

## 11. YULANIA Spach, Hist. Nat. Vég. Phan. 7: 462. 1839.

玉兰属 *yu lan shu*

*Magnolia* subg. *Pleurochasma* Dandy; *M.* subg. *Yulania* (Spach) Reichenbach.

Trees or shrubs, deciduous. Stipules membranous, adnate to petiole and leaving a scar on petiole. Leaves spirally arranged, folded in bud, erect when young; leaf blade membranous or thickly papery, margin entire or rarely 2-lobed at apex. Flowers terminal on brachyblasts, solitary, bisexual, appearing before or at same time as leaves, large and showy, usually fragrant. Tepals 9–15(–45), 3 per whorl, white, pink, purplish red, or rarely yellow, subequal, sometimes outer ones (perules) smaller, greenish or yellowish brown, and sepal-like. Stamens caducous; filaments flat; connective exerted and forming a long or short mucro; anthers dehiscing introrse-latorrsely or latrorsely. Gynoecium without a gynophore; carpels distinct; ovules 2(–4) per carpel; styles curved outward. Fruit usually terete when mature, often curved because of carpels partly abortive; mature carpels often distinct or rarely connate, leathery or subwoody, dehiscing along dorsal sutures, persistent on torus.

About 25 species: temperate and subtropical regions of SE Asia and North America; 18 species including one to six hybrid species (16 endemic, one introduced) in China.

*Yulania kobus* (Candolle) Spach (*Magnolia kobus* Candolle, nom. cons.; *M. praecocissima* Koidzumi), native to Japan and S Korea, is cultivated as a garden plant in Shandong and Zhejiang.

“*Magnolia glabrata* Y. W. Law & R. Z. Zhou” and “*M. glabrata* var. *multipetala* Y. W. Law & Q. W. Zeng” (in Y. H. Liu, *Magnolias China*, 62, 64. 2004) either represent hybrids between *Yulania* (*Magnolia*) species found in plantations grown for medicinal *xinyi* or could be a synonyms of already published taxa; however, they were not validly published because no Latin descriptions or diagnoses were provided and no types were indicated (*Vienna Code*, Art. 36.1 and 37.1).

- 1a. Tepals unequal, outer ones sepal-like and much smaller than inner ones.
  - 2a. Flowers appearing at same time as or later than leaves; leaf blade conspicuously decurrent at base; stipular scar nearly 1/2 as long as petiole ..... 12. *Y. liliiflora*
  - 2b. Flowers appearing before leaves; leaf blade not decurrent at base; stipular scar less than 1/2 as long as petiole.
    - 3a. Mature carpels connate or densely aggregated, not curved, abaxially white lenticellate ..... 11. *Y. cylindrica*
    - 3b. Mature carpels distinct from each other, usually curved, tuberculate abaxially.
      - 4a. Gynoecium with trichomes.
        - 5a. Young twigs yellowish green, densely pubescent; leaf blade varied in shape, obovate, ovate, obtriangular, or orbicular, apex obtuse with an acute acumen or emarginate or lobed ..... 13. *Y. jigongshanensis*
        - 5b. Young twigs purplish brown, glabrous; leaf blade obovate, apex obtusely rounded, with a shortly acute mucro ..... 16. *Y. pilocarpa*
      - 4b. Gynoecium glabrous.
        - 6a. Twigs glabrous ..... 9. *Y. biondii*
        - 6b. Twigs with trichomes ..... 10. *Y. stellata*
- 1b. Tepals subequal, outer ones not much smaller and sepal-like.
  - 7a. Tepals clawed at base; leaf blade elliptic or ovate.
    - 8a. Tepals 12–16, obovate-spatulate or oblong-ovate ..... 1. *Y. campbellii*
    - 8b. Tepals 33–48, narrowly elliptic ..... 18. *Y. viridula*
  - 7b. Tepals base usually not clawed; leaf blade obovate or elliptic-obovate.
    - 9a. Leaf blade usually emarginate or obtuse at apex.
      - 10a. Leaf blade obovate-spatulate or narrowly obovate, apex emarginate, abaxially dense silvery wavy villous; tepals 10–14 ..... 2. *Y. sargentiana*
      - 10b. Leaf blade narrowly oblong-spatulate or obovate-oblong, apex obtuse, abaxially glabrous or with trichomes along veins; tepals 9–12 ..... 3. *Y. dawsoniana*
    - 9b. Leaf blade acute or shortly acuminate at apex.
      - 11a. Twigs with trichomes.
        - 12a. Leaf blade irregularly triangular; gynoecium densely villous ..... 14. *Y. mirifolia*
        - 12b. Leaf blade obovate; gynoecium glabrous.
          - 13a. Tepals pure white, sometimes reddish at base abaxially, outer ones equal to inner ones in length ..... 8. *Y. denudata*
          - 13b. Tepals pale to dark red, outer ones ca. 2/3 as long as inner ones ..... 17. *Y. ×soulangeana*
      - 11b. Twigs glabrous.
        - 14a. Tepals 12–24.
          - 15a. Leaf blade 10–18 cm, lower ca. 2/3 cuneate; each flower bud with 1 flower, tepals rosy (to red) outside, whitish within ..... 4. *Y. sprengeri*
          - 15b. Leaf blade 5–10 cm, base broadly cuneate; each flower bud with 2 or 3 flowers;

- tepals white ..... 15. *Y. multiflora*  
 14b. Tepals 9–12.  
 16a. Leaf blade obovate to narrowly obovate-elliptic, apex acuminate to abruptly cuspidate, acumen 0.5–2 cm; tepals red or pale red ..... 5. *Y. amoena*  
 16b. Leaf blade obovate-oblong, apex rounded, with an acuminate mucro; tepals pale purplish red.  
 17a. Tepals 9, upper part white, lower part pale purplish red ..... 6. *Y. zenii*  
 17b. Tepals 11(or 12), pale purplish red ..... 7. *Y. elliptigemmata*

**1. *Yulania campbellii*** (J. D. Hooker & Thomson) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

滇藏玉兰 dian zang yu lan

*Magnolia campbellii* J. D. Hooker & Thomson, Fl. Ind. 1: 77. 1855; *M. campbellii* subsp. *mollicomata* (W. W. Smith) G. H. Johnstone; *M. campbellii* var. *mollicomata* (W. W. Smith) F. S. Ward; *M. mollicomata* W. W. Smith.

