

32. CHIMONOBAMBUSA Makino, Bot. Mag. (Tokyo) 28: 153. 1914.

方竹属 fang zhu shu

Li Dezhu (李德铎); Chris Stapleton

Menstruocalamus T. P. Yi; *Oreocalamus* Keng; *Qiongzhuea* Hsueh & T. P. Yi.

Shrubby bamboos, rarely subarborescent. Rhizomes leptomorph, with running underground stems. Culms usually diffuse, sometimes tillering (pluricaespitose), erect; internodes terete or 4-angled, often basally grooved above branches; nodes prominent to very prominent, basal nodes often with a ring of sparse or dense root thorns; sheath scars usually with a ring of pubescence or persistent base of culm sheath. Branches 3(–7 on upper culm), subequal, buds ovate-triangular, open at front, prophyll reduced. Culm sheaths deciduous and leathery, or sometimes persistent and papery; auricles minute or absent; blade reduced, to 1 cm, narrow. Leaves (1 or)2–5 per ultimate branch; blade lanceolate, base cuneate. Inflorescence fully bracteate, weakly iterant, 1–3 single pseudospikelet racemes loosely fasciculate, subtended by gradually enlarged bracts. Spikelets several to many flowered, sessile. Rachilla disarticulating. Glumes usually 1–3, frequently one subtending a bud; lemma papery or membranous; palea membranous, 2-keeled, obtuse; lodicules 3, membranous. Stamens 3; filaments free. Ovary ellipsoid; style 1, short; stigmas 2 or 3, plumose. Fruit a nutlike caryopsis with a hardened pericarp. New shoots Apr–Nov.

About 37 species: E Asia; 34 species (31 endemic) in China.

In addition to the species treated below, *Chimonobambusa tianquanensis* T. P. Yi (J. Bamboo Res. 19(1): 11. 2000) was described from sterile material from Sichuan (Tianquan). In the protologue it was compared with *C. quadrangularis*. *Qiongzhuea gracilis* W. T. Lin, (J. Bamboo Res. 19(4): 1. 2000) was described from Guangdong (Yangshan). In the protologue it was compared with *Q. opienensis* (*C. opienensis* in this account). *Qiongzhuea multigemmia* T. P. Yi (J. Bamboo Res. 19(1): 18. 2000) was described from Sichuan (Yingjing). In the protologue it was compared with *Q. verruculosa* (*C. verruculosa* in this account).

- 1a. Culm sheaths persistent.
 - 2a. Culm sheath blade longer than 1 cm.
 - 3a. Culm base intranode without root thorns, initially glabrous 1. *C. sichuanensis*
 - 3b. Culm base intranode with root thorns, initially verrucose-setose and pubescent 2. *C. leishanensis*
 - 2b. Culm sheath blade shorter than 0.6 cm.
 - 4a. Culm sheaths shorter than internodes 3. *C. pubescens*
 - 4b. Culm sheaths longer than internodes.
 - 5a. Culm internodes initially glabrous; culm sheaths glabrous or sparsely setose.
 - 6a. Culm 1–1.5(–3) m, only basal culm nodes with roots or root thorns, culms cylindrical 4. *C. marmorea*
 - 6b. Culm taller than 3 m, basal to mid-culm nodes with root thorns, culms slightly 4-angular 5. *C. purpurea*
 - 5b. Culm internodes initially white pubescent; culm sheaths densely setose.
 - 7a. Leaf sheath ligule ca. 6 mm; leaf blade secondary veins 4- or 5-paired 6. *C. damingshanensis*
 - 7b. Leaf sheath ligule shorter than 1 mm; leaf blade secondary veins 3- or 4-paired 7. *C. brevinoda*
- 1b. Culm sheaths deciduous or gradually deciduous (persistent in *C. luzhiensis*).
 - 8a. Culm nodes prominently swollen; intranode without root thorns; internodes circular in cross section; culm sheaths deciduous.
 - 9a. Culm internodes 10–15 cm, 0.4–1 cm in diam.; culm white powdery when young 8. *C. hsuehiana*
 - 9b. Culm internodes 15–33 cm, 1–3 cm in diam.; culm glabrous, not white powdery.
 - 10a. Culm internodes (18–)29–33 cm; culm sheaths abaxially glabrous; leaf blades 1.6–5 cm wide, secondary veins 5–8-paired 9. *C. macrophylla*
 - 10b. Culm internodes 15–25 cm; culm sheaths abaxially densely brown setose; leaf blades 0.6–1.2 cm wide, secondary veins 2- or 3(or 4)-paired 10. *C. tumidissinoda*
 - 8b. Culm nodes slightly swollen, usually with root thorns at lower nodes, internodes partially 4-angular in cross section.
 - 11a. Culm nodes with well-developed root thorns.
 - 12a. Culm sheaths longer than the corresponding internodes.
 - 13a. Culm nodes with a tomentose ring; culm sheaths sparsely minutely adnately brown setose 11. *C. hirtinoda*
 - 13b. Culm nodes without a tomentose ring; culm sheaths with erect, swollen-based setae.
 - 14a. Culm sheaths with light green or white stripes, yellow-brown, later becoming fulvous, veinlets distinct, purple 12. *C. lactistriata*
 - 14b. Culm sheaths without stripes.
 - 15a. Culm node sheath scar rings glabrous; culm sheaths leathery, glabrous or sparsely hairy near base 13. *C. paucispinosa*
 - 15b. Culm node sheath scar rings brown tomentose; culm sheaths thickly papery, setose.

