

21. SAsA Makino & Shibata, Bot. Mag. (Tokyo) 15: 18. 1909.

赤竹属 chi zhu shu

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Shrubby bamboos. Rhizomes leptomorph, with long, running underground stems. Culms tillering, pluricaespitose; internodes terete, glabrous, sometimes white powdery or sparsely puberulent below nodes; wall thick; nodes flat in Sasa subg. Sasamorpha or prominent in S. subg. Sasa. Branches solitary, often about as large as culm. Culm sheaths persistent, longer than internodes in S. subg. Sasamorpha, otherwise shorter, papery to nearly leathery; auricles usually developed; blade lanceolate. Leaves usually large relative to culm, in palmate arrangement, transverse veins distinct, margins with substantial necrosis in winter. Inflorescence a loose panicle or raceme, usually subtended by tiny bracts. Spikelets purple or red at maturity, 4–8-flowered; rachilla disarticulating, extended on uppermost floret. Glumes 2, ± hairy, margins long ciliate; lemma ovate or oblong-lanceolate, nearly leathery, long mucronate; palea 2-keeled; lodicules 3, ovate, thin, transparent, margins ciliate. Stamens 6, long exerted; anthers yellow. Ovary ovoid; style 1, short; stigmas 3, plumose. Caryopsis dark brown at maturity.

Between 50 and 70 recognized species (with very extensive further synonymy): China, Japan, Korea, E Russia; eight species (all endemic) in China.

Chinese species for which the inflorescence is unknown can only tentatively be placed in Sasa. They may represent smaller species of genera such as Pleioblastus, several of which were also included in Sasa in FRPS (9(1), 1996).

Sasa hainanensis C. D. Chu & C. S. Chao (Acta Phytotax. Sin. 18: 31. 1981) and S. subglabra McClure (Lingnan Univ. Sci. Bull. 9: 24. 1940), both based on vegetative specimens, are of very uncertain placement and are not treated here. Sasa guangdongensis W. T. Lin & X. B. Ye (Acta Phytotax. Sin. 26: 148. 1988) was described from Guangdong; it is a little-known species. Sasa magninoda T. H. Wen & Liao (J. Bamboo Res. 10(1): 14. 1991, "magnonoda") was described from Jiangxi; it is a species based on a poor gathering and is possibly not a member of Sasa at all.

- 1a. Culms and inflorescence axes thickly white powdery; culm sheath longer than internode, culm nodes not elevated; main branch very erect, at a ca. 10° angle to culm (S. subg. Sasamorpha).
 - 2a. Culm sheaths densely strigose, apex strongly concave with a triangular projection on both flanks 8. S. qingyuanensis
 - 2b. Culm sheaths glabrous or sparsely strigose; apex truncate or weakly concave without triangular projections.
 - 3a. Leaf sheaths usually glabrous; branches hairy below nodes 6. S. sinica
 - 3b. Leaf sheaths densely long white strigose; branches glabrous below nodes 7. S. hubeiensis
- 1b. Culms and inflorescence axes not white powdery; culm sheath shorter than internode, culm nodes elevated (in Chinese species); main branch spreading at more than a 20° angle to culm (S. subg. Sasa).
 - 4a. Leaf blade 7–9 cm; culms 2–4 mm in diam. 5. S. oblongula
 - 4b. Leaf blade to 26 cm; culms 5–10 mm in diam.
 - 5a. Leaf sheath auricles and oral setae absent.
 - 6a. Leaf sheath ligule to 5 mm; internodes 8–10 cm 2. S. guangxiensis
 - 6b. Leaf sheath ligule less than 1 mm; internodes 15–22 cm 4. S. tomentosa
 - 5b. Leaf sheath auricles large, falcate, oral setae 5–10 mm, radiate.
 - 7a. Internodes initially hairy below node; leaf sheath auricles and oral setae absent 1. S. longiligulata
 - 7b. Internodes glabrous; leaf sheath auricles large, falcate, fimbriate with brown setae ca. 1 cm 3. S. rubrovaginata

1. Sasa subg. Sasa

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Culms and axis of inflorescence not white powdery; nodal ridge elevated (in Chinese species); culm sheaths shorter than internodes; auricles and oral setae present or absent; branch at 20–30° angle with culm; leaf blade dull.

