

24. PLEIOBLASTUS Nakai, J. Arnold Arbor. 6: 145. 1925.

苦竹属 ku zhu shu

Zhu Zhengde (朱政德 Chu Cheng-de); Chris Stapleton

Nipponocalamus Nakai; *Polyanthus* C. H. Hu.

Small, shrubby or arborescent bamboos, spreading and loosely clumped. Rhizomes leptomorph. Culms pluricaespitose, suberect to drooping, 0.5–8 m tall, 0.1–4 cm thick; internodes slightly grooved above branches, glabrous, smooth or rough, pruinose below level nodes. Branch buds tall, prophylls 2-keeled, initially closed at front, on small promontory. Branches erect, initially 1–9 per node, long, subequal, basal nodes compressed, laterals arising from basal nodes, some lateral branches lacking subtending sheaths and replicated, sheaths and prophylls very persistent, papery, ± glabrous. Culm sheaths persistent to very persistent, nearly leathery; blade deciduous, often reflexed. Leaf sheaths persistent; blade small to medium-sized, without substantial winter necrosis of margins, arrangement random or ± distichous, transverse veins distinct. Inflorescence open, racemose to paniculate, branching subtended by very small bracts or hairs, often with pulvini; spikelets exerted on long, delicate pedicels. Spikelets 1–4 cm, disarticulating below florets, with 4–8 florets. Glumes 1 or 2(–5), much shorter than first lemma, delicate, basally loose and usually subtending vestigial buds. Lemma to 1 cm. Anthers 3. Stigmas 3. Fruit a caryopsis.

About 40 species: China, Japan, Vietnam; 17 species (15 endemic, two introduced) in China.

In addition to the species treated below, *Pleioblastus albo-sericeus* W. T. Lin (J. S. China Agric. Univ. 11(3): 47. 1990, “*albo-sericeus*”) was described from sterile material from Guangdong (Fogang). In the protologue it was compared with *P. intermedius*. *Pleioblastus angustatus* W. T. Lin, (J. Bamboo Res. 13(2): 18. 1994) was described from cultivated material from Guangdong (Guangzhou). In the protologue it was compared with *P. amarus*. *Pleioblastus patellaris* W. T. Lin & Z. M. Wu (J. S. China Agric. Univ. 14(3): 113. 1993) was also described from Guangdong and is possibly a species of *Indocalamus*.

- 1a. Culms short, 0.1–1 m; leaf blades variegated or closely distichous (natives of Japan, introduced in China for ornamental purposes).
 - 2a. Leaf blade 6–15 × 0.8–1.4 cm, both surfaces white pubescent, especially abaxially, with yellow or white stripes 16. *P. fortunei*
 - 2b. Leaf blade 3–7 × 0.3–0.8 cm, both surfaces glabrous, not striped; culms 20–40 cm 17. *P. distichus*
- 1b. Culms to more than 1 m; leaf blades not variegated, separated, not distichous (endemic to China).
 - 3a. Culm sheaths without conspicuous auricles, oral setae absent or scarce and inconspicuous.
 - 4a. Culm sheaths ± glossy, usually without setae, hairs, marginal cilia, or powder.
 - 5a. Culm sheaths brown-red, with darker spots, oily-glossy 1. *P. maculatus*
 - 5b. Culm sheaths green, without spots, ± glossy but not oily 2. *P. oleosus*
 - 4b. Culm sheaths not glossy, ± pruinose, often with setae or marginal cilia.
 - 6a. Culm sheath ligules usually truncate, 1–2 mm.
 - 7a. Culms initially glabrous but pruinose, culm sheaths glabrous or with sparse setae 3. *P. amarus*
 - 7b. Culms initially pubescent; culm sheaths setose; leaf blades asymmetrical, especially at base.
 - 8a. Culm sheath blades deflexed or revolute; leaves 3 or 4(–8) per ultimate branch 4. *P. intermedius*
 - 8b. Culm sheath blades erect; leaves 1 or 2 per ultimate branch 5. *P. truncatus*
 - 6b. Culm sheath ligules ± arcuate, 3–8 mm.
 - 9a. Culm sheaths thickly papery or thinly leathery, ligules ca. 3 mm 6. *P. altiligulatus*
 - 9b. Culm sheaths leathery, setose, ligules 5–8 mm.
 - 10a. Culm sheaths without spots, thickly pruinose and with sparse, brown setae, margins distally pink, ligules ca. 5 mm; leaf sheath auricles truncate to vaulted, 1–2.5 mm 7. *P. incarnatus*
 - 10b. Culm sheaths with brown spots and verrucate setae, margins not pink, ligule ca. 8 mm; leaf sheath auricles triangular, 3–4 mm 8. *P. maculosoides*
 - 3b. Culm sheaths with well-developed auricles and oral setae.
 - 11a. Culm sheaths mainly glabrous, basally piliferous 9. *P. juxianensis*
 - 11b. Culm sheaths with setae or marginal cilia.
 - 12a. Internodes with small cavity or subsolid.
 - 13a. Internodes subsolid, initially strigose and finely ridged; leaf sheath auricles absent; oral setae absent to 3, erect, to 5 mm 10. *P. solidus*
 - 13b. Internodes with small cavity, initially glabrous, inconspicuously ridged; leaf sheath auricles ovate to elliptical, oral setae radiating, to 13 mm 11. *P. hsienchuensis*
 - 12b. Internodes with large cavity.