- 16a. Culm sheaths persistently brown verrucose; leaf blade lateral veins 4- or 5-paired; oral setae well developed 14. *C. armata*
- 16b. Culm sheaths persistently black verrucose; leaf blade lateral veins 6–9-paired; oral setae sparse, deciduous 15. *C. tuberculata*
- 12b. Culm sheaths shorter than corresponding internodes.
- 17a. Leaf blades 1 per ultimate branchlet, with closed sheaths 16. *C. hejiangensis*
- 17b. Leaf blades 2–5 per ultimate branchlet, with open sheaths.
- 18a. Culm sheath blade conspicuous, linear-lanceolate, 11–20 mm 17. *C. convoluta*
- 18b. Culm sheath blade minute, subulate, less than 8 mm.
- 19a. Young culm internodes and culm sheaths glabrous 18. *C. szechuanensis*
- 19b. Young culm internodes tuberculate and hispid, particularly on upper part of culm; culm sheaths glabrous or setose.
- 20a. Culm sheaths pale yellow spotted.
- 21a. Leaf blades narrowly lanceolate to linear, 0.5–1.2 cm wide; culm sheaths with purplish transverse veins 19. *C. angustifolia*
- 21b. Leaf blades lanceolate, 1.1–2.1 cm wide.
- 22a. Culm internodes persistently densely white pubescent; sheath scar persistently hairy; leaf blade abaxially glaucous 20. *C. utilis*
- 22b. Culm internodes initially brown hispid, becoming glabrous; sheath scar brown tomentose, becoming glabrous; leaf blade abaxially dark green 21. *C. pachystachys*
- 20b. Culm sheaths not spotted.
- 23a. Culm nodes with sheath scars prominent, densely retrorsely brown setose, bristles ca. 1 mm, supra-nodal ridge strongly prominent 22. *C. metuoensis*
- 23b. Culm nodes with glabrous sheath scars.
- 24a. Culm sheaths glabrous or sparsely hispid.
- 25a. Culm sheaths with conspicuous purplish transverse veins; basal culm internodes 4-angled 23. *C. quadrangularis*
- 25b. Culm sheaths with obscure transverse veins; basal culm internodes cylindrical 24. *C. microfloscula*
- 24b. Culm sheaths densely bristly.
- 26a. Culms to 14 m; basal culm internodes slightly 4-angled; culm sheath blade not articulate; leaves 20–23 × 1.5–2 cm 25. *C. ningnanica*
- 26b. Culms to 4 m; basal culm internodes cylindrical; culm sheath blade articulate, deciduous; leaves 30–35 × ca. 2.5 cm 26. *C. grandifolia*
- 11b. Culm nodes without root thorns.
- 27a. Leaf sheath oral setae absent.
- 28a. Culm sheaths gradually deciduous; brown verrucose-setose; culm internodes nearly solid 27. *C. verruculosa*
- 28b. Culm sheaths soon deciduous; glabrous or sparsely setose; culm internodes hollow.
- 29a. Culms 1–1.6 m, to 0.5 cm in diam.; nodal sheath scars initially densely yellow-brown setose; intranode initially gray or slightly yellow waxy 28. *C. unifolia*
- 29b. Culms 2–7 m, 1–5.5 cm in diam.; nodal sheath scars nearly glabrous; intranode not waxy.
- 30a. Branches 3 per node; leaves 1–3 per ultimate branch; leaf blade abaxially glabrous, secondary veins 3- or 4-paired; new shoots Sep 29. *C. rigidula*
- 30b. Branches 2 or 3 per node; leaves 1 per ultimate branch; leaf blade abaxially slightly pubescent; secondary veins 4- or 5-paired; new shoots Apr–May 30. *C. opienensis*
- 27b. Leaf sheath oral setae numerous, erect.
- 31a. Culm sheath marginally brown hirsute.
- 32a. Culm internodes glabrous; culm sheaths persistent 31. *C. luzhiensis*
- 32b. Culm internodes puberulous when young, especially below nodes; culm sheaths gradually deciduous 32. *C. puberula*
- 31b. Culm sheath marginally glabrous or gray ciliate.
- 33a. Culms 3–7 m; supra-nodal ridge nearly flat at nodes without branches; culm sheaths glabrous 33. *C. communis*
- 33b. Culms 1.5–2.8 m; supra-nodal ridge distinctly raised on all nodes; culm sheaths yellow-brown setose at base, margins gray ciliate 34. *C. montigena*
- 34a. Culm sheaths persistent; culm internodes glabrous 31. *C. luzhiensis*
- 34b. Culm sheaths deciduous; culm internodes puberulous or glabrous.
- 35a. Culm internodes puberulous when young, especially below node; culm sheaths brown setose 32. *C. puberula*
- 35b. Culm internodes glabrous; culm sheaths glabrous or subglabrous.
- 36a. Culms 3–7 m; 1–3 cm in diam.; supra-nodal ridge only raised on nodes with branches; culm sheaths glabrous 33. *C. communis*
- 36b. Culms 1.5–2.8 m; 0.7–1.4 cm in diam.; supra-nodal ridge distinctly raised on every node;

culm sheaths yellow-brown setose at base 34. *C. montigena*

1. *Chimonobambusa sichuanensis* (T. P. Yi) T. H. Wen, J. Bamboo Res. 6(3): 33. 1987.

月月竹 yue yue zhu

Sinobambusa sichuanensis T. P. Yi, Bull. Bot. Res., Harbin 2(4): 105. 1982; *Menstrucalamus sichuanensis* (T. P. Yi) T. P. Yi.

Culms shrubby; internodes terete, to 38 cm, hollow, glabrous; nodes with prominent initially setose sheath scar; supra-nodal ridge slightly swollen. Branches initially 3 per node, later 5–11. Culm sheaths persistent, narrowly triangular-oblong, shorter than internode, leathery; auricles absent; oral setae absent or scarce, erect; blades erect or reflexed on upper culm, subulate or triangularly subulate, 1.2–3.5 × 0.15–2.5 cm. Leaf sheath auricles absent; blade lanceolate, 10–26 × 1.5–3 cm, secondary veins 5–7-paired. Inflorescence with 1–8 pseudo-spikelets, branching racemose or simply paniculate; pseudo-spikelets with many florets, reduced at inflorescence base. Glumes 1 or 2; lemma papery, 7–11-veined, apex aristiform-apiculate; palea bifid; lodicules 3. Anthers 5–6 mm. Styles 2. Caryopsis oblong, pericarp thick.

- 400–1200 m. Sichuan.

This species is not to be confused with *Chimonobambusa szechuanensis* (species no. 18).

2. *Chimonobambusa leishanensis* T. P. Yi, Acta Bot. Yunnan. 13: 144. 1991.

雷山方竹 lei shan fang zhu

Culms 1.5–3 m, 0.6–1 cm in diam.; internodes cylindrical, (4–)14–17 cm, grooved above branches, initially tuberculate-hispid and pubescent; wall 3–4 mm; nodes with sheath scars initially with a pubescent ring; intranode 1–2 mm; nodes below mid-culm each with (2–)4–10 root thorns. Culm sheaths persistent, usually longer than internodes, papery, tuberculate-setose, margins ciliate, longitudinal veins distinct; auricles absent; oral setae usually absent; ligule ca. 1 mm, ciliate; blade erect, 2–3 × 6–28 mm. Leaves 1 or 2(or 3) per ultimate branch; sheath glabrous or initially gray pubescent; margins initially ciliate; oral setae initially (3–)6–13, erect; ligule ca. 0.5 mm; blade lanceolate, (6–)11–20 × (0.9–)1.4–2.5 cm, secondary veins 5- or 6-paired, transverse veins conspicuous, base cuneate, margins serrulate. Inflorescence unknown. New shoots Aug.

- About 1600 m. Guizhou (Leishan).

3. *Chimonobambusa pubescens* T. H. Wen, J. Bamboo Res. 5(2): 20. 1988.

十月寒竹 shi yue han zhu

Chimonobambusa solida B. M. Yang & C. Y. Zhang.

Culms to 2 m, to 8 mm in diam.; internodes green, sometimes spotted purple-brown, 8–14 cm, flattened or grooved above branches, initially white pubescent, solid or nearly so; nodes prominent, lower nodes with some aerial roots; sheath scar with tawny hairs. Culm sheaths persistent, green-yellow or green-purple when young, triangular, shorter than internodes,

thickly papery, mainly glabrous but thickly tawny hairy at base, tessellation visible, margins ciliate; auricles and oral setae absent; ligule convex, ca. 2 mm, toothed; blade erect, aristate, small, glabrous. Leaves 3 or 4 per ultimate branch; sheaths 2.5–2.8 cm, glabrous, margins ciliate; auricles absent; oral setae few, erect, white, 4–8 mm; ligule short, scabrid; blade linear-lanceolate, 9–12 × 0.7–0.9 cm, 5-veined, transverse veins conspicuous, base cuneate, apex acuminate. Inflorescence unknown. New shoots Oct–Nov.

- Broad-leaved forests. Hunan (Jingxian).

4. *Chimonobambusa marmorea* (Mitford) Makino, Bot. Mag. (Tokyo) 28: 154. 1914.

寒竹 han zhu

Bambusa marmorea Mitford, Garden 46: 547. 1894; *Arundinaria marmorea* (Mitford) Makino; *A. matsumurae* Hackel; *A. nana* Makino; *Chimonobambusa setiformis* T. H. Wen; *Phyllostachys marmorea* (Mitford) Ascherson & Graebner.

