

18. LYONIA Nuttall, Gen. N. Amer. Pl. 1: 266. 1818, nom. cons., not Rafinesque (1808).

珍珠花属 zhen zhu hua shu

Fang Ruizheng (方瑞征 Fang Rhui-cheng); Peter F. Stevens

Xolisma Rafinesque.

Shrubs or trees, deciduous or evergreen, often from underground woody burl or producing thickened horizontal underground rhizomes. Buds flattened, conical or ovoid, usually with 2 large imbricate glabrous scales. Leaves spirally arranged, petiolate; leaf blade entire [toothed in United States]. Inflorescences axillary, racemose. Flowers [4- or]5[-8]-merous. Calyx with variously estimated lobes, usually valvate in bud. Corolla white [to red], tubular or urceolate; lobes short. Filaments flattened, geniculate, with or without 1 pair of spurs at anther-filament junction; anthers dehiscing by introrse-terminal elliptic pores. Ovary superior, with many ovules per locule; stigma truncate. Capsule loculicidal, with pale ± thickened sutures sometimes separating from valves in dehiscence. Seeds oblong-ovoid or spindle-shaped to shortly linear, minute, ends often truncated.

Thirty-five species: E Asia, North America; five species (two endemic) in China.

- 1a. Capsule with slightly thickened sutures; leaves 1.5–7 × 0.6–4 cm, apex obtuse, mucronate.
  - 2a. Filaments with 2 spurs near apex; inflorescences 6–15 cm; rachis sparsely to densely pubescent; ovary pubescent ..... 4. *L. compta*
  - 2b. Filaments without spurs; inflorescences 1–4(–7) cm; rachis densely fulvous-pubescent; ovary glabrous to pubescent ..... 5. *L. villosa*
- 1b. Capsule with much thickened sutures; leaves 4–20 × 2.5–12 cm, apex acuminate to abruptly acuminate.
  - 2a. Calyx lobes 6–11 mm; filaments without spurs; inflorescences 2–7 cm; leaf blade usually leathery ..... 3. *L. macrocalyx*
  - 2b. Calyx lobes 2–6 mm; filaments with 2 spurs near apex; inflorescences 5–20 cm; leaf blade usually papery.
    - 3a. Rachis of inflorescences, pedicels, and abaxial surface of calyx pubescent; leaf blade apically usually acuminate ..... 1. *L. ovalifolia*
    - 3b. Rachis of inflorescences, pedicels, and abaxial surface of calyx glabrous; leaf blade apically usually abruptly acuminate ..... 2. *L. doyonensis*

1. *Lyonia ovalifolia* (Wallich) Drude in Engler & Prantl, Nat. Pflanzenfam. 4(1): 44. 1889.

珍珠花 zhen zhu hua

Shrubs or trees, deciduous or evergreen, 1–4 m tall. Twigs glabrous or pubescent. Buds narrowly ovoid, (1–)3–9(–11.5) mm, glabrous. Petiole 4–9 mm, glabrous or pubescent; leaf blade ovate, narrowly to broadly elliptic, lanceolate, or suborbicular, 3–20 × 2–12 cm, papery to thinly leathery, both surfaces ± with white or brown hairs, rarely abaxially densely white villous on midvein or subglabrous, veins prominently raised to slightly depressed or nearly obscure, base obtuse, cuneate, or sometimes cordate, apex acuminate. Inflorescences 5–20 cm, pubescent; lower 1–3(or 4) bracts leaflike or not. Pedicel 2–10 mm, densely pubescent. Calyx lobes oblong or triangular, 2–6 mm, densely or sometimes sparsely pubescent. Corolla tubular, 8–11 mm, abaxially densely pubescent; lobes ca. 1 mm. Filaments 5–8 mm, pilose, with 2 spurs at apex. Ovary glabrous or pubescent. Capsule globose or ovoid, 3–5 mm in diam., with thick sutures or not, glabrous to densely pubescent. Fl. May–Jun, fr. Jul–Sep. 2n = 24\*.

