, dry thickets on sandy soil; 300–600 m. SW Guangxi (Longzhou), Hainan, Yunnan [Indonesia, Malaysia, Singapore, Thailand, Vietnam].

Combretum oliviforme was said to differ from *C. sundaicum* in having a distally cylindrical-funnelform calyx tube and fusiform (vs. subglobose) fruit. These features of *C. oliviforme* are visible on the fruiting holotype (Hainan: S. K. Lau 27571, IBSC) and a flowering isotype (A). However, the calyx tube of *C. sundaicum* is likewise distally narrowly funnelform (e.g., drawing in Fl. Males., ser. 1, 4: 543. 1954) and the holotype of *C. oliviforme* has only immature fruit, which in *Combretum* tend to be narrower than the mature fruit. *Combretum oliviforme* var. *yaxianense* was said to differ from *C. oliviforme* in its subglobose fruit. The holotype of var. *yaxianense* (Hainan: C. Wang 33616, IBSC) is a branch with mature fruit. There therefore seems no justification to separate any of the Chinese plants from *C. sundaicum*.

5. *Combretum latifolium* Blume, Bijdr. 641. 1826.

阔叶风车子 kuo ye feng che zi

Combretum cyclophyllum Steudel; *C. extensum* Roxburgh

ex G. Don; *C. formosum* Griffith (1854), not G. Don (1827); *C. horsfieldii* Miquel; *C. leucanthum* Van Heurck & Müller Argoviensis; *C. macrophyllum* Roxburgh; *C. micropetalum* Llanos (1856), not Candolle (1828); *C. platyphyllum* Van Heurck & Müller Argoviensis; *C. rotundifolium* Roxburgh (1832), not Richard (1792); *C. wightianum* Wallich ex Wight & Arnott; *Embryogonia latifolia* (Blume) Blume.

Lianas large, to 30 m tall. Branchlets together with petioles usually glabrous, scaly. Leaves opposite; petiole 10–25 mm; leaf blade broadly elliptic or ovate-elliptic, 7–20 × 5–10(–13) cm, both surfaces glabrous, sparsely or not scaly, not white verruculose, base obtuse-rounded, apex obtuse or attenuate; lateral veins in 6–8 pairs, axils with small, rounded pits abaxially. Inflorescences axillary, compound, broadly cylindrical, densely flowered spikes 6–10 cm, sometimes grouped at branchlet apex and forming a panicle; axes densely minutely tomentose; bracts weakly persistent at anthesis, filiform-linear, very small. Flowers very fragrant. Calyx tube in middle part funnelform or narrowly so, distally salverform, 12–15 mm, abaxially densely minutely tomentose and yellow minutely scaly, adaxially with a ring of dense, coarse hairs not or only slightly exerted; lobes 4, reflexed, deltoid to somewhat narrowly triangular, 2–3 mm, apex acuminate. Petals 4, greenish white to yellowish green or yellow, 1–1.5 mm, clawed; limb oblong-obovate, apex retuse. Stamens 8, exerted, 5–7 mm. Fruit yellowish to brownish, glossy, ± obovoid, 4-winged, 2.5–4.5 × 2.2–4 cm, sparsely minutely tomentose when young, glabrous when mature, not scaly. Fl. Jan–Apr, fr. Jun–Oct.

Forests; 500–1000 m. S Yunnan [Bangladesh, Cambodia, India (including Andaman Islands), Indonesia, Laos, Malaysia, Myanmar, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam].

Nanakorn (Thai Forest Bull. 16: 178. 1986) included “China (Yunnan, Kwangtung)” in the distribution of *Combretum latifolium*, but we have seen no specimens of this species from Guangdong.

6. *Combretum alfredii* Hance, J. Bot. 9: 131. 1871 [“*alfredi*”].

风车子 feng che zi

Combretum kwangsiense H. L. Li.

Lianas to 6 m tall. Bark grayish, young parts with scales. Branchlets together with petioles densely brownish yellow tomentose and orange-yellow scaly, glabrous when old. Leaves opposite or subopposite; petiole 7–15 mm; leaf blade usually elliptic or oblong-elliptic, 10–20(–25) × 4–11 cm, abaxially glabrous except for tufts of coarse hairs in axils of lateral veins, sometimes also coarsely hairy on veins, yellow-brown or orange-yellow scaly and green verruculose, adaxially glabrous and densely white verruculose, base cuneate, rarely obtuse-rounded, apex acuminate; lateral veins in 6–10 pairs. Inflorescences terminal and axillary, simple and compound, narrowly cylindrical spikes 5–15 cm, often grouped at branchlet apex and forming a large panicle; axes brownish yellow tomentose and orange-yellow scaly; bracts persistent at anthesis, linear, ca. 1 mm. Flowers fragrant. Calyx tube in middle part funnelform, distally cupular, 5–7 mm, abaxially coarsely hairy and glossy yellow scaly, adaxially with a ring of dense, coarse hairs not or only slightly exerted; lobes 4, erect, deltoid or broadly triangu-

lar, 1–1.5 mm, apex acuminate. Petals 4, white or yellowish white, 1.5–2 mm, clawed; limb oblong-obovate, apex obtuse-rounded or slightly mucronate. Stamens 8, exserted, 4–4.5 mm. Fruit red or purple-red when mature, globose or oblate, 4-winged, 1.5–2.5 × 1.5–2.7 cm, glabrous, yellow or orange-yellow scaly. Fl. May–Sep, fr. Aug–Dec.