Culms 1–1.5(–3) m, 0.5–1 cm in diam.; internodes initially green, later purple, 10–14 cm, mainly glabrous with a dark brown tomentose ring below nodes; nodes slightly prominent. Culm sheaths persistent, brown, with gray spots, longer than internodes, papery, initially sparsely hispid, margins ciliate; ligule minute; blade 2–3 mm, articulate. Leaves 2 or 3 per ultimate branch; sheath margins ciliate; oral setae pale, 3–4 mm; ligule truncate; blade linear-lanceolate, 10–14 × 0.7–0.9 cm. Inflorescence paniculate or racemose, terminal branches subtended by several, persistent, gradually enlarged bracts. Pseudospikelets linear, 2–4 cm; florets 4–7. Glumes 1 or 2; rachilla segments 3–4 mm; lemma ovate-lanceolate, 6–7 mm, papery; palea 6–7 mm; lodicules ca. 3 mm. Anthers 3.5–4 mm. Style minute; stigmas 2. Caryopsis nutlike, ca. 5 mm. New shoots Aug–Sep.

- Hills to low mountains; 200–1500 m. Fujian, Hubei, Shaanxi, Sichuan, Zhejiang.

5. *Chimonobambusa purpurea* Hsueh & T. P. Yi, J. Yunnan Forest. Coll. 1982(1): 36. 1982.

刺黑竹 ci hei zhu

Chimonobambusa neopurpurea T. P. Yi.

Culms 4–8 m, 1.5–5 cm in diam.; internodes green, ca. 18(–25) cm, glabrous; supra-nodal ridges slightly prominent; sheath scar raised, initially yellowish brown setose, becoming glabrous. Culm sheaths persistent, brown or gray spotted, longer than internodes, papery, initially sparsely brown or yellow setose, margins ciliate; ligule minute; blade 1–3 mm, articulate. Leaves 2 or 3 per ultimate branch; sheath margins ciliate; oral setae pale, 3–4 mm; ligule truncate; blade narrowly lanceolate, 5–19 × 0.5–2 cm. Inflorescence paniculate or racemose, terminal branches subtended by 4 or 5, persistent, gradually enlarged bracts. Pseudospikelets linear, 1–14.5 cm; florets 4–12. Glumes 1 or 2; rachilla segments 3–12 mm; lemma ovate-lanceolate, 7–12 mm, papery; lodicules ca. 2 mm. Anthers 4–6 mm. Style minute; stigmas 2. Caryopsis nutlike,

ca. 4–7 mm. New shoots Aug–Sep.

- Hills to low mountains; 800–1500 m. Hubei, Shanxi, Sichuan.

6. *Chimonobambusa damingshanensis* Hsueh & W. P. Zhang, *Bamboo Res.* 7(3): 5. 1988.

大明山方竹 *da ming shan fang zhu*

Culms 1.5–2 m, 0.6–0.8 cm in diam.; internodes green to purple-green, 10–13 cm, initially pilose, with a dark brown tomentose ring below each node; nodes prominent, basal 1 or 2 with aerial roots. Culm sheaths persistent, brown, with gray spots, longer than internodes, papery, densely hirsute, ciliate; ligule minute, ciliate; blade deciduous, 3–4 mm. Leaves 4–6 per ultimate branch; sheaths glabrous; oral setae purple-tinged, ca. 1.1 cm; ligule ca. 6 mm, entire; blade lanceolate, 15–18 × 1.1–1.3 cm. Inflorescence paniculate or racemose; terminal branches subtended by 4 or 5, persistent, gradually enlarged bracts. Pseudospikelets imperfectly known; lemma ovate-lanceolate, ca. 1 cm, papery, apex long mucronate; palea 6–7 mm. Style minute; stigmas 2. Caryopsis unknown. New shoots Aug–Sep.

- Low mountain slopes; ca. 1300 m. Guangxi.

7. *Chimonobambusa brevinoda* Hsueh & W. P. Zhang, *J. Bamboo Res.* 7(1): 14. 1988.

短节方竹 *duan jie fang zhu*

Culms 2–3 m, to 1 cm in diam.; internodes dark green, 7–8 cm, initially white pilose, with a brown or dark purple, tomentose ring below each node, nearly solid; nodes prominent, 2-ridged. Culm sheaths persistent, longer than internodes, papery, hispid, margins ciliate; ligule minute, ciliate; blade subulate, ca. 1 mm, articulate. Leaves 3–5 per ultimate branch; sheaths glabrous; oral setae purple-tinged, ca. 1.3 cm; ligule ca. 1 mm, entire; blade lanceolate, 13–16 × ca. 1 cm. Inflorescence unknown. New shoots Oct.

- Broad-leaved forests; 1600–1800 m. SE Yunnan.

8. *Chimonobambusa hsuehiana* D. Z. Li & H. Q. Yang, *nom. nov.*

细秆箬竹 *xi gan qiong zhu*

Replaced synonym: *Qiongzhusa intermedia* Hsueh & D. Z. Li, *Acta Bot. Yunnan.* 10: 53. 1988, not *Chimonobambusa intermedia* (Munro) Nakai, *J. Arnold Arbor.* 6: 151. 1925; *C. macrophylla* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger f. *intermedia* T. H. Wen & Ohrnberger.

Culms 1.5–3.5 m, 0.4–1 cm in diam.; internodes slightly 4-angled or terete, 10–15 cm, initially slightly white powdery, glabrous, basal internodes nearly solid; supra-nodal ridge distinctly raised. Branches 3 or more per node. Culm sheaths deciduous, thickly papery, nearly glabrous or sparsely yellow-brown setose; ligule ca. 1 mm, ciliate; blade 5–8 mm. Leaves (1–)3–5 per ultimate branch; blades lanceolate, 10–20 × 2–3 cm, secondary veins 5–7-paired. Inflorescence unknown. New shoots Apr.

- Broad-leaved forests; 1200–1500 m. Sichuan (Leibo).

9. *Chimonobambusa macrophylla* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*,

21. 1990.

大叶箬竹 *da ye qiong zhu*

Culms 2–6 m, 1.5–2.1 cm in diam.; internodes 18–36 cm, flat above branches, initially white powdery or not, glabrous; wall 2.5–3.5 mm; nodes conspicuously raised into ring, readily disarticulating. Culm sheaths deciduous, triangular-ovate, thickly papery, glabrous or sparsely yellow-brown setose, margins ciliate; auricles absent; ligule truncate, 0.5–1 mm, ciliate; blade subulate or triangular-subulate, 3–9 mm, glabrous. Leaves (1 or)2 or 3(or 4) per ultimate branch; sheaths green, 4.5–7.2 cm, glabrous; auricles and oral setae absent; ligule purple-red, arched or truncate, 0.5–1 mm, glabrous; blade ovate-lanceolate, 11–26 × 1.6–5 cm, secondary veins 5–8 pairs, transverse veins distinct. Inflorescence and fruit unknown.

- Broad-leaved forests; 1400–2200 m. Sichuan.

1a. Culm internodes 18–29 cm, without white powder; leaf blade 11–18 cm 9a. var. *macrophylla*

1b. Culm internodes 31–36 cm, initially with white powder; leaf blade 21–26 cm 9b. var. *leiboensis*

9a. *Chimonobambusa macrophylla* var. *macrophylla*

大叶箬竹(原变种) *da ye qiong zhu (yuan bian zhong)*

Qiongzhusa macrophylla Hsueh & T. P. Yi, *Acta Phytotax. Sin.* 23: 398. 1985.

Culm internodes 18–29 cm, not white powdery; leaf blade 11–18 × 1.6–3.2 cm, secondary veins 5- or 6-paired.

- Broad-leaved forests; 1500–2200 m. Sichuan (Leibo, Mabian).

9b. *Chimonobambusa macrophylla* var. *leiboensis* (Hsueh & D. Z. Li) D. Z. Li, *comb. in stat. nov.*

雷波大叶箬竹 *lei bo da ye qiong zhu*

Basionym: *Qiongzhusa macrophylla* f. *leiboensis* Hsueh & D. Z. Li, *Acta Bot. Yunnan.* 10: 51. 1988; *Chimonobambusa macrophylla* f. *leiboensis* (Hsueh & D. Z. Li) T. H. Wen & Ohrnberger; *Q. macrophylla* var. *leiboensis* (Hsueh & D. Z. Li) Hsueh & D. Z. Li.