Forests, forest margins, thickets, mountains, open and dry slopes, near hot springs, ravines; 200–3400 m. Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bangladesh, Bhutan, Cambodia, India, Japan, Laos, Malaysia, Myanmar, Nepal, Pakistan, Sikim, Thailand, Vietnam].

The leaf blade shape and indumentum are highly variable.

- 1a. Ovary and capsule densely pubescent.
  - 2a. Twigs, petioles, and leaf blades abaxially

- and inflorescences ± pubescent .... 1e. var. *hebecarpa*
- 2b. Twigs, petioles, and leaf blades abaxially and inflorescences densely tomentose ..... 1f. var. *tomentosa*
- 1b. Ovary and capsule glabrous.
  - 3a. Leaf blade abaxially white villous, especially densely so on midvein, base rounded or cuneate to cordate ..... 1d. var. *elliptica*
  - 3b. Leaf blade abaxially ± sparsely white or brown pubescent, base narrowly cuneate to cordate.
    - 4a. Filaments with inconspicuous spurs, 0.1–0.3 mm; inflorescences usually without leaflike bracts ..... 1b. var. *rubrovenia*
    - 4b. Filaments with distinct spurs, ca. 0.5 mm; inflorescence with leaflike bracts.
      - 5a. Leaves ovate or elliptic, rarely suborbicular; calyx lobes triangular ..... 1a. var. *ovalifolia*
      - 5b. Leaves elliptic-lanceolate to lanceolate; calyx lobes lanceolate ..... 1c. var. *lanceolata*

1a. *Lyonia ovalifolia* var. *ovalifolia*

珍珠花(原变种) zhen zhu hua (yuan bian zhong)

*Andromeda ovalifolia* Wallich, Asiat. Res. 13: 391. 1820; *Pieris ovalifolia* (Wallich) D. Don; *Xolisma ovalifolia* (Wallich) Rehder.

Leaf blade ovate or elliptic, (4–)8–10(–21) × (2–)4–6

(–11.5) cm, abaxially white pubescent or brown strigose, base obtuse to cordate, apex acuminate. Inflorescences with leaflike bracts. Filaments with 2 distinct spurs ca. 0.5 mm. Capsule sutures often quite thick.  $2n = 24$ .

Forests, forest margins, thickets, open and dry slopes; 700–3400 m. Fujian, S Gansu (Wenxian), Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Xizang, Yunnan [Bangladesh, Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Pakistan, Sikkim, Thailand, Vietnam].

**1b. *Lyonia ovalifolia* var. *rubrovenia*** (Merrill) Judd, J. Arnold Arbor. 60: 491. 1979.

红脉珍珠花 hong mai zhen zhu hua

*Pieris rubrovenia* Merrill, Philipp. J. Sci. 23: 256. 1923; *Lyonia annamensis* (Dop) Merrill; *L. rubrovenia* (Merrill) Chun; *P. annamensis* Dop.

Leaf blade elliptic, oblong, or lanceolate, 3–10 × (0.8–)1–3 cm, abaxially veins rust-colored, apex obtuse to acute. Inflorescences without leaflike bracts. Filaments with very short spurs 0.1–0.3 mm. Capsule with slightly thickened sutures.

Forests; 1000–1900 m. Guangdong, Guangxi, Hainan [Vietnam].

**1c. *Lyonia ovalifolia* var. *lanceolata*** (Wallich) Handel-Mazzetti, Symb. Sin. 7: 788. 1936.

狭叶珍珠花 xia ye zhen zhu hua

*Andromeda lanceolata* Wallich, Asiat. Res. 13: 390. 1820; *Lyonia compta* (W. W. Smith & Jeffrey) Handel-Mazzetti var. *stenantha* Handel-Mazzetti; *L. obliquinervis* (Merrill & Chun) Chun ex P. C. Tam; *Pieris kouyangensis* H. Léveillé; *P. lanceolata* (Wallich) D. Don; *P. obliquinervis* Merrill & Chun; *P. ovalifolia* var. *lanceolata* (Wallich) C. B. Clarke; *P. ulbrichii* H. Léveillé; *Vaccinium mairei* H. Léveillé; *Xolisma compta* (W. W. Smith & Jeffrey) Rehder; *X. ovalifolia* var. *lanceolata* (Wallich) Rehder.