- 14a. Culm sheath blades intensely crinkled; internodes ca. 35 cm 12. *P. rugatus*
 14b. Culm sheath blades smooth; internodes to 33 cm.
 15a. Internodes to 18.5 cm, culm wall ca. 3 mm thick 13. *P. yixingensis*
 15b. Internodes to 33 cm, culm wall 7–8 mm thick.
 16a. Culm sheath ligule truncate, ca. 1 mm, auricles subcircular or falcate,
 small, oral setae 3–5 mm 14. *P. wuyishanensis*
 16b. Culm sheath ligule arcuate, ca. 10 mm, auricles oval to elliptical, oral
 setae ca. 10 mm 15. *P. sanmingensis*

1. *Pleioblastus maculatus* (McClure) C. D. Chu & C. S. Chao, *Acta Phytotax. Sin.* 18: 31. 1980.

斑苦竹 ban ku zhu

Sinobambusa maculata McClure, *Lingnan Univ. Sci. Bull.* 9: 64. 1940; *Arundinaria chinensis* C. S. Chao & G. Y. Yang; *A. kwangsiensis* (W. Y. Hsiung & C. S. Chao) C. S. Chao & G. Y. Yang; *A. maculata* (McClure) C. D. Chu & C. S. Chao ex K. M. Lan (1981), not Hackel (1903); *Pleioblastus kwangsiensis* W. Y. Hsiung & C. S. Chao; *P. longispiculatus* B. M. Yang; *P. maculatus* var. *longitubus* Li & Wu.

Culms 3–8 m, 1.5–4 cm in diam., initially green, densely glaucous; internodes subcylindrical; nodes prominent, brown, yellow-green when old, densely hairy, with prominent setose sheath scar. Culm sheaths deciduous, brown-red, oily, glossy, slightly purple, with unevenly scattered brown spots, basally brown setose, margins without cilia; auricles absent or very reduced, brown, dotlike or ovate; oral setae few, erect or curved; ligule often truncate, dark brown-red, entire; blade pendulous, linear-lanceolate, slightly hairy, scabrous, remotely serrulate or nearly entire, revolute. Leaves 3–5 per ultimate branch, soon deciduous; sheath margin sparsely pubescent; auricles and oral setae absent; ligule truncate, 1–2 mm, hairy, margin ciliate; pseudopetiole ca. 4 mm; blade lanceolate, 8.8–18.5 × 1.3–2.9 cm, base cuneate, apex elongate. Inflorescence paniculate; florets 8–15 per spikelet. Glumes 2; lemma lustrous; palea keels ciliate; lodicules 3, subequal in size, ciliate at apex. Ovary bottle-shaped, ca. 8 mm; styles ca. 1.5 mm; stigmas 3, plumose. Caryopsis ellipsoid. New shoots early May–early Jun.

• Often growing in dense forests, also planted as an ornamental. Fujian, Guangdong, Guangxi, Guizhou, Jiangsu, Jiangxi, Sichuan, Yunnan; cultivated northward to S Shaanxi.

The shoots are edible, but must be treated first. The culms are used for light duties; they are fragile and not suitable for weaving.

2. *Pleioblastus oleosus* T. H. Wen, *J. Bamboo Res.* 1(1): 24. 1982.

油苦竹 you ku zhu

Acidosasa lentiginosa W. T. Lin & Z. J. Feng; *Arundinaria oleosa* (T. H. Wen) Demoly; *A. chinensis* C. S. Chao & G. Y. Yang; *Pleioblastus longinternodius* B. M. Yang; *P. longispiculatus* B. M. Yang; *Polyanthus longispiculatus* (B. M. Yang) C. H. Hu.