Culm internodes 31–36 cm, initially white powdery; leaf blade 21–26 × (3.2–)4–5 cm, secondary veins 7 or 8 pairs.

- Broad-leaved forests; ca. 1400 m. Sichuan (Leibo).

10. *Chimonobambusa tumidissinoda* Hsueh & T. P. Yi ex Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 45. 1990.

箬竹 *qiong zhu*

Qiongzhusa tumidissinoda (Hsueh & T. P. Yi ex Ohrnberger) Hsueh & T. P. Yi.

Culms 2.5–6 m, 1–3 cm in diam.; internodes green, terete, 15–25 cm, grooved above branches, glabrous; wall thick, basal internodes nearly solid; nodes conspicuously enlarged into very prominent, raised discs. Branches (3–)5(–7) per node, subequal. Culm sheaths deciduous, oblong-elliptic, thickly papery, brown setose; auricles absent; oral setae 2–3 mm; ligule arched, 1–1.3 mm, densely gray ciliate; blade readily deciduous, erect, subulate or subulate-lanceolate, 5–17 mm, glabrous. Leaves 2–4

per ultimate branch; sheath terete, 2–2.5 cm; auricles absent; oral setae several; ligule truncate or arched, short; blade narrowly lanceolate, 5–14 × 0.6–1.2 cm, glabrous, secondary veins 2- or 4-paired, transverse veins distinct. Flowering branches leafless or partly with terminal leaves; ultimate flowering branches slender, subtended by 3–5, gradually larger bracts. Pseudospikelet purple-green, 3–4.5 cm, bracts 4 or 5; florets 3–8. Glumes 2(or 3); rachilla internodes 4–6 mm, glabrous; lemma oblong-ovate, 1–1.4 cm, papery, apex acute; palea thinner than lemma, apex obtuse or slightly bifid. Ovary obovoid, ca. 2.5 mm, glabrous; style 1, ca. 1 mm; stigmas 2. Caryopsis nutlike, oblong-ellipsoid or broadly ellipsoid, 1–1.2 cm. New shoots Apr, purplish red, fl. Apr, fr. May.

- Hilltops; 1500–2200 m. SW Sichuan, NE Yunnan.

The name "*Qiongzhusia tumidinoda*" (Hsueh & T. P. Yi, Acta Bot. Yunnan. 2: 93. 1980) was not validly published because two types were indicated (see Hsueh et al., Taxon 45: 217–221. 1996 and Stapleton and Xia, Taxon 53: 526–528. 2004).

The culms of this famous species have been used for walking sticks since the Han Dynasty; they are also used for umbrella handles, and the shoots are eaten as a vegetable.

11. *Chimonobambusa hirtinoda* C. S. Chao & K. M. Lan, Bamboo Res. 1982(1): 2. 1982.

毛环方竹 mao huan fang zhu

Culms ca. 5 m tall, 1.5–2.5 cm in diam.; internodes slightly 4-angled, 13–14 cm, initially minutely setose, with a fulvous tomentose ring below each node, later verrucose; supra-nodal ridges prominent, basal nodes with rings of root thorns; sheath scar with a fulvous tomentose ring and persistent culm sheath base. Branches 3 per node. Culm sheaths deciduous, longer than internodes, thickly papery, sparsely minutely adnately brown setose, with distinct veins and purple-brown veinlets; ligule minute; blade subulate, 1–2 mm, apex acuminate. Leaves 2 or 3 per ultimate branch, sheaths glabrous; auricles absent; oral setae erect, pale; ligule minute; leaf blade oblong-lanceolate, 8–16 × 1.2–1.5 cm, secondary veins 4- or 5-paired, base broadly cuneate, apex acuminate. Inflorescence unknown.

- About 1100 m. Guizhou.

12. *Chimonobambusa lactistriata* W. D. Li & Q. X. Wu, J. Bamboo Res. 4(1): 46. 1985.

乳纹方竹 ru wen fang zhu

Chimonobambusa rivularis T. P. Yi, J. Bamboo Res. 8(3): 18. 1989.

Culms 4–5 m tall, 2–4 cm in diam.; internodes slightly 4-angled, 11–13 cm; supra-nodal ridges strongly elevated, lower nodes each with a ring of 4–19 root thorns; sheath scars purple pubescent, with persistent culm sheath base. Culm sheaths deciduous, initially dark purple, later becoming fulvous with pale green or white stripes, longer than internodes, papery, distally corrugated, veinlets distinct and purple; ligule arched, minute; blade subulate. Leaves 4–6(–9) per ultimate branch; oral setae deciduous, erect, pale, 3–5 mm; ligule arched, ciliate; petiole short, densely pubescent; blade elliptic-lanceolate, 8–17 × 0.8–2 cm, adaxially sparsely pubescent, densely so at base,

secondary veins 4–6-paired, veinlets obvious. Inflorescence unknown. New shoots Oct.

- Evergreen broad-leaved forests; ca. 500 m. Guizhou.

13. *Chimonobambusa paucispinosa* T. P. Yi, J. Bamboo Res. 9(3): 24. 1990.

少刺方竹 shao ci fang zhu

Culms 3–5 m, 1–2 cm in diam.; internodes cylindrical or several basal internodes 4-angled, (6–)10–14 cm, initially grayish yellow setose, becoming smooth; wall 3.5–6 mm; supra-nodal ridge slightly or distinctly raised at nodes with branches; sheath scar glabrous; intranode 1–2 mm; nodes below branches each with (1 or)2–8(–10) root thorns. Branches 3 per node. Culm sheaths deciduous, narrowly triangular, leathery, abaxially glabrous or sparsely yellowish brown setose at base, longitudinal veins distinct, margins not ciliate; auricles and oral setae absent; ligule truncate, ca. 0.5 mm; blade erect, triangular, 3–6 mm. Leaves 1 or 2(–4) per ultimate branch; ligule arcuate, ca. 0.3 mm; blade lanceolate, (4.5–)9–13 × (0.6–)1–1.5 cm, secondary veins 3 or 4 pairs, transverse veins distinct. Inflorescence unknown. New shoots late Sep.

- About 1500 m. NE Yunnan (Suijiang).

14. *Chimonobambusa armata* (Gamble) Hsueh & T. P. Yi, J. Bamboo Res. 2(1): 38. 1983.

缅甸方竹 mian dian fang zhu

Arundinaria armata Gamble, Ann. Roy. Bot. Gard. Calcutta 7: 130. 1896; *Oreocalamus armatus* (Gamble) T. H. Wen.

Culms 3–5(–10) m tall, 1–3 cm in diam.; internodes terete, 12–14 cm, glabrous, sometimes verrucose; nodes with prominent ridge, nodes at and below mid-culm each with a ring of root thorns; sheath scar with a densely fulvous tomentose ring and persistent culm sheath base. Branches 3 per node. Culm sheaths late deciduous, longer than internodes, papery, densely fulvous setose, margins ciliate; oral setae fulvous; ligule 2–3 mm; blade subulate-triangular, 1–3 cm; leaves 3–5 per ultimate branch; sheath ca. 7 cm, glabrous, veins distinct; auricles weak; oral setae developed; blade narrowly lanceolate, ca. 20 × 1.5 cm, papery to thinly papery, secondary veins 4- or 5-paired. Inflorescence 7–9 cm. Pseudospikelets fasciculate, 5–8 cm, with 3 or 4, gradually larger basal bracts; florets 7–10. Palea subequal to lemma, thinly papery, apex obtuse or slightly bifid. Lodicules transparent, margins white ciliate. Ovary ovoid-ellipsoid; style short, divided close to base; stigmas 2. Fruit unknown.