• Forests, woodlands, open thickets, valleys, river- and stream-sides, swamps, plains; near sea level to 800 m. Guangdong, Guangxi, S Hunan (Yizhang), S Jiangxi (Longnan).

Plants of *Combretum alfredii* with simple spikes in the leaf axils may be difficult to separate from *C. wallichii*. The name *C. kwangsiense* was given to plants from Guangxi with fruit at the small end of the range of variation.

The fruit is edible.

7. *Combretum wallichii* Candolle, Prodr. 3: 21. 1828.

石风车子 shi feng che zi

Combretum auriculatum C. Y. Wu & T. Z. Hsu (1977), not Engler & Diels (1899); *C. incertum* Handel-Mazzetti; *C. linyenense* Handel-Mazzetti; *C. purpurascens* Handel-Mazzetti; *C. wallichii* var. *pubinerve* C. Y. Wu; *Terminalia mairei* H. Léveillé.

Lianas to 6 m tall. Bark longitudinally fibrous peeling, sparsely black lenticellate. Branchlets together with petioles puberulous and densely brown scaly, glabrescent. Leaves opposite or subopposite; petiole 4–10 mm; leaf blade variable in shape, oblong-elliptic, elliptic, broadly elliptic, ovate, obovate, or sub-orbicular, 4–15 × 2–7 cm, both surfaces glabrous at maturity except abaxially often with tufts of brown to white hairs in axils of lateral veins, or rarely abaxially persistently sparsely ferruginous pilose and densely so on veins, both surfaces usually not scaly but often densely green or white verruculose, base attenuate or obtuse-rounded, apex acuminate, or rounded or obtuse-rounded and mucronate; lateral veins in 5–9 pairs. Inflorescences terminal and axillary, simple, narrowly cylindrical spikes 3–9 cm, sometimes grouped at branchlet apex and forming a panicle; axes puberulous, brown scaly; bracts caducous, linear or linear-lanceolate, 2.5–4 mm. Flowers strongly scented. Calyx tube in middle part broadly funnelform, distally broadly campanulate to salverform, 3.5–5 mm, abaxially glabrous and brown scaly, adaxially with a ring of exserted, dense, coarse hairs; lobes 4, erect, deltoid or broadly triangular, 1–1.5 mm, apex acuminate or shortly so. Petals 4, yellow to green, ca. 1.5 mm, clawed; limb oblanceolate. Stamens 8, exserted, ca. 5 mm. Fruit purple or red, glossy, ± globose, 4-winged, 1.7–3.3 × 1.8–3 cm, glabrous, white or golden scaly. Fl. Mar–Aug, fr. Jul–Nov.

Mixed forests, woods, thickets, scrub, mountain slopes and valleys, shaded limestone ravines, streamsides, roadsides; (500–)800–2200(–3200) m. Guangxi, Guizhou, Sichuan, Yunnan [Bangladesh, Bhutan, India, Myanmar, Nepal, N Vietnam].

The record from N Vietnam (Cao Bang, in 1999) is apparently new and is based on *P. K. Loc et al. CBL 1351* (MO).

Combretum wallichii var. *pubinerve* C. Y. Wu (Fl. Yunnan. 1: 90. 1977), described from W Yunnan (Lushui), differs from typical *C. wallichii* in having a suborbicular leaf blade, abaxially sparsely ferruginous pilose at maturity, densely so on veins. Because the species is so

variable in leaf blade shape, only the hairiness would reliably separate var. *pubinerve*, and that character does not seem sufficient to justify formal recognition of a variety.

Combretum auriculatum C. Y. Wu & T. Z. Hsu (in C. Y. Wu, Fl. Yunnan. 1: 90. 1977), described from SW Yunnan (Cangyuan), appears to be a form of *C. wallichii* with a ± oblanceolate leaf blade slightly auriculate-cordate at the base. The name is illegitimate because it is a later homonym of *C. auriculatum* Engler & Diels (in Engler, Monogr. Afric. Pflanzen-Fam. 3: 79. 1899), described from tropical Africa.

Gangopadhyay & Chakrabarty (J. Econ. Taxon. Bot. 17: 679–682. 1993) recognized six varieties within *Combretum wallichii*: the typical variety, three varieties from outside China, and two varieties based on *C. griffithii* and *C. yunnanense*. The last two taxa are indeed similar to *C. wallichii* but, in the present treatment, we prefer to maintain *C. griffithii* separately, including *C. yunnanense* within it as *C. griffithii* var. *yunnanense*.

8. *Combretum griffithii* Van Heurck & Müller Argoviensis in Van Heurck, Observ. Bot. 231. 1871.