More than 40 species: China, Japan, Korea, E Russia; five species (all endemic) in China.

1. Sasa longiligulata McClure, Lingnan Sci. J. 19: 536. 1940.

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Pseudosasa longiligulata (McClure) Koidzumi.

Culms 1–2 m or more, 5–10 mm in diam.; internodes usually tinged with purple, 8–10 cm, hirtellous and retrorsely brown hirsute below nodes, otherwise glabrous or sometimes initially hirtellous and sparsely hirsute, gradually glabrescent; wall 1–2 mm thick; nodal ridge strongly elevated, more prominent than sheath scar; sheath scar fringed with same hairs as

those at apex of culm. Culm sheaths dull green, commonly tinged red-purple when fresh, rusty-straw-colored when dry, shorter than internode, thinly papery, loosely enclosing culm, scabrous with minute brown strigae or bases of fallen hairs, base densely brown hirsute and hirtellous, outer margin brown ciliate; auricles and oral setae absent; ligule purple-brown, to 5 mm or more, abaxially puberulent, margin sinuous, ciliolate; blade reflexed or erect, purple or purple-green, triangular to lanceolate. Leaves 3–15 per ultimate branch; sheaths glabrous, or hirtellous and sparsely hirsute; auricles and oral setae absent; ligule strongly developed, to 1–1.5 cm, basally rather rigid,

hirtellous or subglabrous, brittle, usually lacerate, apically membranous; blade adaxially deep green, lanceolate, 6–25 × 1.5–3.5 cm, glabrous or hirtellous along midrib toward base, abaxially glaucous, scabrous with sparse antrorsely appressed setae, adaxially faintly glossy, base cuneate, apex acuminate. Inflorescence unknown. New shoots Apr–May.

- Moist ravines, brook banks; 1000–1400 m. Guangdong, Hunan.

Sasa sulcata W. T. Lin (J. Bamboo Res. 12(2): 35. 1993) was described from an abnormal gathering and is most probably a synonym of this species.

2. *Sasa guangxiensis* C. D. Chu & C. S. Chao, J. Nanjing Technol. Coll. Forest Prod. 1981(3): 34. 1981.

广西赤竹 *guang xi chi zhu*

Culms ca. 1 m, ca. 5 mm in diam.; internodes green, 8–10 cm, initially shortly pale yellow pubescent especially below nodes, glabrescent; nodes strongly elevated, weakly geniculate. Culm sheaths deciduous, yellow to purple, shorter than or equal to internode, with dense, fine, gray strigae or papillae left by fallen hairs; auricles falcate, large; oral setae radiate, 5–10 mm; ligule to 5 mm, apex lacerate; blade deciduous, lanceolate. Leaves 3–8 per ultimate branch; initially sheath densely pubescent, glabrescent; auricles falcate, large; oral setae radiate, 6–10 mm; ligule to 1.5 cm, membranous; blade adaxially green, elliptic-lanceolate, 13–26 × 2–4.5 cm, abaxially glaucous, both surfaces glabrous, secondary veins 7–9 pairs, transverse veins distinct, base broadly cuneate, apex long acuminate. Inflorescence unknown. New shoots Apr–May.

- Banks of mountain streams; 500–800 m. Guangxi, Jiangxi.

3. *Sasa rubrovaginata* C. H. Hu, Bamboo Res. 1985(2): 59. 1985.

红壳赤竹 *hong ke chi zhu*

Sasa duplicata W. T. Lin & Z. J. Feng.