Culms diffuse, 3–5 m, 1–3 cm in diam.; internodes initially grass-green, yellow when old, cylindrical, 18–20(–26) cm, grooved above branches, glossy, glabrous; wall ca. 3 mm

thick; nodes prominent, deciduously brown setose. Culm sheaths light green, slightly lustrous, base light brown setose, otherwise glabrous; ligules truncate or slightly concave, 1–2 mm, margin ciliate; blade erect or reflexed, green, lanceolate. Leaves 3 or 4 per ultimate branch; sheath glabrous; auricles and oral setae often absent, rarely 2, short; ligules rounded or truncate, ca. 2 mm, slightly hairy, apex not uniform; pseudopetiole 2–5 mm; blade linear-lanceolate, 12–20 × 1.3–2.2 cm, slightly hairy, secondary veins 5–7-paired, base broadly cuneate, margin serrulate, apex caudate. Inflorescence paniculate, lateral; florets 11–13 per spikelet. Glumes 2–4, apex rounded, beaked; lemma subglabrous, apex acute; palea about as long as lemma, keels ciliate, apex acuminate; lodicules 3, thick, ± rhomboid, margin ciliate. Ovary cylindrical; stigmas 2 or 3.

• Mountain slopes; ca. 800 m. Fujian, Jiangxi, Yunnan, Zhejiang.

A plant cultivated in the West under the names *Brachystachyum densiflorum* as well as *P. oleosus* is not in fact this species but an *Oligostachyum*. *Pleioblastus oleosus* is possibly a synonym of *P. maculatus*.

The shoots are edible, and the culms are often used for weaving.

3. *Pleioblastus amarus* (Keng) P. C. Keng, *Techn. Bull. Natl. Forest. Res. Bur.* 8: 14. 1948.

苦竹 ku zhu

Culms 3–5 m, 1.5–2 cm in diam.; internodes green or green-purple, spotted, yellow-green when old, cylindrical, 27–29(–38) cm, basally weakly flattened above branches, glabrous or hairy; wall ca. 6 mm thick; nodes prominent; intranode ca. 6 mm. Leafy branchlets sometimes pendulous. Culm sheaths green, densely glaucous, abaxially glabrous or hairy, densely so at base, margins ciliate and apically orange or withered; auricles obscure; ligule truncate, 1–2 mm, densely glaucous, ciliate; blade narrowly lanceolate, margins serrulate. Leaves 3 or 4 per ultimate branch; sheath straw-colored, glabrous; auricles and oral setae absent; ligule purple-red, ca. 2 mm; pseudopetiole ca. 2 mm; blade elliptic-lanceolate, 4–20 × 2–2.9 cm, secondary veins 4–8-paired, base cuneate, margin serrulate, apex acuminate. Inflorescence racemose or paniculate. Spikelets 3–6, 4–7 cm, glaucous, pedicels hairy; florets 8–13; rachilla internodes 4–5 mm. Glumes 3–5, enlarged upward; lemma ovate-lanceolate; palea longer than lemma, rarely equal in length, ciliate, glaucous and slightly hairy between keels, apex acute. Lodicules 3, ovate or obovate, posterior narrow, apical margins ciliate. Anthers light yellow. Ovary narrow, glabrous; styles short; stigmas 3. New shoots Apr–Jun, fl. Apr–May.

• Plains to low hills, frequently cultivated. Anhui, Fujian, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang.

1a. Leafy branchlets pendulous 3b. var. *pendulifolius*

- 1b. Leafy branchlets not obviously pendulous.
2a. Culm sheaths glabrous or with deciduous white hairs at base 3c. var. *tubatus*
2b. Culm sheaths ± hairy, brown setose at base.
3a. Culms green-purple, purple spotted, densely hairy 3d. var. *hangzhouensis*
3b. Culms initially green, yellow-green when old, glaucous, powdery-spotted, glabrous 3a. var. *amarus*

3a. *Pleioblastus amarus* var. *amarus*

苦竹(原变种) *ku zhu* (*yuan bian zhong*)

Arundinaria amara Keng, *Sinensia* 6(2): 148. 1935; *A. varia* Keng; *Indocalamus varius* (Keng) P. C. Keng; *Pleioblastus brevinodus* W. T. Lin & Z. J. Feng; *P. longqishanensis* N. X. Zhao & Z. Yu Li; *P. amarus* f. *huangshanensis* C. L. Huang; *P. subrectangularis* T. P. Yi & H. Long; *P. varius* (Keng) P. C. Keng; *P. yingdeensis* W. T. Lin & Z. M. Wu.

Culm sheaths ± hairy, brown setose at base. Culms initially greenish, glabrous, glaucous, yellow-green when old, powdery-spotted. Branchlets not obviously pendulous. New shoots Jun, fl. Apr–May.

• Anhui, Fujian, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Yunnan, Zhejiang.

The shoots are bitter and inedible. The culms are used for woven baskets and containers, umbrella handles, and furniture.