Leaf blade elliptic-lanceolate to lanceolate, 5–13(–14.5) × 2–5(–7) cm, base narrowly cuneate to broadly cuneate, apex acuminate. Inflorescences with leaflike bracts. Calyx lobes lanceolate. Filaments with 2 distinct spurs ca. 0.5 mm. Capsule sutures quite thick.

Forests, forest margins, thickets, open and dry slopes; 700–2400 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Sichuan, Xizang, Yunnan [India, Myanmar].

**1d. *Lyonia ovalifolia* var. *elliptica*** (Siebold & Zuccarini) Handel-Mazzetti, Symb. Sin. 7: 788. 1936.

小果珍珠花 xiao guo zhen zhu hua

*Andromeda elliptica* Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4: 126. 1846; *Lyonia ovalifolia* var. *formosana* (Komatsu) T. Yamazaki; *Pieris elliptica* (Siebold & Zuccarini) Nakai; *P. formosana* Komatsu; *P. ovalifolia* var. *elliptica* (Siebold & Zuccarini) Rehder & E. H. Wilson; *P. pilosa* Komatsu; *Xolisma elliptica* (Siebold & Zuccarini) Nakai; *X. formosana* (Komatsu) Nakai; *X. formosana* var. *pilosa* (Komatsu) Nakai; *X. ovalifolia* var. *elliptica* (Siebold & Zuccarini) Rehder.

Leaf blade elliptic or ovate, 3.5–10.5 × 1.8–6 cm, abaxially villous, especially on midvein, base rounded to cordate or broadly cuneate, apex acute to long acuminate, sometimes curved. Inflorescences with leaflike bracts. Filaments with 2 distinct spurs. Capsule sutures quite thick.

Forests, forest margins, mountains, dry slopes, near hot springs; 1000–2700 m. Taiwan [Japan].

**1e. *Lyonia ovalifolia* var. *hebecarpa*** (Franchet ex Forbes & Hemsley) Chun, Sunyatsenia 4: 253. 1940.

毛果珍珠花 mao guo zhen zhu hua

*Pieris ovalifolia* var. *hebecarpa* Franchet ex Forbes & Hemsley, J. Linn. Soc., Bot. 26: 17. 1889; *P. henryi* H. Léveillé; *P. mairei* H. Léveillé; *P. mairei* var. *parvifolia* H. Léveillé; *Xolisma ovalifolia* var. *hebecarpa* (Franchet ex Forbes & Hemsley) Metcalf.

Leaf blade ovate to elliptic-ovate, 5–12(–15) × (2.3–)3–6(–8) cm, abaxially sparsely or densely pubescent, base rounded to cordate, apex acuminate to long acuminate. Inflorescences usually with leaflike bracts. Filaments with 2 distinct spurs. Capsule globose, 3–4 mm in diam., with thickened sutures, densely pubescent.

• *Pinus* and *Quercus* forests, forest margins, thickets, open and dry slopes; 200–3400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

**1f. *Lyonia ovalifolia* var. *tomentosa*** (W. P. Fang) C. Y. Wu, Index Fl. Yunnan. 2: 1082. 1984.

绒毛珍珠花 rong mao zhen zhu hua

*Pieris ovalifolia* var. *tomentosa* W. P. Fang, Contr. Biol. Lab. Chin. Assoc. Advancem. Sci., Sect. Bot. 10: 241. 1938.

Twigs, petioles, leaf blades abaxially, and inflorescences densely tomentose. Leaf blade elliptic, 4–8 × 2.5–5 cm, adaxially pubescent, base obtuse to rounded, apex abruptly acuminate. Inflorescences with leaflike bracts. Filaments with 2 ? distinct spurs. Capsule unknown.

• Ravines; ca. 1700 m. NC Yunnan (Yongren).

**2. *Lyonia doyonensis*** (Handel-Mazzetti) Handel-Mazzetti, Symb. Sin. 7: 789. 1936.

圆叶珍珠花 yuan ye zhen zhu hua

*Pieris doyonensis* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 60: 185. 1923; *Lyonia ovalifolia* (Wallich) Drude var. *doyonensis* (Handel-Mazzetti) Judd.