Culms ca. 1.5 m, 5–6 mm in diam.; internodes 10–17 cm, initially white powdery below nodes, glabrous; wall thin, cavity with lamellate pith; nodal ridge strongly elevated. Culm sheaths straw-colored, ca. 1/3 as long as internodes, rigid and brittle at maturity, lower and middle portions with sparse deciduous strigae or imprints left by appressed hairs, base thickened with an elevated corky ring, margins ciliolate, otherwise glabrous; auricles and oral setae not developed; ligule truncate, short; blade deciduous. Leaves 5 or 6 per ultimate branch; sheath initially thinly white powdery, glabrous, margins ciliolate; auricles falcate, large, fimbriate with brown setae ca. 1 cm; ligule truncate, ca. 1 cm; blade broadly lanceolate or lanceolate, glabrous, secondary veins 9 or 10 pairs, transverse veins distinct, margins spinescent. Inflorescence unknown.

- Mountain areas; ca. 2000 m. Guangxi.

2. *Sasa* subg. *Sasamorpha* (Nakai) C. H. Hu, Bamboo Res. 1985(2): 60. 1985.

华箬竹亚属 *hua ruo zhu ya shu*

Sasamorpha Nakai, J. Fac. Sci. Hokkaido Univ., Ser. 5, Bot. 26: 180. 1931.

Culms and axis of inflorescence thickly white powdery; nodes flat or weakly elevated; culm sheath longer than internode,

Sasa albosericea W. T. Lin & J. Y. Lin (Acta Phytotax. Sin. 26: 232. 1988) is probably a synonym of this species.

4. *Sasa tomentosa* C. D. Chu & C. S. Chao, J. Nanjing Technol. Coll. Forest Prod. 1981(3): 35. 1981.

绒毛赤竹 *rong mao chi zhu*

Culms ca. 2 m, ca. 5 mm in diam.; internodes 15–22 cm, glabrous; nodes weakly elevated. Culm sheaths shorter than internodes, densely strigose, with long, retrorse, swollen-based, yellow hairs; auricles falcate, ca. 5 mm; oral setae radiate, to 8–10 mm; ligule less than 1 mm; blade erect or spreading, lanceolate, 1.5–3.5 × 0.2–0.5 cm. Leaves 2 or 3 per ultimate branch; sheath strigose; auricles developed, falcate; oral setae radiate, 1–1.3 cm; ligule less than 2 mm; pseudopetiole 5–8 mm, both surfaces pilose; blade adaxially green, elliptic-lanceolate, 18–20 × 3–4.2 cm, both surfaces glabrous, abaxially glaucous, secondary veins 8 or 9 pairs, transverse veins distinct, base broadly cuneate, apex acuminate. Inflorescence unknown. New shoots Apr–May.

- Dense forests at mountain summits; ca. 400 m. Guangxi.

5. *Sasa oblongula* C. H. Hu, J. Bamboo Res. 6(4): 18. 1987.

矩叶赤竹 *ju ye chi zhu*

Culms 1–1.5 m, 2–4 mm in diam.; internodes initially yellow-green, later straw-colored, ca. 8 cm, initially ± white powdery below nodes; nodal ridge weakly elevated. Culm sheaths purple-green, about as long as internodes, glabrous or puberulent at base, margins ciliate; auricles ascending, purple-green, falcate, puberulent; oral setae developed, or on lower culm sheaths; auricles and oral setae absent or weakly developed; ligule ca. 1 mm, margins ciliolate; blade erect, dark purple, lanceolate. Leaves 3–5 per ultimate branch; sheath glabrous or initially sparsely appressed hirsute on upper sides, margins ciliate; auricles small; oral setae well developed; blade oblong-lanceolate, 7–9 × 1.7–2.6 cm, glabrous, secondary veins ca. 6 pairs, transverse veins distinct, base rounded or broadly cuneate, apex abruptly acute or awnlike. Inflorescence unknown. New shoots Mar–Apr.