Trees, to 30 m tall. Bark grayish brown. Twigs yellowish green when young and reddish brown when old, glabrous. Stipular scar short and small. Petiole 1–5 cm, pilose; leaf blade elliptic, oblong-ovate, or broadly obovate, 10–23(–33) × 4.5–10(–14) cm, papery, abaxially grayish green and white appressed pilose, adaxially deep green and glabrous, midvein and secondary veins appressed long sericeous, secondary veins 12–16 on each side of midvein, base rounded to broadly cuneate and usually unequal, apex acute to shortly acuminate. Peduncle thick and strong, ca. 2 cm, glabrous or slightly pilose. Flower buds ovoid, ca. 2.5 cm, pale yellow sericeous. Flowers appearing before leaves, 15–25(–35) cm in diam., slightly fragrant. Tepals 12–16, dark red, pink, or sometimes white, obovate-spoon-shaped to oblong-ovate, 6–14 × 4–6 cm, base gradually narrowed and forming a claw; outer 3 patent, reflexed, or pendulous; tepals of innermost whorl broadly ovate to suborbicular, 8–10 × 4–6 cm, erect, surrounding stamens and gynoecium. Stamens 1–3 cm; filaments purplish red. Gynoecium green, 2–3 cm; stigmas red. Fruiting peduncle thick and strong, 1–1.5 cm in diam., glabrous. Fruit purplish red turning brown, terete, 11–20 × 2.5–3 cm, at first erect then pendulous; mature carpels firmly connate, thin, dehiscing into 2 valves along dorsal sutures. Seeds cordate, 1–1.2 × 0.8–1 cm, laterally flat. Fl. Mar–May, fr. Jun–Jul.  $2n = 114$ .

Forests; 2500–3500 m. S Xizang, NW Yunnan [Bhutan, NE India (Assam, Sikkim), N Myanmar, Nepal].

This species is grown as an ornamental.

**2. *Yulania sargentiana*** (Rehder & E. H. Wilson) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

凹叶玉兰 ao ye yu lan

*Magnolia sargentiana* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 398. 1913; *M. conspicua* Salisbury var. *emarginata* Finet & Gagnepain; *M. denudata* Desrousseaux var. *emarginata* (Finet & Gagnepain) Pampanini; *M. emarginata* (Finet & Gagnepain) W. C. Cheng; *M. sargentiana* var. *robusta* Rehder & E. H. Wilson.

Trees 8–20(–25) m tall, to 1 m d.b.h. Annual twigs yellowish green later becoming gray. Stipular scar 1/6–1/4 as long as petiole. Petiole 2–4.5 cm; leaf blade obovate to rarely ob-

long-obovate, 10–19 × 6–10 cm, nearly leathery, abaxially pale green and densely silvery gray wavy villous but when young those on trunk only with trichomes abaxially along midvein, adaxially dark green, glabrous, and glossy, secondary veins 8–12 on each side of midvein, base narrowly cuneate to broadly cuneate, apex rounded and emarginate or mucronate. Flower buds ovoid, ca. 3.5 cm, pale yellow villous. Flowers appearing before leaves, 15–33(–36) cm, erect or pendulous, slightly fragrant. Tepals 10–14(–17), in 3 whorls, pale red to pale purplish red, obovate-spoon-shaped or narrowly obovate, 8–10 × 3–4.3 cm, fleshy, apex rounded to emarginate. Stamens 1–1.9 cm; filaments purple; connective exerted and forming a 0.5–1 mm mucro; anthers 7–9 mm, dehiscing laterally, base broad. Gynoecium green, terete, 1.8–2 cm, glabrous; stigmas purple. Fruiting peduncle thick and strong, 7–10 mm in diam., with residual trichomes on nodes. Fruit terete, 8–15(–17) × 2–3 cm, usually wrinkled; mature carpels blackish purple, hemispherical or subglobose, 1.2–1.4 × ca. 0.9 cm, densely tuberculate, apex shortly beaked. Seeds nearly reniform, irregularly orbicular, or obovate, 10–12 × 6–8 mm, bilaterally flat; testa reddish brown. Fl. Apr–May, fr. Sep.  $2n = 114^*$ .

• Wet broad-leaved forests; 1400–3000 m. C and S Sichuan, N and NE Yunnan.

**3. *Yulania dawsoniana*** (Rehder & E. H. Wilson) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

光叶玉兰 guang ye yu lan

*Magnolia dawsoniana* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 1: 397. 1913.