3b. *Pleioblastus amarus* var. *pendulifolius* S. Y. Chen, *Acta Phytotax. Sin.* 21: 413. 1983.

垂枝苦竹 *chui zhi ku zhu*

Leafy branchlets pendulous. Culm sheaths not glaucous; ligule truncate, slightly concave. New shoots mid–May to early Jun.

• Low hills, slopes. Zhejiang.

This variety is cultivated as an ornamental for its pendulous habit.

3c. *Pleioblastus amarus* var. *tubatus* T. H. Wen, *Bull. Bot. Res.*, Harbin 3(1): 93. 1983.

胖苦竹 *pang ku zhu*

Culm sheaths green, glossy, hard, glabrous or nearly so at base, acute at apex, amplexicaul at middle part; auricles oblong, small, transversely extended at both sides of sheath apex, margin uniformly rough ciliate, cilia erect and short; blade rounded at apex.

• Low hills, plains. Zhejiang.

3d. *Pleioblastus amarus* var. *hangzhouensis* S. L. Chen & S. Y. Chen, *Acta Phytotax. Sin.* 21: 408. 1983.

杭州苦竹 *hang zhou ku zhu*

Internodes 28–32(–38) cm; culms green-purple, purple spotted, roughly hairy, hairs dense and inverse. Culm sheath purple-green, glossy, not glaucous; auricles absent; blade linear-lanceolate. New shoots late Apr–May.

• Lowlands, small hills. Zhejiang.

The plants are used for fencing and supporting vegetables and are grown as ornamentals. The culms are not suitable for weaving.

4. *Pleioblastus intermedius* S. Y. Chen, *Acta Phytotax. Sin.* 21: 408. 1983.

华丝竹 *hua si zhu*

Culms 3–4 m, 1–2 cm in diam.; internodes cylindrical but slightly concave at base above branches, 21–22 cm, initially green and densely glaucous, becoming dark green or yellow-green with persistent dark powder, deciduously setose; wall ca. 6 mm thick, pith lamellate; nodes slightly prominent. Culm sheaths gradually deciduous, green, about as long as internodes or slightly longer, leathery, sparsely setose, margins withered; auricles absent or small and circular; oral setae few, readily deciduous, erect; ligule truncate or arcuate, ca. 2 mm, glaucous, initially ciliate; blade deflexed or reflexed, shortly triangular, base slightly constricted, apex acuminate. Leaves 3 or 4(–8) per ultimate branch; sheath densely deciduously setose; auricles readily deciduous, falcate; oral setae radiate, purple, ca. 3 mm; ligule prominent, ca. 5 mm; blade lanceolate, 10–23 × (1–)2.5–3.3 cm, secondary veins 7- or 8-paired, abaxially yellow-green and white tomentellate, adaxially light green and glabrous, base asymmetrically cuneate, margins serrulate. Inflorescence unknown. New shoots mid to late May.

• Near streams, roadsides in secondary hardwood forests; 400–800 m. Zhejiang.

The generic placement of this species is rather uncertain as its flowers and branching have not been described. It is similar to *Acidosasa notata* and species of *Pseudosasa* and might be better included within *P. maculifera*.

The shoots are edible, and the culms are used for handicrafts and umbrella handles.

5. *Pleioblastus truncatus* T. H. Wen, *J. Bamboo Res.* 3(2): 32. 1984.

尖子竹 *jian zi zhu*

Culms to 2 m, to 8 mm in diam.; internodes initially green, to 36 cm, initially densely light yellow ciliate; nodes weakly prominent; sheath scar asymmetrical, ciliate. Branches 3–7. Culm sheaths gradually deciduous, brown or green, 1/3–1/2 as long as internode, leathery, white tomentose, sparsely brown setose, margins sometimes withered, apex truncate; auricles absent or falcate; ligule truncate, ciliate; blade erect, lanceolate, base slightly constricted, ca. 1/3 as wide as ligule, apex acuminate. Leaves 1 or 2 per ultimate branch; sheath 4.5–7 cm, apex truncate; auricles absent or short; blade broadly lanceolate, 10–22 × 1.5–3.2 cm, glabrous, secondary veins 7- or 8-paired, asymmetrical especially at base. Inflorescence unknown.

• Zhejiang.

The internodes are long, even, and straight and were often used for arrow shafts.

6. *Pleioblastus altiligulatus* S. L. Chen & S. Y. Chen, *Acta Phytotax. Sin.* 21: 407. 1983.