- 1300–2000 m. Xizang, Yunnan [India, Myanmar].

15. *Chimonobambusa tuberculata* Hsueh & L. Z. Gao, J. Bamboo Res. 6(2): 11. 1987.

永善方竹 yong shan fang zhu

Chimonobambusa armata (Gamble) Hsueh & T. P. Yi f. *tuberculata* (Hsueh & L. Z. Gao) T. H. Wen ex Ohrnberger.

Culms 3–4 m, ca. 1.2 cm in diam.; internodes cylindrical, 14–18 cm, grooves obscure, initially densely brown setose,

developing verrucose spots; wall 2–3 mm; supra-nodal ridge level or raised at nodes with branches; nodes below mid-culm each with 4–12 air roots; sheath scars with a brown tomentose ring; intranode ca. 2 mm. Culm sheaths gradually deciduous, triangular, longer than internodes, papery or thickly so, abaxially initially with irregular brown stains and densely yellowish brown adnate setose, becoming black verrucose; ligule minute; blade 1–2 mm, not articulate. Leaves 3 or 4 per ultimate branch; sheath glabrous, adaxial margins initially ciliate; oral setae sparsely and readily deciduous; ligule ca. 1 mm; blade oblong-lanceolate, 20–25 × 2–3 cm, secondary veins 6–9-paired, transverse veins distinct. Inflorescence unknown. New shoots Aug–Sep.

- 1300–1400 m. SW Sichuan, NE Yunnan.

16. *Chimonobambusa hejiangensis* C. D. Chu & C. S. Chao, J. Nanjing Technol. Coll. Forest Prod. 1981(3): 36. 1981.

合江方竹 he jiang fang zhu

Culms 5–7 m tall, 2–3 cm in diam.; internodes terete, 16–20 cm, grooved above branches; nodes with weakly prominent ridges, basal nodes each with a ring of root thorns. Culm sheaths deciduous, shorter than internodes, thickly papery or thinly leathery, adnately brown setose, densely so at base, margins with dense cilia 2–2.5 mm; ligule minute, ca. 1 mm; blade subulate-lanceolate or triangular-lanceolate, 7–13 mm. Leaves 1 per ultimate branch; blade oblong-lanceolate, ca. 16 × 1.5–2 cm, papery, secondary veins 4- or 5-paired, transverse veins distinct, base narrowly cuneate, apex acuminate. Inflorescence paniculate. Pseudospikelets 1(–3) per node, 10–12 cm, prophyll followed by 1 or 2 empty bracts, then 4 or 5, gradually enlarged bracts subtending secondary pseudospikelets or buds; florets 8 or 9. Glumes absent or 1; rachilla internodes 1–1.4 cm, slender; lemma ovate-triangular, papery, 7–9-veined, apex mucronate; palea subequal with lemma, thinly papery, veins indistinct, apex retuse. Ovary ovoid-ellipsoid; style short; stigmas 2. Caryopsis reniform or ellipsoid, 10–12 × 3–5 mm in diam., with persistent, beaklike style base, pericarp ca. 0.5 mm thick.

- 700–1200 m. Guizhou, Jiangsu, Sichuan.

17. *Chimonobambusa convoluta* Q. H. Dai & X. L. Tao, Acta Phytotax. Sin. 20: 212. 1982.

小方竹 xiao fang zhu

Culms 2–3 m tall, 1–2 cm in diam.; internodes terete or slightly 4-angled, 12–20 cm, initially densely striate, fulvous tomentose, becoming verrucose; nodes with prominent ridge, more level at basal culm nodes without branches, basal nodes each with a ring of 5–7 root thorns; sheath scar with a densely retrorsely fulvous tomentose ring and persistent sheath base. Branches 3 per node. Culm sheaths purple-brown spotted, shorter than internode, papery, sparsely brown setose, more densely setose at sheath base, margins brown ciliate; oral setae absent to 2; ligule arcuate, ca. 1 mm, apex serrulate; blade linear-lanceolate, 1–2 × 0.2–0.3 cm, glabrous, articulate. Leaves 2–4 per ultimate branch; sheath densely brown tomentose, one margin brown ciliate; oral setae erect, pale, 8–10 mm; ligule ca.

1 mm; blade oblong-lanceolate, 16–22 × 1–1.5 cm, abaxially densely white pubescent, adaxially glabrous, but rough close to midvein, secondary veins 4- or 5-paired. Inflorescence unknown.

- 800–1400 m. Guangxi.

18. *Chimonobambusa szechuanensis* (Rendle) P. C. Keng, Techn. Bull. Natl. Forest. Res. Bur. 8: 15. 1948.

八月竹 ba yue zhu

Arundinaria szechuanensis Rendle in Sargent, Pl. Wilson. 2: 64. 1914; *Oreocalamus szechuanensis* (Rendle) Keng.

Culms 2.5–4(–6) m tall, 1.5–2 cm in diam.; internodes terete or obscurely 4-angled, 18–22 cm, grooved and ridged above branches, glabrate; basal nodes with rings of root thorns. Branches 3 per node. Culm sheaths deciduous, shorter than internodes, thickly papery, glabrous, main veins purple, transverse veins distally prominent, margins ciliate; ligule 0.5–1 mm; blade subulate-triangular, 3–5 mm, articulate. Leaves 1–3 per ultimate branch; sheaths leathery, glabrous, margins ciliate; oral setae pale, 3–5 mm; ligule 1–1.5 mm; leaf blade oblong-lanceolate, 18–20 × 1.2–1.5 cm, secondary veins 4–6-paired. Pseudospikelets without bracts or with 1–4 bracts, upper 1 or 2 with buds or secondary spikelets; florets 3 or 4. Glumes 2 or 3; lemma ovate-lanceolate, 7–9-veined, apex gradually acuminate. Palea narrowly ovate, subequal to lemma. Anthers yellow. Ovary ovoid; style short, divided nearly from base. Caryopsis nutlike, ovoid-ellipsoid, ca. 16 × 6 mm.

- Mountain areas; 1000–2400 m. Sichuan.

This species is not to be confused with *Chimonobambusa szechuanensis* (species no. 1).

19. *Chimonobambusa angustifolia* C. D. Chu & C. S. Chao, J. Nanjing Technol. Coll. Forest Prod. 1981(3): 36. 1981.

狭叶方竹 xia ye fang zhu

Chimonobambusa linearifolia W. D. Li & Q. X. Wu.

Culms 2–5 m tall, 1–2.5 cm in diam.; internodes green, slightly 4-angled or terete, 10–15 cm, initially densely white pubescent and sparsely setose, remaining verrucose; nodes very prominent; sheath scar usually with a ring of hazel cilia or persistent culm sheath base, basal node with a ring of 9–14 root thorns. Culm sheaths fulvous, shorter than internodes, prominently ridged with purple veinlets; ligule truncate or arched, minutely ciliate; blade subulate-triangular, 3–5 mm. Leaves 1–3(or 4) per ultimate branch; sheaths glabrous or initially ciliate; oral setae 3–5, erect, pale, 3–5 mm; ligules arched, minute; leaf blade linear-lanceolate to linear, 6–15 × 0.5–1.2 cm, papery, glabrous, secondary veins 3- or 4-paired. Inflorescence unknown. New shoots Aug–Sep.

- 700–1400 m. Guangxi, Guizhou, Hubei, Shanxi.

20. *Chimonobambusa utilis* (Keng) P. C. Keng, Techn. Bull. Natl. Forest. Res. Bur. 8: 15. 1948.

金佛山方竹 jin fo shan fang zhu

Oreocalamus utilis Keng, Sunyatsenia 4: 148. 1940.