Trees, to 20 m tall, to 1 m d.b.h. Twigs yellowish green becoming yellowish brown, glabrous or with fine trichomes, sparsely lenticellate. Petiole slender, 1–3 cm, base with short stipular scar; leaf blade obovate to elliptic-obovate, 7.5–14(–18) × 4–8 cm, basal ca. 2/3 gradually narrowing, abaxially pale green, vein axils and both sides of midvein usually residual with white villous hairs, adaxially green and glossy with only fine trichomes along midvein but glabrescent, secondary veins 8–10 on each side of midvein and usually reddish, reticulate veins conspicuously prominent on both surfaces when dry, base cuneate and usually oblique, apex obtuse, shortly acute, or rarely emarginate. Peduncle 1–1.5 cm, nodes villous. Flowers appearing before leaves, 16–25 cm in diam., erect to nodding, fragrant. Tepals 9–12, white but outside reddish, narrowly oblong-spoon-shaped to obovate-oblong, subequal, apex obtuse to emarginate. Stamens purplish red, 1.2–2 cm; filaments 3–4.5 mm. Gynoecium narrowly cylindric, 1.5–2 cm. Fruit dark red when fresh turning dark reddish brown, cylindric, 7–14 × 2.5–3.5 cm, slightly curved because part of carpels sterile; mature

carpels obovoid, with sparse yellow lenticels, 2-valved, apex rounded and without a beak. Seeds compressed orbicular or irregularly triangular, ca. 1 cm in diam. Fl. Apr–May, fr. Sep–Oct.

- Forests; 1400–2500 m. NW Hunan (Sangzhi), C Sichuan.

This species is grown as an ornamental.

**4. *Yulania sprengeri* (Pampanini) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.**

武当玉兰 wu dang yu lan

*Magnolia sprengeri* Pampanini, Nuovo Giorn. Bot. Ital., n.s., 22: 295. 1915; *M. denudata* Desrousseaux var. *elongata* Rehder & E. H. Wilson; *M. denudata* var. *purpurascens* Rehder & E. H. Wilson; *M. diva* Stapf ex Millais; *M. elongata* (Rehder & E. H. Wilson) Millais; *M. sprengeri* var. *diva* Stapf; *M. sprengeri* var. *elongata* (Rehder & E. H. Wilson) Stapf; *M. wufengensis* L. Y. Ma & L. R. Wang; *M. wufengensis* var. *multitepala* L. Y. Ma & L. R. Wang; *Yulania denudata* (Desrousseaux) D. L. Fu var. *elongata* (Rehder & E. H. Wilson) D. L. Fu & T. B. Chao.

Trees, to 21 m tall. Bark pale grayish brown or blackish brown, falling in small flakes when old. Twigs pale yellowish brown becoming gray, glabrous. Petiole 1–3 cm with small stipular scar; leaf blade obovate, 10–18 × 4.5–10 cm, abaxially finely appressed pilose at first, adaxially sparsely appressed pilose along midvein and secondary veins, base cuneate, apex acute to abruptly shortly acuminate. Flower buds erect, pale grayish yellow sericeous. Flowers appearing before leaves, cupular, fragrant. Tepals 12–(14), outside rosy red and dark purple striated, obovate-spoon-shaped to spoon-shaped, 5–13 × 2.5–3.5 cm, subequal. Stamens 1–1.5 cm; filaments purplish red, broad and flat; connective exerted and forming a mucro; anthers ca. 5 mm, slightly distinct. Gynoecium pale green, cylindrical, 2–3 cm; styles rosy red. Fruit cylindrical, 6–18 cm; mature carpels brown, flat and orbicular. Fl. Mar–Apr, fr. Aug–Sep.

- Forests, thickets; 1300–2400 m. Chongqing, S Gansu, Guizhou, SW Henan, Hubei, NW Hunan, NW Jiangxi (Xiushui), Shaanxi, C Sichuan, Yunnan.

This species is grown as an ornamental and used medicinally.

**5. *Yulania amoena* (W. C. Cheng) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.**

天目玉兰 tian mu yu lan

*Magnolia amoena* W. C. Cheng, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 9: 280. 1934.

Trees, to 12 m tall. Bark gray or grayish white. Twigs green when young becoming purple when old, 3–4 mm in diam., glabrous; buds with grayish white appressed trichomes. Stipular scar 1/5–1/2 as long as petiole. Petiole 0.8–1.3 cm, at first with white long trichomes; leaf blade obovate to narrowly obovate-elliptic, 10–15 × 3.5–5 cm, papery, abaxially with white curved long trichomes along veins and in axils, adaxially glabrous, secondary veins 10–13 on each side of midvein, base broadly cuneate to rounded, apex acuminate to abruptly cuspidate, acumen 0.5–2 cm. Spathaceous bract just below tepals.

Flowers appearing before leaves, red to pale red, ca. 6 cm in diam., fragrant. Tepals 9, oblanceolate to spoon-shaped, 5–5.6 cm. Stamens 9–10 mm; filaments purplish red, 3.5–4 mm; connective exerted and forming a 0.5–0.7 mm mucro; anthers 4.5–5 mm, dehiscing laterally. Gynoecium cylindrical, ca. 2 cm × 2 mm; stigmas ca. 1 mm. Fruiting peduncle ca. 1 cm, with residual villous trichomes. Fruit cylindrical, 4–10 cm, usually curved because of carpels partly undeveloped; mature carpels compressed globose, ca. 10 × 6–7 mm, tuberculate, dehiscing into 2 valves along dorsal sutures, apex obtuse. Seeds (without testa) cordate, 8–9 × 5–6 mm. Fl. Apr–May, fr. Sep–Oct.

- Montane sparse forests; 700–1000 m. Anhui, Fujian, Hebei, S Jiangsu, Jiangxi, Zhejiang.

**6. *Yulania zenii* (W. C. Cheng) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.**

宝华玉兰 bao hua yu lan

*Magnolia zenii* W. C. Cheng, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 8: 291. 1933; *M. elliptilimba* Y. W. Law & Z. Y. Gao.