西南风车子 xi nan feng che zi

Lianas woody, to 10 m tall. Branchlets glabrous or pilose, ferruginous scaly. Leaves opposite, subopposite, or alternate, rarely 3-whorled; petiole 6–13 mm, pilose and ferruginous scaly; leaf blade usually elliptic or oblong-elliptic, 6–15(–18) × 3–7(–9) cm, both surfaces glabrous, or pilose and glabrescent with age but remaining pilose on veins, ferruginous minutely scaly, more densely so abaxially, not verruculose, base obtuse-rounded or attenuate, apex acute or cuspidate to caudate-acuminate; lateral veins in 6–12 pairs. Inflorescences terminal and axillary, simple, narrowly cylindrical spikes 4–10 cm, sometimes grouped at branchlet apex and forming a panicle; axes pilose and ferruginous scaly; bracts persistent at anthesis, filiform-linear, 3–7 mm, pilose. Calyx tube in middle part narrowly funnelform, distally cupular, 5.5–7 mm, abaxially glabrous, densely ferruginous scaly, adaxially with a ring of dense, coarse hairs not or only slightly exserted; lobes 4, erect, deltoid, ca. 1 mm, apex acute or subacute. Petals 4, white to yellow or yellowish green, 2–2.5 mm, clawed; limb obovate or oblanceolate. Stamens 8, exserted, 3–5 mm. Fruit brown, globose, 4-winged, 2–3.5 × 2–4 cm, glabrous, densely white and/or brown minutely scaly. Fl. Apr–Jun, fr. Jul–Dec.

Forests, sparse forests, woods, thickets by streams, mountain slopes and valleys, ravines, riversides; 500–1600(–2000) m. S and W

Yunnan [Bangladesh, Bhutan, India, Laos, Malaysia, Myanmar, Thailand, Vietnam].

- 1a. Both surfaces of leaf blade glabrous 8a. var. *griffithii*
1b. Both surfaces of leaf blade pilose,
glabrescent with age but remaining
pilose on veins 8b. var. *yunnanense*

8a. *Combretum griffithii* var. *griffithii*

西南风车子(原变种) xi nan feng che zi (yuan bian zhong)

Combretum dasystachyum Kurz; *C. wallichii* Candolle var. *griffithii* (Van Heurck & Müller Argoviensis) M. G. Gango-padhyay & Chakrabarty; *C. yuankiangense* C. C. Huang & S. C. Huang ex T. Z. Hsu.

Leaf blade glabrous on both surfaces. Fl. Apr–May, fr. Sep–Dec.

Forests, sparse forests, mountain slopes and valleys; (600–)1100–1600 m. S Yunnan [Bangladesh, Bhutan, India, Laos, Malaysia, Myanmar, Thailand, Vietnam].

Combretum yuankiangense C. C. Huang & S. C. Huang ex T. Z. Hsu (in C. Y. Wu, Fl. Yunnan. 1: 93. 1977), described from S Yunnan (Yuanjiang) appears to be a form of *C. griffithii* var. *griffithii*. It has an abaxially sparsely scaly leaf blade (vs. densely so in typical *C. griffithii* var. *griffithii*), obtuse-rounded or retuse at the apex (vs. cuspidate or acuminate), and an ellipsoid fruit, 2–2.6 × 1.2–1.6 cm. The narrowness of the fruit may be a result of its having been immature when collected (cf. comments on *C. oliviforme* under *C. sundaicum* above).

8a. *Combretum griffithii* var. *yunnanense* (Exell) Turland & C. Chen, **comb. nov.**

云南风车子 yun nan feng che zi

Basionym: *Combretum yunnanense* Exell, Sunyatsenia 1: 88. 1933; *C. wallichii* var. *yunnanense* (Exell) M. G. Gango-padhyay & Chakrabarty.

Leaf blade pilose on both surfaces, glabrescent with age but remaining pilose on veins. Fl. Apr–Jun, fr. Jul–Dec.

Forests, sparse forests, woods, thickets by streams, mountain valleys, ravines, riversides; 500–1600(–2000) m. S and W Yunnan [Myanmar, Thailand].

Exell described *Combretum yunnanense* from Yunnan, based on *A. Henry 11891A* (BM, holotype; E, K, MO, isotypes), mentioning that the species also grows in “Burma and the Malay Peninsula.” Several additional gatherings from Yunnan were cited in the protologue, including *A. Henry 12509* (A, K) and *A. Henry 12546A* (A, BM, E, K, MO), which, with leaf blades glabrous on both surfaces, correspond with *C. griffithii*. Clearly *C. yunnanense* is very close morphologically to *C. griffithii* and occurs within the E part of the distribution of the latter species. It seems more appropriate, therefore, to treat *C. yunnanense* at varietal rank under *C. griffithii*.

When Exell (in Steenis, Fl. Males., ser. 1, 4: 540. 1954) gave a much broader distribution for *Combretum yunnanense*, as “Bengal?, Assam?, Yunnan, ... Sumatra, Malay Peninsula, and NW. Borneo,” his circumscription included the taxon later separated as *C. chinense* (see note under genus heading).