Culms 5–7(–10) m tall, 2–3.5(–5) cm in diam.; internodes terete or slightly 4-angled, 20–30 cm, initially white pubescent; wall ca. 7 mm; nodes weakly raised, nodal ridges flat or slightly prominent, persistent culm sheath base tomentose. Culm sheaths deciduous, fulvous, with sparse, off-white spots, shorter than internodes, margins ciliate; ligule slightly arched, 0.5–1.2 mm; blade triangular-subulate, 4–7 mm, articulate. Leaves (1 or)2(–5) per ultimate branch; sheaths 3–6 cm, glabrous; ligule arcuate or truncate, 1–2 mm; pseudopetiole 2–5 mm; leaf blade lanceolate, abaxially gray-green, adaxially deep green, (5–)14–16 × (1–)2–2.5 cm, glabrous, 5–7-veined. Inflorescence branches subtended by 4 or 5, persistent, gradually enlarged bracts. Spikelets 2.5–4.5 cm; florets 4–7. Glumes 1–3, 6–9 mm, 7–9-veined; rachilla internodes 4–6 mm, glabrous; lemma ovate-triangular, 1–1.2 cm, glabrous; palea 8–10 mm, 2–4-veined between keels, 1- or 2-veined on each flank, apex obtuse or retuse; lodicules 2–3 mm, posterior oblong-lanceolate, anterior pair subovate. Anthers 5–6 mm. Ovary ovoid, glabrous; style minute, divided close to base; stigmas 2, ca. 2.5 mm. Caryopsis nutlike, ellipsoidal, 10–15 × 6–8 mm in diam., pericarp 1.5–2.5 mm thick. Fl. Apr.

• 1000–2100 m. Guizhou, Sichuan, Yunnan.

21. *Chimonobambusa pachystachys* Hsueh & T. P. Yi, J. Yunnan Forest. Coll. 1982(1): 33. 1982.

刺竹子 ci zhu zi

Culms 3–7 m tall, 1–3 cm in diam.; internodes terete or basal ones slightly 4-angled, 15–22 cm, densely gradually deciduous brownish tomentose; nodes below mid-culm with rings of root thorns. Culm sheaths gradually deciduous, papery; ligule truncate, ca. 1 mm; blade subulate, 3–4 mm, articulate. Leaves 1–3 per ultimate branch; sheaths glabrous; oral setae several, deciduous; ligule truncate; blade 6–18 × 1.1–2.1 cm, papery, secondary veins 4–6-paired. Inflorescence lateral to shoots with apical leaves, subtended by 3 or 4, gradually enlarged bracts. Pseudospikelets 1(–3); florets 4–6. Glumes 1 or 2; lemma papery, glabrous or shortly villous, apex acuminate; palea slightly shorter than lemma, thinly papery, glabrous, apex blunt. Anthers purple. Ovary obovoid; style minute, divided close to base; stigmas 2. Caryopsis obovate-elliptic, pericarp thick.

• Evergreen broad-leaved forests; 1000–2000 m. Guizhou, Sichuan.

22. *Chimonobambusa metuoensis* Hsueh & T. P. Yi, J. Bamboo Res. 2(1): 34. 1983.

墨脱方竹 mo tuo fang zhu

Culms 5–7 m, 1–2.5 cm in diam.; internodes green, terete, grooved above branches, initially densely fulvous tomentose; wall 3–4 mm thick, cavity with membranous pith; nodes with strongly prominent ridges; lower branchless nodes usually each with a ring of 12–25 root thorns 2–3 mm; sheath scars prominent, densely retrorsely brown setose, hairs ca. 1 mm; buds triangular-subulate, glabrous. Branches initially 3 per

node. Culm sheaths late deciduous, red-purple, narrowly triangular, shorter than internodes, 8–13 cm, 5.5–9 cm wide at base, thinly leathery, minutely off-white setulose, veins distinct, veinlets indistinct, margins densely gray-brown ciliate, apex 3–4 mm; auricles absent; ligule truncate, ca. 1 mm, densely gray-brown ciliate; blade erect, triangular or subulate, 1.5–2 × 1–1.5 mm, glabrous, articulate. Leaves 2 or 3 per ultimate branch; sheath distally dark purple, glabrous, 4–8 cm; ligule slightly prominent, dark purple, truncate, ca. 1 mm, glabrous; blade lanceolate, 12–33 × 1.5–4 cm, papery, glabrous, secondary veins 5–8-paired. Inflorescence unknown. New shoots Jul–Aug.

• Broad-leaved forests; 1900–2200 m. Xizang.

23. *Chimonobambusa quadrangularis* (Franceschi) Makino, Bot. Mag. (Tokyo) 28: 153. 1914.

方竹 fang zhu

Bambusa quadrangularis Franceschi, Bull. Soc. Tosc. Oric. 5: 401. 1880; *Arundinaria quadrangularis* (Franceschi) Makino; *Phyllostachys quadrangularis* (Franceschi) Rendle.

Culms erect, 3–8 m tall, to 2.5 cm in diam.; internodes obtusely 4-angled, 8–22 cm, sparsely coarsely scabrid, apically more densely so; nodes prominent, supra-nodal ridge raised at branching nodes, level at branchless nodes, lower nodes each with a ring of short, declined root thorns; sheath scar corky, initially with a fulvous, tomentose, minutely setose ring. Culm sheaths deciduous, shorter than internodes, papery, veins prominent, transverse veinlets purple-brown, margins ciliate; auricles, oral setae, and ligule absent; blade deciduous, subulate, 3–5 mm, articulate. Leaves 2–5 per ultimate branch; sheaths leathery, glabrous, margins apically ciliate; oral setae deciduous, erect, glabrate; ligule truncate, short, ciliate, with minute setae; pseudopetiole ca. 1.8 mm; blade elliptical to lanceolate, 8–29 × 1–2.7 cm, papery, abaxially initially pubescent, adaxially glabrous, secondary veins 4–7-paired, tertiary veins 5–7, apex acuminate. Inflorescence racemose or paniculate, terminal ones slender, glabrous, subtended by persistent, gradually enlarged bracts. Spikelets (1 or)2–4, 2–3 cm, slender; florets 2–5, basal absent to 2 rudimentary. Glumes 1–3, lanceolate, 4–5 mm; lemma green, lanceolate or oblong-lanceolate, subequal to palea, papery, 5–7-veined; lodicules narrowly ovate. Anthers 3.5–4 mm. Stigmas 2.

Anhui, Fujian, Guangxi, Hunan, Jiangsu, Jiangxi, Taiwan, Zhejiang [Japan; cultivated in Europe and North America].

Although *Tetragonocalamus angulatus* and *Chimonobambusa angulata* are widely assumed to be synonyms of *C. quadrangularis*, it has been known for some time that they are actually synonyms of *Bambusa breviflora*, itself now considered to be a synonym of *B. tuldooides*.

The inclusion of *Chimonobambusa quadrangularis* in the IUCN Red List is surprising, considering its wide distribution and the rather minor differences from several other species described later in China.

24. *Chimonobambusa microfloscula* McClure, Lingnan Univ. Sci. Bull. 9: 17. 1940.

小花方竹 xiao hua fang zhu

Culms 4–6 m tall, 1.5–2 cm in diam.; internodes initially

setose distally, persistently verrucose; wall thin; branching nodes with very prominent ridge, basal nodes each with a ring of root thorns; sheath scar level, glabrous, sometimes with slight base of persistent culm sheath. Branches 3 per node. Culm sheaths deciduous, shorter than internodes, thickly papery, veins distinct, veinlets indistinct, margins fulvous ciliate; ligule ca. 1 mm, sparsely ciliate; blade readily deciduous, subulate. Leaves 3–5 per ultimate branch; sheath thinly leathery, glabrous, margin ciliate; oral setae white, ca. 1.2 cm; leaf blade narrowly lanceolate, 9–22 × 0.7–0.9 cm, papery, abaxially sparsely white setulose, secondary veins 4- or 5-paired. Inflorescences 8–24 cm with up to 5 brown spikelets; pedicels short or absent. Glumes 2, membranous, apex blunt; lower glume 4–5 mm, abaxially sparsely hirtellous, 5-veined; upper glume 5–6 mm, glabrous, 7-veined; lemma 7–9 mm, membranous, glabrous, secondary veins purplish, apex long acuminate; palea subequal to lemma, 2-veined between keels, apex obtuse, subentire.