Trees, to 11 m tall, to 30 cm d.b.h. Bark grayish white, smooth. Old twigs purple, sparsely lenticellate; young twigs green, glabrous; buds narrowly ovoid, apex slightly curved, long sericeous. Stipular scar 1/5–1/2 as long as petiole. Petiole 0.6–1.8 cm, at first villous; leaf blade obovate-oblong to oblong, 7–16 × 3–7 cm, membranous, abaxially pale green, adaxially green and glabrous, midvein and secondary veins with long curved trichomes, secondary veins 8–10 on each side of midvein, base broadly cuneate to obtuse, apex broadly rounded and with an acuminate tip. Peduncle 2–4 mm, with dense long trichomes. Flower buds ovoid. Flowers appearing before leaves, ca. 12 cm in diam., fragrant. Tepals 9, nearly spoon-shaped, 6.8–7.8 × 2.7–3.8 cm, apex rounded to slightly acuminate; inner tepals white but outside pale purplish red from base to middle and apically white, narrower and smaller. Stamens ca. 1.1 cm; filaments purple, ca. 4 mm; connective exerted and forming a mucro; anthers ca. 7 mm, thecae divergent, dehiscing introrsely. Gynoecium cylindrical, ca. 2 cm; carpels ca. 4 mm; styles ca. 1 mm. Fruit cylindrical, 5–7 cm; mature carpels suborbicular, tuberculate, apex obtuse. Fl. Mar–Apr, fr. Aug–Sep.

- Hills; ca. 200 m. Jiangsu (Baohua Shan, Jurong).

This species is grown as an ornamental.

**7. *Yulania elliptigemmata* (C. L. Guo & L. L. Huang) N. H. Xia, **comb. nov.****

椭圆玉兰 tuo lei yu lan

Basionym: *Magnolia elliptigemmata* C. L. Guo & L. L. Huang, J. Wuhan Bot. Res. 10: 325. 1992.

Trees, to 10 m tall, 40–50 cm d.b.h. Bark gray, with grayish white massive lenticels. Twigs, petioles, and adaxial surface of leaf blades glabrous. Stipular scar 1/4–1/3 as long as petiole. Petiole 1.5–2 cm; leaf blade obovate to broadly obovate, 5–9 × 4.5–6.5 cm, abaxially green, white appressed pubescent when young, adaxially dark green, secondary veins 7 or 8 on each side of midvein, base cuneate to broadly cuneate, apex broadly rounded, slightly emarginate, or shortly acute. Peduncle

ca. 6 mm. Flowers appearing before leaves, fragrant. Tepals 11(or 12), pale purplish red but basally darker and apically lighter, obovate-spoon-shaped, 5.5–6.7 × 2.2–3.2 cm, subequal. Stamens ca. 50, 1–1.5 cm; filaments ca. 4 mm; connective exerted and forming a ca. 1 mm mucro; anthers dehiscing laterally. Gynoecium cylindric, 1.8–2 cm, glabrous; styles 2–3 mm. Fruit 4–7 cm, usually withered because of carpels partly undeveloped; mature carpels compressed globose, 0.7–1.5 cm in diam., dehiscing into 2 valves, tuberculate. Seeds bean-shaped or cordate; testa red; endotesta pale brown. Fl. Mar, fr. Sep–Oct.

- Forests; ca. 700 m. Hubei (Yuan'an).

This is possibly a form of *Yulania sprengeri* with smaller leaves.

**8. *Yulania denudata*** (Desrousseau) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

玉兰 yu lan

*Magnolia denudata* Desrousseau in Lamarck, Encycl. 3: 675. 1792; *Gwillimia yulan* (Desfontaines) de Vos; *Lassonia heptapeta* Buc'hoz, nom. utique rej.; *M. alexandrina* Steudel; *M. citriodora* Steudel; *M. conspicua* Salisbury; *M. conspicua* var. *purpurascens* Maximowicz; *M. cyathiformis* Rinz ex K. Koch; *M. denudata* var. *angustitepala* T. B. Chao & Zhi X. Chen; *M. denudata* var. *pyramidalis* T. B. Chao & Zhi X. Chen; *M. denudata* var. *pyriformis* T. D. Yang & T. C. Cui; *M. heptapeta* (Buc'hoz) Dandy, comb. rej.; *M. obovata* Thunberg var. *denudata* (Desrousseau) Candolle; *M. yulan* Desfontaines; *Michelia yulan* (Desfontaines) Kostelezky; *Yulania conspicua* (Salisbury) Spach; *Y. denudata* var. *flava* D. L. Fu et al.; *Y. denudata* subsp. *pubescens* (D. L. Fu et al.) D. L. Fu et al.; *Y. denudata* var. *pubescens* D. L. Fu et al.; *Y. denudata* var. *purpurascens* (Maximowicz) D. L. Fu; *Y. denudata* var. *pyramidalis* (T. B. Chao & Zhi X. Chen) D. L. Fu; *Y. pyriformis* (T. D. Yang & T. C. Cui) D. L. Fu.