高舌苦竹 *gao she ku zhu*

Culms 2–5 m, to 1.5 cm in diam.; internodes green, cylindrical, ca. 24 cm, basally slightly concave above branches, smooth, densely glaucous, glabrous, nearly solid, pith lamellate; supra-nodal ridge more elevated than sheath scar. Culm sheaths green, glabrous, margins ciliate; auricles absent; ligules prominent, ca. 3 mm, glaucous; blade pendulous, purple-red at margins and apex, lanceolate, revolute. Leaves 2–4 per ultimate branch; auricles absent; ligule ca. 3.5 mm; blade elliptic-lanceolate, 12–17 × 1.4–2.5 cm, shortly hairy, abaxially pilose proximally and along midrib, secondary veins 5–7-paired, base broadly cuneate, apex acuminate. Inflorescence unknown. New shoots late Apr.

- Slopes, summits; 700–800 m. Fujian, Hunan, Zhejiang.

This species is sometimes considered a synonym of *Pleioblastus amarus*.

The culms are used for tools and fencing.

7. *Pleioblastus incarnatus* S. L. Chen & G. Y. Sheng, Bull. Bot. Res., Harbin 11(4): 42. 1991.

绿苦竹 lü ku zhu

Culms ca. 3.5 m, to 1.5 cm in diam.; internodes cylindrical, to 35 cm, glabrous, initially densely pruinose, retrorsely setose; nodes densely pruinose, dark gray powdery when old; supra-nodal ridge as elevated as sheath scar, both slightly prominent. Branches 5–7, slightly spreading. Culm sheaths green, margins distally pink, densely pruinose, pale brown setose, margins densely ciliate; auricles and oral setae absent; ligule green, slightly pink, truncate or vaulted, ca. 5 mm, irregularly crazed, densely pruinose, slightly rough, margin sparsely ciliate or not; blade reflexed, green, slightly purple, base slightly constricted, margins serrate, apex acuminate. Leaves 3 or 4 per ultimate branch; sheath setose, margins densely ciliate; auricles inconspicuous or small, rounded or elliptic; oral setae radiate, slightly rough; ligule truncate or vaulted, to 1.5 mm, thin, glabrous or slightly rough; pseudopetiole ca. 4 mm; blade narrowly ovate to elliptically lanceolate, 9–17.5 × 1.4–2.5 cm, abaxially pubescent, glabrescent, adaxially glabrous, secondary veins 5–7-paired, base broadly cuneate or obtusely rounded, margins serrulate or one entire, apex acuminate. Inflorescence unknown. New shoots early May.

- Mountain slopes. Fujian.

8. *Pleioblastus maculosoides* T. H. Wen, J. Bamboo Res. 3(2): 33. 1984.

丽水苦竹 li shui ku zhu

Culms to 6.5 m, 2–3 cm in diam.; internodes ca. 40 cm, slightly glaucous, apically pilose; nodes slightly prominent; sheath scar initially tomentose. Culm sheaths initially green, brown spotted and setose, bases of setae forming persistent papillae, slightly glaucous, glabrous at base, margins brown ciliate, apex rounded; auricles absent or weak, abaxially brown hairy, scabrous; oral setae absent or occasionally few, erect, short; ligule ca. 8 mm, nearly triangular, thin, glabrous, ciliate; blade reflexed, linear-lanceolate, abaxially brown pubescent at base, margins glabrous. Leaves 3–5 per ultimate branch; sheath smooth, glabrous; auricles and oral setae usually absent, rarely

present; ligule triangular, 3–4 mm, thin, glabrous; pseudopetiole ca. 5 mm; blade broadly lanceolate, 12–19 × 1.7–2.3 cm, abaxially pubescent, adaxially glabrous, secondary veins 7- or 8-paired, base rounded, apex acute. Inflorescence unknown.

- Zhejiang (Lishui).

The culms are used for canopies, sheds, flag poles, and mosquito net poles.

This species might be better included within *Pseudosasa maculifera*.

9. *Pleioblastus juxianensis* T. H. Wen et al., Acta Phytotax. Sin. 21: 409. 1983.

衢县苦竹 qu xian ku zhu

Pleioblastus hsienchuensis T. H. Wen var. *juxianensis* (T. H. Wen et al.) S. L. Chen ex T. G. Liang et al.

Culms to 1.75 m tall, to 1.3 cm in diam., internodes initially green, yellow-green when old, cylindrical, concave above branches, 20–28(–33) cm, slightly glaucous, densely so below sheath scars, glabrous, slightly powdery; wall nearly solid; nodes prominent or swollen; sheath scars slightly prominent. Culm sheaths persistent, green, glaucous, smooth, glabrous, margin brown setose at base, withered; auricles suborbicular, scabrous, roughly ciliate; ligules pale green or withered, truncate or slightly concave, glaucous, margin ciliate; blade green, narrowly lanceolate, densely hairy, scabrous, apex acuminate. Leaves 3–5 per ultimate branch; sheath smooth, glabrous; auricles dotlike or elliptic, scabrous, ciliate, oral setae straight or curved; ligule arcuate, ca. 1.5 mm, glaucous, ciliate at apex, leaf blade light green, ovate or elliptic-lanceolate, 12–18 × 2.3–2.6 cm, abaxially scabrous, pilose at base, secondary veins 6- or 7-paired, base rounded, margin serrulate, apex shortly acuminate. Inflorescence unknown. New shoots early May.