Yunnan [N Vietnam].

25. *Chimonobambusa ningnanica* Hsueh & L. Z. Gao, *J. Bamboo Res.* 6(2): 13. 1987.

宁南方竹 *ning nan fang zhu*

Chimonobambusa yunnanensis Hsueh & W. P. Zhang.

Culms erect, (6–)10–14 m, 2–3 cm in diam.; internodes terete or 4-angled, ca. 20 cm, initially adnate-setose, becoming verrucose and rough; wall 3–4 mm; supra-nodal ridges level or slightly raised at branching nodes; sheath scar purple-brown pubescent; intranode with reflexed root thorns. Branches 3 per node. Culm sheaths deciduous, shorter than internodes; thickly papery, yellow-brown setose, longitudinal veins distinct, margins yellow-brown ciliate; ligule arcuate, ca. 0.5 mm, ciliate; blade subulate, 3–6 × ca. 3 mm. Leaves 3 per ultimate branch; sheath smooth; oral setae several, white, 4–5 mm; ligule ca. 1 mm; blade narrowly lanceolate, 20–23 × 1.5–2 cm, secondary veins 4- or 5-paired, transverse veins distinct. Inflorescence unknown.

• Broad-leaved forests; 1600–2200 m. SW Sichuan, Yunnan.

26. *Chimonobambusa grandifolia* Hsueh & W. P. Zhang, *J. Bamboo Res.* 7(1): 17. 1988.

大叶方竹 *da ye fang zhu*

Culms erect, to 4 m tall, 1–1.5 cm in diam.; internodes terete, 20–25(–30) cm, initially distally adnately brown setose, later verrucose; wall quite thin; supra-nodal ridges prominent, basal nodes with rings of root thorns; sheath scars with a densely brown tomentose ring; buds densely brown hairy. Branches 3 per node. Culm sheaths late deciduous, 1/2–2/3 as long as internode, papery, adnately brown setose, densely so at base, veins distinct, veinlets indistinct, margins fulvous ciliate; ligule ca. 1 mm; blade deciduous, triangular-subulate, 5–7 mm, articulate. Leaves 6–8 per ultimate branch; sheath 5–8 cm, margins white ciliate; oral setae erect, ca. 1.5 cm, stiff; ligule ca. 2 mm; leaf blade oblong-lanceolate, 30–35 × ca. 2.5 cm, secondary veins 7- or 8-paired. Inflorescence unknown. New shoots Jul–Aug.

• Yunnan.

27. *Chimonobambusa verruculosa* (T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 47. 1990.

瘤箨箬竹 *liu tuo qiong zhu*

Qiongzhueta verruculosa T. P. Yi, *Bull. Bot. Res.*, Harbin 8(4): 65. 1988.

Culms 1.5–3 m, (0.7–)1–1.5 cm in diam.; internodes terete, 10–15(–18) cm, grooved above branches, glabrous or initially with short, stiff, gray-white hairs below nodes, solid or nearly so; nodes with slightly projecting sheath scar. Branches initially 3 per node, later 5–7. Culm sheaths gradually deciduous, narrowly triangular, usually shorter than internodes, papery, gray tubercular-setose, margins densely brown ciliate; auricles absent; oral setae 1 or 2 on each shoulder, gray; ligule truncate, ca. 0.5 mm; blade erect at basal culm nodes, reflexed on upper culm, triangular, 0.5–1(–5) mm, glabrous. Leaves (1 or)2 or 3 per ultimate branch; auricles and oral setae absent; ligule arcuate; blade lanceolate, (5–)10–18 × (0.9–)1.2–1.6 cm, glabrous, secondary veins 4–6-paired, transverse veins distinct, base cuneate, margins serrulate, apex acuminate. Inflorescence unknown. New shoots Oct.

• Banks of streams; ca. 1100 m. Sichuan (Gulin).

28. *Chimonobambusa unifolia* (T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 46. 1990.

半边罗汉竹 *ban bian luo han zhu*

Qiongzhueta unifolia T. P. Yi, *J. Bamboo Res.* 9(1): 27. 1990.

Culms 1–1.6 m, 0.3–0.5 cm in diam.; internodes terete, (2–)12–15(–24) cm, grooved above branches, with rings of yellow-brown hairs below nodes; wall 1.5–2 mm; nodes raised into ring; sheath scar prominent, brown, initially densely yellow-brown setose; intranode 1.5–2.5(–3) mm, initially gray or yellow-gray waxy. Branch bud oblong-ovoid, apex spinescent. Culm sheaths deciduous, triangular-oblong, shortly triangular at apex, papery, basally setose, longitudinal veins distinct, margins densely ciliate; auricles and oral setae absent; ligule arcuate, ca. 0.5 mm; blade triangular to linear-lanceolate, 1.5–12 mm, usually involute. Leaves 1 per ultimate branch; auricles and oral setae absent; ligule undeveloped; blade linear-lanceolate, (7–)9–15(–20) × 1.1–1.8(–2.5) cm, glabrous, secondary veins 4–6-paired, transverse veins sparse, base cuneate, apex acuminate. Inflorescence unknown. New shoots Nov–Dec.

• Broad-leaved forests; 1500–2200 m. Sichuan (Changning).

29. *Chimonobambusa rigidula* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger in Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 42. 1990.

实竹子 *shi zhu zi*

Qiongzhueta rigidula Hsueh & T. P. Yi, *Acta Phytotax. Sin.* 21: 96. 1983; *Oreocalamus rigidulus* (Hsueh & T. P. Yi) P. C. Keng.

Culms 2–4(–6) m, 1.5–2.5 cm in diam.; internodes slightly 4-angled or terete, (10–)15–18(–24) cm, glabrous; wall 4–10

mm; nodes with slightly projecting sheath scar. Branches 3 per node, subequal. Culm sheaths deciduous, thickly papery or leathery, margins densely yellow ciliate; auricles absent; ligule truncate; blade readily deciduous, triangular, glabrous. Leaves (1 or)2–5 per branchlet; auricles and oral setae absent; ligule truncate; blade lanceolate, 7–13 × 0.8–1.7 cm, with distinct, transverse veins. Flowering branches leafless or with terminal leaves on branchlets; inflorescence paniculate, 1–4 single pseudospikelet racemes grouped in loose fascicles, subtended by 3 or 4, gradually enlarged bracts. Spikelets 3–6-flowered. Glumes 2(or 3); rachilla disarticulating, internodes 2–5 mm, glabrous; lemma 8–14 mm, papery; palea thinner than lemma, 2-keeled, obtuse; lodicules purple, lanceolate, 1.5–3 mm, upper margin ciliate. Ovary ovoid; style 1; stigmas 2, plumose. Caryopsis nutlike. New shoots Sep; shoots purple.

- Hilltops; 1300–1700 m. S Sichuan.

30. *Chimonobambusa opienensis* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 30. 1990.

三月竹 san yue zhu

Oreocalamus opienensis Hsueh & T. P. Yi, J. Nanjing Univ. Nat. Sci. Ed. 22(3): 416. 1986; *Chimonobambusa maculata* (T. H. Wen) T. H. Wen; *Qiongzhusia maculata* T. H. Wen; *Q. opienensis* (Hsueh & T. P. Yi) D. Z. Li & Hsueh.