Trees, to 25 m tall, to 1 m d.b.h. Bark deep gray, coarse and fissured. Winter buds and peduncles densely pale grayish yellow long sericeous. Branches patent and forming a broad crown; twigs grayish brown, slightly thick and strong. Stipular scar 1/4–1/3 as long as petiole. Petiole 1–2.5 cm, villous, adaxially narrowly furrowed; leaf blade obovate, broadly obovate, or obovate-elliptic but basal leaves elliptic, 10–15(–18) × 6–10(–12) cm, papery, gradually narrowing from middle toward base, abaxially pale green and villous along veins, adaxially deep green, villous when young, and later only pilose on midvein and secondary veins, secondary veins 8–10 on each side of midvein, reticulate veins conspicuous, apex broadly rounded, truncate, or slightly emarginate. Peduncle significantly enlarged, densely pale yellow long sericeous. Flower buds ovoid. Flowers appearing before leaves, 10–16 cm in diam., erect, fragrant. Tepals 9, white, oblong-obovate, 6–8(–10) × 2.5–4.5(–6.5) cm, subequal, base usually pinkish. Stamens 7–12 mm; connective ca. 5 mm wide, exerted and forming a mucro; anthers 6–7 mm, dehiscing laterally. Gynoecium pale green, cylindric, 2–2.5 cm, glabrous; ovaries narrowly ovoid, 3–4 mm; styles conical, ca. 4 mm. Fruit cylindric but in cultivation often curved because of carpels partly undeveloped, 12–15 × 3.5–5 cm; mature carpels brown, thickly woody, white lenticellate.

Seeds cordate, ca. 9 × 10 mm, laterally compressed; testa red; endotesta black. Fl. Feb–Mar, fr. Aug–Sep.  $2n = 76^*$ ,  $114^*$ .

- Forests; 500–1000 m. Anhui, Chongqing, N Guangdong, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Yunnan, Zhejiang.

This species is grown as an ornamental and for timber. It is widely cultivated in temperate parts of the world.

**9. *Yulania biondii*** (Pampanini) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

望春玉兰 wang chun yu lan

*Magnolia biondii* Pampanini, Nuovo Giorn. Bot. Ital., n.s., 17: 275. 1910; *M. aulacosperma* Rehder & E. H. Wilson; *M. biondii* var. *axilliflora* T. B. Chao et al.; *M. biondii* var. *flava* T. B. Chao et al.; *M. biondii* var. *latitepala* T. B. Chao & J. T. Gao [“*tatitepala*”]; *M. biondii* var. *multilabastra* T. B. Chao et al.; *M. biondii* var. *ovata* T. B. Chao & T. X. Zhang; *M. biondii* var. *planities* T. B. Chao & Y. Z. Qiao; *M. conspicua* Salisbury var. *fargesii* Finet & Gagnepain; *M. denudata* Desrousseau var. *fargesii* (Finet & Gagnepain) Pampanini; *M. fargesii* (Finet & Gagnepain) W. C. Cheng; *M. funiushanensis* T. B. Chao et al.; *M. funiushanensis* var. *purpurea* T. B. Chao & J. T. Gao; *Yulania biondii* var. *angustitepala* D. L. Fu et al.

Trees, to 12 m tall, to 1 m d.b.h. Bark pale gray, smooth. Twigs grayish green, 3–4 mm in diam., glabrous; terminal buds ovoid to broadly ovoid, 1.7–3 cm, densely pale yellow opened villous. Stipular scar 1/5–1/3 as long as petiole. Petiole 1–2 cm; leaf blade narrowly elliptic, narrowly ovate, narrowly obovate, or ovate, 10–18 × 3.5–6.5 cm, abaxially light green and appressed lanate but later glabrescent, adaxially dark green, secondary veins 10–15 on each side of midvein, base broadly cuneate to obtuse and decurrent on petiole, margin dry membranous, apex acute to shortly acuminate. Peduncle ca. 1 cm, with 3 bract scars, apically swollen. Flowers appearing before leaves, 6–8 cm in diam., fragrant. Tepals 9; outer 3 tepals sepaloïd, purplish red, nearly narrowly obovate-linear, ca. 1 cm; tepals of middle and inner whorls white but usually outside purplish red at base, spoon-shaped, 4–5 × 1.3–2.5 cm; tepals of inner whorls smaller and narrower. Stamens 8–10 mm; filaments purple, 3–4 mm; anthers 4–5 mm. Gynoecium 1.5–2 cm. Fruiting peduncle ca. 1 × 0.7 cm, with residual long sericeous trichomes. Fruit cylindric, 8–14 cm, usually withered because of carpels partly undeveloped; mature carpels light brown, sub-orbicular, compressed laterally, tuberculate. Seeds cordate, with a V-shaped furrow prominent in middle, abaxially deeply furrowed, apically concave, apex inconspicuously acute; testa bright red; endotesta dark black. Fl. Mar, fr. Sep.  $2n = 76^*$ .

- Forests; 600–2100 m. Chongqing, SE Gansu, Henan, Hubei, N Hunan, Shaanxi, Sichuan.

This species is grown as an ornamental and used medicinally.

“*Magnolia biondii* var. *parvalabastra* T. B. Chao,” “*M. biondii* var. *purpurea* T. B. Chao et al.,” and “*M. honanensis* B. Y. Ding & T. B. Chao” (in J. Henan Agric. College 1983(4): 7, 8, 10. 1983) belong here but were not validly published because in each case two gatherings were indicated as types (*Vienna Code*, Art. 37.2).

**10. *Yulania stellata*** (Maximowicz) N. H. Xia, **comb. nov.**

星花玉兰 xing hua yu lan

Basionym: *Magnolia stellata* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg, Sér. 3, 17: 418. 1872; *M. sino-stellata* P. L. Chiu & Z. H. Chen; *Yulania sinostellata* (P. L. Chiu & Z. H. Chen) D. L. Fu.