- Hills; low elevations. Zhejiang.

This species has also been considered a variety of *Pleioblastus hsienchuensis*, and also as the same taxon as *P. hsienchuensis* var. *subglabratus*.

10. *Pleioblastus solidus* S. Y. Chen, Acta Phytotax. Sin. 21: 411. 1983.

实心苦竹 shi xin ku zhu

Arundinaria solida (S. Y. Chen) C. S. Chao & G. Y. Yang.

Culms 4–5 m, 1.5–2 cm in diam.; internodes initially green-yellow, cylindrical, slightly concave at base above branches, 24–33 cm, densely ribbed, roughly hairy, black powdery when old, nearly solid; wall thick; nodes prominent, densely black powdery; sheath scars corky. Culm sheath pale green, slightly glaucous, deciduously tomentellate at base and margins; auricles falcate, margins sparsely setose and deciduously ciliate; oral setae light brown; ligules yellow-green, truncate; blade pendulous, linear-lanceolate, often revolute. Leaves 2 or 3 per ultimate branch; sheath glabrous; auricles absent; oral setae absent or rarely 1–3, erect, ca. 5 mm; ligule arcuate; blade narrowly lanceolate, 11–18 × 1.7–2.4 cm, abaxially pubescent, secondary veins 5–7-paired, base broadly cuneate, one margin

serrulate, other margin nearly entire, apex acuminate or caudate. Inflorescence unknown. New shoots Jun.

- Mountain slopes; ca. 700 m. Jiangsu, Zhejiang.

The culms are heavy, nearly solid, and are often used as supporting poles.

11. *Pleioblastus hsienchuensis* T. H. Wen, Bull. Bot. Res., Harbin 3(1): 92. 1983.

仙居苦竹 xian ju ku zhu

Culms to 5 m, 2–3 cm in diam.; internodes ca. 30 cm, initially brown hispid, white powdery below nodes; wall thick, cavity narrow; nodes prominent. Culm sheath initially green, glaucous, glabrous or initially sparsely setose, base densely brown crinite or white hairy, margins densely ciliate, apex acute; auricles falcate, subamplexicaul; oral setae erect, 1–1.5 cm; ligules truncate or prominent; blade reflexed at culm base, linear, slightly hairy, margins serrulate. Leaves 3 or 4(or 5) per ultimate branch; sheath obviously striate, ca. 4 cm, glaucous, transverse veinlets distinct; auricles ovate or elliptic; oral setae erect, straight, ca. 1.3 cm; ligules arcuate, 1–4 mm, glaucous, ciliate; petiole 2–5 mm; blade elliptic-lanceolate, 7–16 × 1–2.5 cm, glabrous or abaxially hairy proximally, secondary veins 5- or 6-paired, base rounded, ± oblique, apex acute, extended. Inflorescence unknown. New shoots May–Jun.

- Slopes of hills, plains, roadsides. Zhejiang.

- 1a. Culm sheaths initially hirsute, base densely brown crinite, leaf ligules ca. 1 mm 11a. var. *hsienchuensis*
1b. Culm sheaths glabrous, base white hairy; leaf ligules 3–4 mm 11b. var. *subglabratus*

11a. *Pleioblastus hsienchuensis* var. *hsienchuensis*

仙居苦竹(原变种) xian ju ku zhu (yuan bian zhong)

Arundinaria hsienchuensis (T. H. Wen) C. S. Chao & G. Y. Yang.

Culm sheaths initially sparsely hirsute, base densely brown crinite. Leaf ligule ca. 1 mm. New shoots Jun.

- Slopes of hills, plains, roadsides. Zhejiang.

11b. *Pleioblastus hsienchuensis* var. *subglabratus* (S. Y. Chen) C. S. Chao & G. Y. Yang, J. Bamboo Res. 13(1): 17. 1994.

光箨苦竹 guang tuo ku zhu

Pleioblastus amarus (Keng) P. C. Keng var. *subglabratus* S. Y. Chen, Acta Phytotax. Sin. 21: 413. 1983; *Arundinaria hsienchuensis* var. *subglabrata* (S. Y. Chen) C. S. Chao & G. Y. Yang; *Sinobambusa seminuda* T. H. Wen.

Culm sheaths soon deciduous, glabrous, weakly glaucous, base initially white hairy. Leaf ligules 3–4 mm. New shoots May.