Trees or shrubs, deciduous, 2–6(–15) m tall. Twigs glabrous, rarely puberulous. Buds (1–)4–7(–11) mm, glabrous. Petiole 0.8–1.5 cm, glabrous or pubescent; leaf blade orbicular, oblong-orbicular, or oblong-elliptic, 6–15 × 4–10 cm, papery to thinly leathery, abaxially brown appressed-pubescent, especially on midvein and secondary veins, adaxially subglabrous, veins strongly raised abaxially, slightly raised adaxially, base obtuse-rounded, often shallowly cordate, apex rounded then abruptly acuminate. Inflorescences 7–17 cm, glabrous; lower 2 or 3 bracts leaflike. Pedicel 2–4 mm, glabrous. Calyx lobes triangular, 2–3 mm, glabrous. Corolla tubular, 1–1.2 cm, abaxi-

ally densely pubescent; lobes ca. 1 mm. Filaments 6–8 mm, lower part pilose, with 2 spurs at apex. Ovary glabrous. Capsule depressed-globose, 4–5 mm in diam., with thick sutures, glabrous. Fl. Jul–Aug. fr. Aug–Nov.

- Evergreen forests, ravines; 2000–3000 m. NW Yunnan.

**3. *Lyonia macrocalyx*** (J. Anthony) Airy Shaw, Bot. Mag. 160: t. 9490. 1937.

大萼珍珠花 da e zhen zhu hua

*Pieris macrocalyx* J. Anthony, Notes Roy. Bot. Gard. Edinburgh 15: 241. 1927.

Shrubs or small trees, semievergreen to deciduous, 1–2(–4) m tall. Twigs puberulous, glabrescent. Buds flattened-ovoid, 7–9 mm, glabrous. Petiole 2–10 mm, pubescent; leaf blade ovate or elliptic, 4–10 × 2.5–5 cm, leathery, abaxially with short dense fulvous hairs, adaxially glabrous, veins raised abaxially, impressed adaxially, base obtuse-rounded to broadly cuneate or shallowly cordate, apex acuminate or obtuse-rounded. Inflorescences 2–7 cm, glabrous; bracts leaflike. Pedicel 5–10 mm, pubescent. Calyx 5(–8)-lobed; lobes broadly ovate, 6–11 mm, leathery, abaxially with sparse or dense fulvous hairs or subglabrous. Corolla urceolate, 6–10 mm, abaxially sparsely fulvous-pubescent; lobes 1–2 mm. Filaments 5–6 mm, pilose, without spurs. Ovary glabrous. Capsule globose, 5–7 mm in diam., with thick sutures, glabrous. Fl. Jul–Aug. fr. Aug–Sep.

*Abies* forests, cliffs in rain forests, forest margins, thickets; 1800–3500 m. SE Xizang, NW Yunnan [Myanmar].

**4. *Lyonia compta*** (W. W. Smith & Jeffrey) Handel-Mazzetti, Symb. Sin. 7: 790. 1936.

秀丽珍珠花 xiu li zhen zhu hua

*Pieris compta* W. W. Smith & Jeffrey, Notes Roy. Bot. Gard. Edinburgh 9: 116. 1916; *Xolisma compta* (W. W. Smith & Jeffrey) Rehder.

Shrubs evergreen, ca. 2 m tall. Twigs pubescent, glabrescent. Buds ovate, (1–)2–3(–4) mm, pubescent. Petiole 1–2 mm, pubescent; leaf blade elliptic, 1.5–3.5 × 0.6–1.1 cm, leathery, abaxially glaucous, sparsely pubescent or subglabrous, adaxially pubescent to glabrous, midvein and secondary veins inconspicuous, base broadly cuneate to rounded, apex obtuse, mucronate. Inflorescences terminal, sometimes also axillary, 6–15 cm, pubescent; bracts leaflike near base of raceme, smaller apically. Pedicel ca. 1 cm, pubescent, also with long headed hairs. Calyx lobes ovate-lanceolate, 1–2.5 mm, abaxially pubescent. Corolla urceolate, 4–6 mm, abaxially white pubescent; lobes ca. 0.8 mm. Filaments 0.5–2(–3.5) mm, pilose, with 2 spurs at apex. Ovary pubescent. Capsule subglobose, 3–4 mm in diam., with slightly thickened sutures, moderately to densely pubescent. Fl. Jun–Jul, fr. Aug–Oct.