Shrubs, 0.3–2.4 m tall. Twigs slender, lenticellate; old twigs grayish brown; annual and biennial twigs green. Stipular scar ca. 1/2 as long as petiole. Petiole 3–12 mm, glabrous; leaf blade elliptic, narrowly elliptic, or obovate-elliptic, 7–12 × 2.5–4 cm, abaxially glabrous or white pubescent in vein axils, adaxially glabrous, midvein abaxially slightly impressed, secondary veins 6–8 on each side of midvein, base cuneate, apex acuminate to caudate. Peduncle 3–5 mm, densely yellow sericeous. Flower buds 1.5–2 cm. Flowers appearing before leaves, 5–7 cm in diam. Tepals 12–15(–18), in 4 or 5(or 6) whorls, pale red at first but later gradually becoming white with red on outside on apical part or only at middle, oblanceolate to obovate-spoon-shaped, 3.3–4.5 × 1.3–1.8 cm, fleshy, apex rounded to nearly acute. Stamens 86–99, 7–9(–10) mm; filaments 1–2(–3) mm; anthers 6–7 mm. Gynoecium cylindric, 6–8 × 2–4 mm; carpels many, narrowly ovoid, ca. 2 mm, distinct, glabrous; stigmas ca. 1.5 mm. Fruit not seen. Fl. Feb.

Sparse forests; ca. 1000 m. Naturalized in Zhejiang (Jingning) [native to Japan].

This species is commonly cultivated in Jiangsu, Shandong, and Zhejiang.

In FRPS (30(1): 139. 1996) the name *Magnolia tomentosa* Thunberg, nom. utique rej., was misapplied to this species.

One of us (Xia) considers that *Yulania sinostellata* is a distinct species.

**11. *Yulania cylindrica*** (E. H. Wilson) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

黄山玉兰 huang shan yu lan

*Magnolia cylindrica* E. H. Wilson, J. Arnold Arbor. 8: 109. 1927.

Trees, to 10 m tall. Bark grayish white, smooth. Young twigs, petioles, and leaf blade abaxial surfaces with pale yellow appressed trichomes. Old twigs purplish brown, bark with pungent odor when crushed. Stipular scar 1/6–1/3 as long as petiole. Petiole 0.5–2 cm, narrowly furrowed; leaf blade obovate, narrowly obovate, or obovate-oblong, 6–14 × 2–5(–6.5) cm, membranous, abaxially grayish green, adaxially green and glabrous, base nearly rounded to broadly cuneate, apex obtuse, acute, or caudate. Peduncle 1–1.5 cm, thick and strong, densely pale yellow long sericeous. Flowers appearing before leaves, erect. Flower buds ovoid, with pale grayish yellow to silvery gray long trichomes. Tepals 9; outer 3 tepals sepal-like, 1.2–2 × ca. 0.4 cm, membranous; tepals of middle and inner whorls

#### Hybrids or putative hybrids

**13. *Yulania jigongshanensis*** (T. B. Chao et al.) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

鸡公山玉兰 ji gong shan yu lan

*Magnolia jigongshanensis* T. B. Chao et al., J. Henan Univ., Nat. Sci. 26: 62. 2000.

Trees. Twigs purplish brown, lustrous, glabrous, rarely pu-

white but base usually red, petal-like, obovate, 6.5–10 × 2.5–4.5 cm, base clawed; inner 3 tepals erect. Stamens ca. 1 cm; filaments pale red; connective exerted and forming a tip or mucro. Gynoecium green, cylindric-ovoid, ca. 1.2 cm. Fruit purplish red at first then turning dark purplish black, cylindric, 5–7.5 × 1.8–2.5 cm, pendulous; mature carpels connate and not curved. Seeds (without testa) brown, cordate, 7–10 × 9–11 mm, laterally compressed, adaxially broadly furrowed, base cuneate, apex V-shaped. Fl. Apr–Jun, fr. Aug–Sep.  $2n = 76^*$ .

• Forests; 700–1600 m. Anhui, Fujian, S Henan, Hubei, Jiangxi, Zhejiang.

“*Magnolia concinna* Y. W. Law & R. Z. Zhou” (in Y. H. Liu, Magnolias China, 44. 2004) belongs here but was not validly published because no Latin description or diagnosis was provided and no type was indicated (*Vienna Code*, Art. 36.1 and 37.1).

**12. *Yulania liliiflora*** (Desrousseaux) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

紫玉兰 zi yu lan

*Magnolia liliiflora* Desrousseaux in Lamarck, Encycl. 3: 675. 1792; *Lassonia quinquepeta* Buc’hoz, nom. utique rej.; *M. plena* C. L. Peng & L. H. Yan; *M. polytepala* Y. W. Law et al.; *M. quinquipeta* (Buc’hoz) Dandy, comb. rej.; *Yulania japonica* Spach.

Shrubs, to 3 m tall, usually caespitose. Bark grayish brown. Twigs greenish purple to pale purplish brown. Stipular scar ca. 1/2 as long as petiole. Petiole 0.8–2 cm; leaf blade elliptic-obovate to obovate, 8–18 × 3–10 cm, abaxially grayish green and pubescent along veins, adaxially deep green and sparsely pubescent when young, secondary veins 8–10 on each side of midvein, base gradually narrowing along petiole to stipular scar, apex acute to acuminate. Peduncle thick and strong, with trichomes. Flower buds ovoid, pale yellow sericeous. Flowers appearing at same time with leaves, vase-shaped, erect, slightly fragrant. Tepals 9–12; outer 3 tepals purplish green, sepal-like, lanceolate, 2–3.5 cm, caducous; tepals of inner 2 whorls purple to purplish red outside and whitish inside, petal-like, elliptic-obovate, 8–10 × 3–4.5 cm, fleshy. Stamens purplish red, 8–10 mm; connective exerted and forming a mucro; anthers ca. 7 mm, dehiscing laterally. Gynoecium pale purple, ca. 1.5 cm, glabrous. Fruit dark purplish brown, cylindric, 7–10 cm; mature carpels subglobose, apex shortly beaked. Fl. Mar–Apr, fr. Aug–Sep.  $2n = 76^*$ .