- Slopes of hills, roadsides. Zhejiang.

Pleioblastus juxianensis is possibly another synonym of this

variety.

12. *Pleioblastus rugatus* T. H. Wen & S. Y. Chen, J. Bamboo Res. 1(1): 26. 1982.

皱苦竹 zhou ku zhu

Arundinaria rugata (T. H. Wen & S. Y. Chen) C. S. Chao & G. Y. Yang.

Culms to 5 m, to 2 cm in diam.; internodes ca. 35 cm, apically glaucous; wall thick; nodes weakly prominent; sheath scar pubescent. Culm sheaths rigid, deciduously setose, base woolly, apex acute; auricles falcate; oral setae ca. 8 mm, scabrous; ligule slightly arched or nearly truncate, margin pubescent; blade erect, narrowly triangular, strongly rugose, abaxially sericeous. Leaves 3 or 4 per ultimate branch; sheath glabrous; auricles and oral setae absent; ligules prominent, ca. 2 mm, glabrous, glaucous; petiole 2–3 mm, glabrous; blade lanceolate or oblong, 11–18 × 1.4–3 cm, often glabrous, secondary veins 5–7-paired, base rounded, apex acute. Spikelets ca. 3 cm; florets 5–7. Glumes 2 or 3; lemma ca. 9 × 3 mm, apex acute; palea slightly longer than lemma, apically hairy, keels and margin ciliolate, 3-veined between keels, 2-veined beside keels; lodicules 3. Ovary glabrous; styles hispidulous; stigmas 3, plumose.

- S Zhejiang.

Pseudosasa aerea and *Sinobambusa urens* T. H. Wen (J. Bamboo Res. 2(1): 59. 1983) are possibly synonyms of this species.

13. *Pleioblastus yixingensis* S. L. Chen & S. Y. Chen, Acta Phytotax. Sin. 21: 411. 1983.

宜兴苦竹 yi xing ku zhu

Arundinaria yixingensis (S. L. Chen & S. Y. Chen) C. S. Chao & G. Y. Yang.

Culms 3–5 m, 1.2–2 cm in diam.; internodes cylindrical, concave basally above branches, 17–18 cm, initially yellow-green, slightly purple, densely glaucous, dark green and yellow with black powder when old, glabrous; wall ca. 3 mm thick; nodes weakly prominent. Culm sheaths green or yellow, densely glaucous, purple setose, margins ciliate, apex withered; auricles falcate; oral setae purple-red, 5–10 mm, rigid, scabrous; ligules prominent or truncate, 4–5 mm, densely glaucous; blade purple-green, narrow, shortly linear-lanceolate or lanceolate, revolute, densely pubescent, constricted at base, margins serrulate, apex acute. Leaves 4 or 5 per ultimate branch; sheath glabrous; auricles variable in shape; oral setae radiate, straw-colored or purple-red; ligule prominent, ca. 3 mm, densely glaucous; blade elliptic-lanceolate, 13.5–24 × 2–3 cm, abaxially tomentellate and proximally pilose by midrib, adaxially glabrous, secondary veins 6–8-paired, base cuneate, margins serrulate, apex acuminate. Inflorescence unknown. New shoots early May.

- Frequent on low hills. Jiangsu.

14. *Pleioblastus wuyishanensis* Q. F. Zheng & K. F. Huang, Wuyi Sci. J. 2: 17. 1982.

武夷山苦竹 *wu yi shan ku zhu*

Culms to 5 m, to 3.5 cm in diam.; internodes cylindrical, to 33 cm, initially densely pruinose, dark powdery when old; wall ca. 7 mm thick; supra-nodal ridge about as high as sheath scar or lower; intranode 5–6 mm. Branches 3–7, erect, subequal, appressed to culm. Culm sheaths yellow-green, about as long as internodes or slightly shorter, leathery, persistently pruinose, nearly glabrous or with weak deciduous purple setae, slightly gray pubescent at base, margins with or without sparse cilia; auricles subcircular or falcate, small; oral setae to ca. 3.5 mm; ligule purple, truncate, ca. 1 mm; blade deflexed or reflexed, lanceolate, 2.5–6 cm, shortly ciliate at base. Leaves 3 or 4 per ultimate branch; sheath glabrous, slightly pruinose; auricles present; oral setae absent; ligule truncate, ca. 1.5 mm; blade lanceolate, 8–14 × 1.5–2.2 cm, secondary veins 5- or 6-paired, one margin serrate, other margin nearly entire. Inflorescence unknown.

- Mountain slopes; ca. 200 m. Fujian.

15. *Pleioblastus sanmingensis* S. L. Chen & G. Y. Sheng, Bull. Bot. Res., Harbin 11(4): 42. 1991.