Culms 2–7 m, 1–5.5 cm in diam.; internodes slightly 4-angled or terete, 18–20(–25) cm, glabrous; wall 5–8 mm; distal nodes 2- or 3-branched, with conspicuously raised ridge. Culm sheaths deciduous, oblong-triangular, thickly papery or leathery, sparsely setose, upper margins densely yellow ciliate, apex arched; auricles absent; ligules rounded, ca. 1 mm, glabrous; blade triangular, 4–6 mm. Leaves (1 or)2 per ultimate branch; sheaths 2.5–4 cm; auricles absent; oral setae 2–4, 4–7 mm; ligule short when leaf solitary, ca. 0.5 mm when 2-leaved; blade lanceolate, 7.5–17 × 1–1.6 cm, glabrous. Inflorescence unknown. New shoots Apr–May; shoots purplish black.

- Broad-leaved forests; 1600–1900 m. Sichuan (Ebian).

This species was first described as “*Qiongzhusia opienensis*” by Hsueh and Yi (Acta Bot. Yunnan. 2: 98. 1980), but that name was not validly published.

31. *Chimonobambusa luzhiensis* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 20. 1990.

光竹 guang zhu

Qiongzhusia luzhiensis Hsueh & T. P. Yi, Acta Bot. Yunnan. 5: 45. 1983; *Oreocalamus luzhiensis* (Hsueh & T. P. Yi) P. C. Keng.

Culms 2.5–5 m, 1–2 cm in diam.; internodes terete or slightly 4-angled, (10–)14–18(–20) cm, (1 or)2-grooved, white powdery, glabrous; wall 3–5 mm; nodes with conspicuous ridge, glabrous, glossy; sheath scar conspicuous, yellow-brown hispid, with persistent base of culm sheath. Branches 3(–5) per node. Culm sheaths persistent, red-brown or yellow-brown, triangular, leathery, sparsely brown setose, margins densely

brown hirsute, apex truncate; auricles absent; ligule truncate, ca. 1 mm, initially yellow-brown ciliate; blade erect, triangular, linear, or lanceolate, 2–9 mm, longitudinal veins distinct. Leaves 2 or 3(or 4) on ultimate branches; ligules truncate, ca. 1 mm, glabrous; blades lanceolate, (7–)15–23(–30) × (1.1–)1.6–2(–2.4) cm, thickly papery, secondary veins 5–7-paired. Inflorescence unknown. New shoots Sep–Oct.

- Broad-leaved forests; 1700–1900 m. Guizhou (Luzhi).

32. *Chimonobambusa puberula* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 32. 1990.

柔毛箬竹 rou mao qiong zhu

Qiongzhusia puberula Hsueh & T. P. Yi, Acta Bot. Yunnan. 5: 42. 1983; *Oreocalamus puberulus* (Hsueh & T. P. Yi) P. C. Keng.

Culms erect, 4–5 m, 1.5–2.5 cm in diam.; internodes terete or slightly 4-angled, (8–)15–17(–20) cm, initially puberulous; wall 2–5 mm; nodes with slightly conspicuous ridge, glabrous, glossy; sheath scar conspicuous, brown ciliate. Branches 3(–7) per node. Culm sheaths gradually deciduous, oblong-ovoid or triangular, truncate or arched, leathery, brown hirsute, margins brown hirsute; auricles absent; ligule truncate or arched, ca. 1 mm, glabrous; blade erect, triangular, 2–13 × 1–2 mm. Leaves (2 or)3(or 4) per ultimate branch; sheaths 3–4 cm, margins densely gray ciliate; auricles absent; oral setae 3–5, 3–5 mm; ligule truncate or arched, ca. 1 mm, rounded; blade lanceolate, (4.5–)10–15(–19) × (0.6–)1–1.6 cm, secondary veins (3 or)4- or 5(or 6)-paired. Inflorescence unknown. New shoots Oct.

- Hills; 1200–1500 m. Guizhou (Luzhi).

33. *Chimonobambusa communis* (Hsueh & T. P. Yi) T. H. Wen & Ohrnberger, *Bamboos World Gen. Chimonobambusa*, 16. 1990.

平竹 ping zhu

Oreocalamus communis Hsueh & T. P. Yi, J. Nanjing Univ. Nat. Sci. Ed. 22(3): 416. 1986; *Qiongzhusia communis* (Hsueh & T. P. Yi) D. Z. Li & Hsueh.

Culms 3–7 m, 1–3 cm in diam.; internodes slightly 4-angled or terete at culm base, (8–)15–18(–25) cm, smooth, glabrous; wall 3–5 mm; nodes level or with slightly raised sheath scar at nodes without branches. Culm sheaths deciduous, initially green, becoming yellow-brown, papery or thickly papery; auricles absent; ligule ca. 1 mm; blade triangular or subulate, 5–11 mm, glabrous, articulate, readily deciduous. Leaves (1 or)2(–5) per ultimate branch; sheaths leathery; auricles absent; oral setae several, 3–7 mm; ligule truncate, ca. 1 mm; blade lanceolate, (5–)8–12 × (0.8–)1.3–2 cm, transverse veins distinct. Flowering branches leafless or terminally leafy on branchlet; 2–4 single pseudospikelet racemes grouped in loose fascicles, subtended by several, gradually enlarged bracts. Spikelets 2–3 × 0.4–0.5 cm; florets (3–)5–7. Glumes 1 or 2(or 3), 7–13 mm; rachilla articulate, internodes 3–5 mm, slightly white powdery; lemma 8–13 mm; palea 7–11 mm, apex obtuse

or bifid. Anthers yellow, 5–6 mm. Ovary ovoid; style 1; stigmas 2. Fruit a nutlike caryopsis. New shoots May, fl. Mar, fr. May.

- Hills; 1600–2000 m. Guizhou, Hubei, Sichuan.

This species was first described as "*Qiongzhusa communis*" by

Hsueh and Yi (Acta Bot. Yunnan. 2: 96. 1980), but that name was not validly published.

34. *Chimonobambusa montigena* (T. P. Yi) Ohrnberger, Bambusbrief 1990(4): 11. 1990.

荆竹 jing zhu

Qiongzhusa montigena T. P. Yi, J. Bamboo Res. 9(3): 28. 1990.

Culms 1.5–2.8 m, 0.7–1.4 cm in diam.; internodes terete, (5–)13–14(–19) cm, grooved above branches, initially sparsely white powdery; wall 3–4 mm; nodes raised into ring; sheath scar initially densely yellow-brown setose. Branches 3–5 per node. Culm sheaths deciduous, triangular-elliptic, shorter than internodes; leathery, yellow setose at base, margins initially gray ciliate, longitudinal veins distinct; auricles absent; ligule truncate, 0.5–0.8 mm; blade erect, triangular or subulate, 2.5–7 mm, margins ciliate. Leaves 2–5 per ultimate branch; auricles small; oral setae initially several; ligule arcuate, ca. 1 mm; blade lanceolate, (4.5–)8–14.5 × (0.8–)1.3–2.6 cm, transverse veins distinct. Inflorescence on leafless branches or terminal to leafy branchlets, 1–4 single pseudospikelet racemes grouped in loose fascicles, subtended by several, gradually enlarged bracts. Spikelets 5–7-flowered, 2–3.2 × 0.3–0.5 cm. Glume 1, 1–2.2 cm; rachilla articulate, internodes 2–4 mm; lemma (7–)9–13 mm; palea 6–9 mm, apex acute. Anthers yellow, 5–6 mm. Ovary ovoid; style 1; stigmas 2 or 3. Fruit a nutlike caryopsis. New shoots late Apr to early May, fl. and fr. Jul–Sep.

- Broad-leaved forests; 2300–2500 m. NE Yunnan.