• Forest margins, slopes; 300–1600 m. Chongqing, Fujian, Hubei, S Shaanxi, Sichuan, NW Yunnan.

This species is grown as an ornamental and used medicinally.

bescent; young twigs pale yellowish green, terete, densely pubescent. Petiole 1–3 cm, furrowed adaxially; leaf blade broadly elliptic, broadly ovate, orbicular, suborbicular, obovate, or obtriangular, 16.5–19.5 × 5–17.5 cm, thinly leathery to leathery, abaxially pale yellowish green and densely curved pubescent, adaxially dark green, lustrous, and densely pubescent along veins, secondary veins 5–9 on each side of midvein and prominent on both surfaces, base subrounded to broadly cuneate,

apex obtuse and with a long mucro to 2-lobed. Brachyblasts densely pubescent. Flower buds ovoid, small, densely grayish white to pale yellowish brown villous. Flowers appearing before leaves. Tepals 9; outer 3 tepals pale yellowish green, sepal-like, triangular or lanceolate, 1–5(–15) mm, membranous; inner 6 tepals pale yellowish white but outside pale purplish in middle at base, petal-like, spatulate-elliptic, 5–9 × 3–5 cm, apex obtuse to sometimes emarginate. Stamens 65–71; filaments purple; anthers 0.8–1.3 cm, dehiscent laterally. Carpels many, densely pubescent. Fruit terete, 15–20 × 3–5 cm. Fl. Apr. fr. Aug.

- Henan (Jigong Shan).

One of the largest plantations of *Yulania* for growing medicinal *xinyi* is found at Jigong Shan Forest Station in Xinying, Henan. This plant may be one of the many hybrids that originate in plantations with different *Yulania* species, probably with *Yulania biondii* as one of the parents.

**14. *Yulania mirifolia*** D. L. Fu et al., Bull. Bot. Res., Harbin 24: 261. 2004.

奇叶玉兰 qi ye yu lan

Trees, to 8 m tall. Juvenile twigs purplish brown, shiny, later densely pale yellow pubescent, glabrescent or with persistent trichomes. Stipules long lanceolate, 1.5–2 cm, abaxially densely silvery pubescent, apex obtuse; stipular scar conspicuous, less than 1/5 as long as petiole. Petiole 1.5–2.5(–5) cm, pubescent; leaf blade irregularly obtriangular, 9.2–16.5 × 7–11.5 cm, abaxially pale green and densely pubescent, adaxially glabrous but pubescent along midvein, secondary veins 6–9 on each side of midvein, reticulate veins conspicuous on both surfaces, base cuneate, apex with 2 irregular orbicular to triangular lobes. Brachyblasts densely pale yellowish white villous. Flower buds ovoid, 1.5–2.5 × 1–1.2 cm, apex obtuse; bracts 1(or 2), thickly leathery, abaxially densely pale brown villous. Flowers appearing before leaves. Tepals 12, white, spatulate-long elliptic, 5.5–6.5 × 2.5–3.2 cm, pale purplish outside in middle at base, base narrowly cuneate, apex obtuse. Stamens 6–8 mm; filaments abaxially pale purple, ca. 2 mm; connective apex acute and with a ca. 1.5 mm mucro; anthers 4–6 mm, dehiscent laterally. Gynoecium pale green to green, terete, 1.2–2 cm; carpels many, densely white pubescent; styles pale green, 5–6 mm. Fruit not seen. Fl. late Mar.

- Forests; ca. 600 m. Henan (Xinyang).

This plant may be a hybrid between species of *Yulania* cultivated in the area for the production of medicinal *xinyi*.

**15. *Yulania multiflora*** (M. C. Wang & C. L. Min) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

多花玉兰 duo hua yu lan

*Magnolia multiflora* M. C. Wang & C. L. Min, Acta Bot. Boreal.-Occid. Sin. 12: 85. 1992.

Trees, to 14 m tall, to 31 cm d.b.h. Bark gray. Annual twigs purplish green, smooth, glabrous. Stipular scar 1/6–1/5 as long as petiole. Petiole 1–2 cm; leaf blade obovate, 5–10 × 3.5–7 cm, abaxially grayish green, adaxially green and glabrous, secondary veins 6–8 on each side of midvein, base broadly cuneate, apex rounded and shortly acute. Flower buds densely

grayish yellow sericeous, inserted on twig apex, enclosing 2 or 3 flowers per bud and forming a thyrse, flowers cupular. Flowers appearing before leaves, fragrant. Tepals 12–14(or 15), white but outside pale red at base, narrowly obovate to obovate-lanceolate, 4.6–6.8 × 1.1–2.3 cm. Stamens 1.1–1.6 cm; filaments purplish red, ca. 4 mm; connective exerted and forming a mucro; anthers 7–8 mm, dehiscent laterally. Gynoecium green, cylindrical, 1.8–3 cm. Fruit cylindrical, 4–9 cm, usually curved because of carpels partly undeveloped; mature carpels grayish brown, globose and compressed, 0.7–1.5 cm in diam., abaxially tuberculate, dehiscent into 2 valves along dorsal sutures. Fl. May, fr. Aug–Sep.

- Forests; 1600–1700 m. Shaanxi (Ningshan).

This plant may be a hybrid between *Yulania biondii* and *Y. sprengeri*. Both species are grown for the production of medicinal *xinyi* and easily hybridize.

**16. *Yulania pilocarpa*** (Z. Z. Zhao & Z. W. Xie) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

罗田玉兰 luo tian yu lan

*Magnolia pilocarpa* Z. Z. Zhao & Z. W. Xie, Acta Pharmacol. Sin. 22: 777. 1987; *Yulania pilocarpa* var. *ellipticifolia* D. L. Fu et al.