- Forest margins, sunny thickets, marshy places; 1000–2500 m. Guizhou, Yunnan.

**5. *Lyonia villosa*** (Wallich ex C. B. Clarke) Handel-Mazzetti, Symb. Sin. 7: 789. 1936.

毛叶珍珠花 mao ye zhen zhu hua

Shrubs or small trees, deciduous, 1–3 m tall. Twigs, pubescent, glabrescent. Buds narrowly ovoid, 1–13 mm, glabrous. Petiole 3–6 mm, pubescent; leaf blade obovate, oblong-obovate, or ovate, 1.5–7 × 1–4 cm, papery to subleathery, abaxially villous or pubescent on veins or sometimes subglabrous, adaxially sparsely pubescent on veins, otherwise glabrous, veins raised abaxially, midvein impressed adaxially, base broadly cuneate to rounded or subcordate, apex obtuse, rarely shortly acuminate, mucronate. Inflorescences (0.5–)1–4(–7) cm, densely fulvous-pubescent, rarely glabrous; bracts leaflike. Pedicel 3–5 mm, densely pubescent to glabrous. Calyx lobes oblong or narrowly lanceolate to linear, 3–4 mm, pubescent, also with glandular hairs. Corolla urceolate to tubular, 5–8 mm, abaxially pubescent; lobes ca. 0.5 mm. Filaments ca. 4 mm, pilose, without spurs. Ovary glabrous to pubescent. Capsule ovoid, with thick sutures, glabrous or rarely sparsely pubescent. Fl. May–Aug. fr. Sep–Oct.

*Abies*, *Betula*, *Picea*, *Pinus*, *Rhododendron*, or mixed forests, thickets; 1000–3900 m. Guizhou, Sichuan, SE Xizang, Yunnan [Bhutan, NE India, Myanmar, Nepal, Sikkim].

- 1a. Inflorescences 1–7 cm; rachis and pedicels ± pubescent; corolla urceolate to tubular ..... 5a. var. *villosa*
- 1b. Inflorescences (0.5–)1–3 cm; rachis and pedicels usually glabrous or sparsely pubescent; corolla urceolate ..... 5b. var. *sphaerantha*

**5a. *Lyonia villosa* var. *villosa***

毛叶珍珠花(原变种) mao ye zhen zhu hua (yuan bian zhong)

*Pieris villosa* Wallich ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 461. 1882; *Lyonia villosa* var. *pubescens* (Franchet) Judd; *Pieris ovalifolia* (Wallich) D. Don var. *pubescens* Franchet; *P. villosa* var. *pubescens* (Franchet) Rehder & E. H. Wilson; *Xolisma villosa* (Wallich ex C. B. Clarke) Rehder; *X. villosa* var. *pubescens* (Franchet) Rehder.

Inflorescences 1–7 cm; rachis and pedicels ± pubescent. Corolla urceolate to tubular.

*Abies, Betula, Picea, Pinus, Rhododendron*, or mixed forests, thickets; 1000–3900 m. Guizhou, Sichuan, SE Xizang, Yunnan [Bhutan, NE India, Myanmar, Nepal, Sikkim].

**5b. *Lyonia villosa* var. *sphaerantha*** (Handel-Mazzetti) Handel-Mazzetti, Symb. Sin. 7: 789. 1936.

光叶珍珠花 *guang ye zhen zhu hua*

*Xolisma sphaerantha* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 62: 131. 1925.

Inflorescences (0.5–)1–3 cm; rachis and pedicels usually glabrous or sparsely pubescent. Corolla urceolate.

*Abies, Betula, Picea, Pinus*, or *Rhododendron* forests, thickets; 2000–3800 m. Sichuan, SE Xizang, Yunnan [Myanmar].

*Flora of China* 14: 461–464. 2005.