三明苦竹 *san ming ku zhu*

Culms to ca. 5 m, to 3 cm in diam.; internodes terete, 33–40 cm, initially densely pruinose, yellow-brown and unevenly dark gray powdery when old; wall ca. 8 mm thick; supra-nodal ridge more elevated than sheath scar. Branches 3–5. Culm sheaths yellow-brown, densely purple spotted, leathery, base setose, margins yellow-white, shortly ciliate; auricles purple, ovate or elliptic, large, densely ciliate; oral setae radiate, brown, thick; ligule vaulted, purple, ca. 1 cm, glabrous or pubescent, not ciliate, asymmetrical at apex; blade reflexed or pendulous, green, linear-lanceolate, base pubescent and slightly constricted, margins serrulate, apex acuminate. Leaves 3 or 4 per ultimate branch; sheath usually glabrous, thinly glaucous; auricles purple, ovate or elliptical; oral setae radiating, robust, 3–8 mm; ligule vaulted, 2–3.5 mm; blade rhombic-lanceolate, 9–25 × 1.5–3 cm, glabrous, secondary veins 6–8(or 9)-paired, base cuneate, one margin densely serrulate, other margin sparsely serrate, apex acuminate. Inflorescence unknown. New shoots early May.

- Often in dense pure bamboo forests on mountain slopes. Fujian (Sanming).

16. *Pleioblastus fortunei* (Van Houtte) Nakai, J. Jap. Bot. 9(4): 232. 1933.

菲白竹 *fei bai zhu*

Bambusa fortunei Van Houtte, Fl. Serr. Jard. 15: 69. 1863; *Arundinaria fortunei* (Van Houtte) Rivière & C. Rivière; *A. variabilis* Makino ex Vilmorin var. *fortunei* (Van Houtte) J. Houzeau; *Bambusa picta* Siebold & Zuccarini ex Munro; *B. pygmaea* Miquel; *B. variegata* Siebold ex Miquel; *Nipponocalamus pygmaeus* (Miquel) Nakai; *Pleioblastus pygmaeus* (Miquel) Nakai; *P. variegatus* (Siebold ex Miquel) Makino; *Sasa fortunei* (Van Houtte) Fiori; *S. pygmaea* (Miquel.) Rehder; *S. variegata* (Siebold ex Miquel) E. G. Camus.

Culms 10–30(–80) cm, 1–2 mm in diam.; internodes short, glabrous; nodal ridge flat or weakly prominent. Branches absent or 1 per node. Culm sheaths persistent, glabrous. Leaves 4–7 per culm or branch; sheath glabrous; auricles absent; oral setae white, smooth; blade longitudinally white to pale yellow striped, lanceolate, 6–15 × 0.8–1.4 cm, white pubescent, more densely so abaxially, base broadly cuneate, apex acuminate.

Cultivated for ornamental purposes. Jiangsu, Zhejiang; probably in other provinces [native to Japan].

Flowering of this species in Brazil in 1979 confirmed the presence of 3 stamens, hence its placement in *Pleioblastus* rather than *Sasa*, where it has usually been placed in Chinese literature.

17. *Pleioblastus distichus* (Mitford) Nakai, Rika Kyoiku [Sci. Educ. (Tokyo)] 15(6): 69. 1932.

无毛翠竹 *wu mao cui zhu*

Bambusa disticha Mitford, Garden (London) 46: 547. 1894; *Arundinaria pygmaea* var. *disticha* (Mitford) C. S. Chao & S. A. Renvoize; *A. variabilis* Makino ex Vilmorin var. *disticha* (Mitford) J. Houzeau; *Pleioblastus pygmaeus* var. *distichus* (Mitford) Nakai; *Sasa disticha* (Mitford) E. G. Camus; *S. pygmaea* var. *disticha* (Mitford) C. S. Chao & G. G. Tang.

Culms 20–40 cm, 1–2 mm in diam.; internodes glabrous; nodes glabrous or sometimes sheath scar pilose. Culm sheaths glabrous. Leaves 5–8 per branch, closely spaced, distichous; auricles absent; oral setae white, smooth; blade erect, lanceolate, 3–7 × 0.3–0.8 cm, rather rigid, glabrous.

Cultivated for ornamental purposes. Jiangsu, Zhejiang [native to Japan].

The miniature cultivar grown in China differs from the type in its smaller stature and glabrous culm sheath nodes. Earlier applications of the name *Bambusa pygmaea* to this species were in error. Flowering of plants cultivated in the United Kingdom around 1970 demonstrated the presence of 3 stamens, hence its placement in *Pleioblastus* rather than *Sasa*, where it has usually been placed in Chinese literature.

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