Trees, 12–15 m tall. Bark grayish brown. Young twigs purplish brown, glabrous. Stipular scar nearly 1/2 as long as petiole. Leaf blade obovate to broadly obovate, 10–17 × 8.5–11 cm, papery, abaxially pale green, adaxially deep green, secondary veins 9–11 on each side of midvein, base cuneate to broadly cuneate, apex broadly rounded and slightly emarginate. Flower buds ovoid, ca. 3 cm, yellow villous. Flowers appearing before leaves. Tepals 9; outer 3 tepals yellowish green, sepal-like, sharply triangular, 1.7–3 cm, membranous; tepals of inner 2 whorls white, nearly spoon-shaped, 7–10 × 3–5 cm, fleshy. Stamens numerous, ca. 1.1 cm; connective exerted and forming a ca. 1 mm mucro; anthers 8–9 mm, dehiscent laterally. Gynoecium ellipsoid-cylindrical, ca. 2 cm; carpels pubescent; stigmas ca. 1 mm. Fruit cylindrical, 10–20 × ca. 3.5 cm, with residual trichomes. Seeds bean-shaped to obovoid; testa red; endotesta black. Fl. Mar–Apr, fr. Sep.

- Forests; ca. 500 m. Hubei (Luotian).

This species is used medicinally.

This plant may be one of the many spontaneous hybrids that originate in plantations with different *Yulania* species grown for medicinal *xinyi* with *Y. biondii* as one of the parents. *Yulania wugangensis* (T. B. Chao et al.) D. L. Fu (J. Wuhan Bot. Res. 19: 198. 2001; *Magnolia wugangensis* T. B. Chao et al., Acta Bot. Yunnan. 21: 171. 1999) may be another hybrid from the same sort of medicinal plantation in Henan and also involving *Y. biondii* as one of its parents.

**17. *Yulania ×soulangeana*** (Soulange-Bodin) D. L. Fu, J. Wuhan Bot. Res. 19: 198. 2001.

二乔玉兰 er qiao yu lan

*Magnolia ×soulangeana* Soulange-Bodin, Mém. Soc. Linn. Paris 1826: 269. 1826 [“*soulangiana*”]; *M. yulan* Desfontaines var. *soulangeana* (Soulange-Bodin) Lindley.

Trees, 6–10 m tall. Twigs glabrous. Stipular scar ca. 1/3 as long as petiole. Petiole 1–1.5 cm, pubescent; leaf blade obovate,

6–15 × 4–7.5 cm, basal ca. 2/3 gradually narrowing, papery, abaxially ± pubescent, adaxially with residual trichomes along midvein at base, secondary veins 7–9 on each side of midvein, base cuneate, apex shortly acute. Flower buds ovoid. Flowers appearing before leaves. Tepals 6–9, pale red to dark red; outer 3 tepals usually ca. 2/3 as long as inner ones. Stamens 1–1.2 cm; connective exerted and forming a mucro; anthers ca. 6 mm, dehiscent laterally. Gynoecium cylindric, ca. 1.5 cm, glabrous. Fruit ca. 8 × 3 cm; mature carpels black, ovoid to obovoid, 1–1.5 cm, with white lenticels. Seeds dark brown, broadly obovoid to obovoid, compressed laterally. Fl. Feb–Mar, fr. Sep–Oct.  $2n = 76^*$ .

● Cultivated throughout most of China and occurring occasionally where the two parents grow together.

This very ornamental hybrid between *Yulania denudata* and *Y. liliiflora* varies in the shape, size, and color of its tepals. Although originally named based on a hybrid made in Europe, the same hybridization occurs in China. There are about 20 cultivars in cultivation.

**18. *Yulania viridula*** D. L. Fu et al., Bull. Bot. Res., Harbin 24: 263. 2004.

青皮玉兰 qing pi yu lan

Trees. Juvenile twigs pale yellowish green, robust, ca. 1 cm in diam., shiny, sparsely to densely pubescent, later glabrescent, conspicuously lenticellate. Stipular scar ring conspicuously prominent, ca. 1/3 as long as petiole, densely pubescent. Petiole 3.5–4.5 cm, sparsely pubescent; leaf blade circular, elliptic, or broadly elliptic, 15–19.5 × 11.5–15.5 cm, papery, abaxially grayish green and villous along midvein and secondary veins, adaxially dark green and sparsely pubescent along midvein, secondary veins 6–9 on each side of midvein and spreading, base rotund to cordate, apex obtuse and rarely with a short mucro. Brachyblasts densely annular grayish white villous at apex, usually glabrous or pubescent from base to middle; bracts 3 or 4, abaxially densely pale yellow, brown, or grayish white villous; spatheaceous bracts 1, blackish brown, membranous, abaxially densely pale gray villous. Flower buds pale yellowish green, ellipsoid to ovoid, 1.5–2.5 × 1.7–2.5 cm. Flowers appearing before leaves. Tepals 33–48, outside basal 1/2 red, inside pure white, narrowly elliptic, 5.7–7.2 × 1–1.5 cm, base narrowly cuneate, apex obtuse. Stamens ca. 80, 1.3–1.5 cm; filaments ca. 3 mm, abaxially purplish red; connective with ca. 1 mm long mucro at apex; anthers dehiscent laterally. Gynoecium cylindric, ca. 3 cm; carpels many, green, glabrous; styles red, curved inward. Fruit not seen. Fl. Mar.

● Forests; ca. 700 m. Shaanxi (Hanzhong).

The authors have not seen any specimens of this species, but judging from the description and illustration in the protologue it may be a hybrid between species of *Yulania* cultivated for the production of medicinal *xinyi*.