- Cultivated. Guangdong (Guangzhou).

auricles and oral setae absent; branch ca. 10° angle with culm; leaf blade glossy.

Between five and twenty-two species: China, Japan, Korea, E Russia; three species (all endemic) in China.

6. *Sasa sinica* Keng, *Sinensia* 7(6): 748. 1936.

华箬竹 hua ruo zhu

Sasamorpha sinica (Keng) Koidzumi.

Culms ca. 1.5 m, ca. 4 mm in diam.; internodes white powdery especially below nodes, rigid, subsolid, with small lumen. Culm sheaths purplish, 6–10 cm, longer than internodes, pushed off by emerging branch but closely enclosing branch, with fine strigae especially near margins and base, margins long ciliate; auricles and oral setae absent; blade triangular-lanceolate. Leaves 2(or 3) per ultimate branch; sheath white powdery, glabrous or initially setose, margins long ciliate; ligule truncate, 0.5–2 mm; blade oblong-lanceolate, 10–20 × 1.3–3 cm, glabrous or abaxially pilose, secondary veins 6–8 pairs, transverse veins distinct. Inflorescence an open panicle, 5–11 cm, with 4–8(–10) spikelets or a raceme of 2–4 spikelets; axis and pedicels densely setulose and white powdery, pedicels 3–17 mm, sometimes subtended by a minute, basal bract. Spikelets deep purple at maturity, 0.8–3.5 × 0.4–0.6 cm. Rachilla internodes 2–4 mm, puberulent, apex cup-shaped and ciliolate. Glumes 2, ovate, lower 3–6 mm, puberulent, 7–9-veined, margins ciliate, apex cuspidate; lemma 9–10 mm, puberulent, 11-veined, margins purple ciliate, apex cuspidate; palea slightly longer than lemma, abaxially puberulent, keels red ciliate, apex 2-cleft; lodicules 3, ovate-lanceolate, 2–2.5 mm, membranous, with distinct basal veins, margins fimbriate. Anthers pale yellow, 4–5 mm. Ovary 3–4 mm, narrow; style short; stigmas 3. New shoots May, fl. May–Jul.

• Forests, roadsides; 1000–1500 m. Anhui, Zhejiang.

7. *Sasa hubeiensis* (C. H. Hu) C. H. Hu, *Bamboo Res.* 1985(2): 60. 1985.

湖北华箬竹 hu bei hua ruo zhu

Sasamorpha hubeiensis C. H. Hu, *J. Bamboo Res.* 2(1): 51. 1983.

Culms 0.5–1 m, 3–5 mm in diam.; internodes yellow or light yellow when old, very thickly white powdery especially on upper portion; nodes weakly elevated. Culm sheaths persistent on deflexed branch, longer than internode, slightly glossy, thinly leathery, with long strigae; auricles and oral setae absent; ligule truncate, pubescent; blade erect, lanceolate. Leaves 3 or more per ultimate branch; sheath white powdery, initially long strigose; blade lanceolate, nearly leathery, glabrous, secondary veins 7–9 pairs, transverse veins distinct, base broadly cuneate or rounded. New shoots May–Jun.

• Mountain slopes; ca. 300 m. Hubei, Jiangxi.

8. *Sasa qingyuanensis* (C. H. Hu) C. H. Hu, *Bamboo Res.* 1985(2): 62. 1985.

庆元华箬竹 qing yuan hua ruo zhu

Sasamorpha qingyuanensis C. H. Hu, *J. Bamboo Res.* 2(1): 52. 1983.

Culms 1–1.5 m, 4–6 mm in diam.; internodes thickly white powdery, especially so distally; wall thick. Culm sheaths persistent on deflexed branch, straw-colored when dry, longer than internodes, with rather dense, long, tenuous, brown or white strigae, base with a ring of brown setulae and pubescence, margins ciliate or ciliolate, apex strongly concave; auricles and oral setae absent; ligule to 5 mm; blade erect or deflexed, lanceolate. Leaves commonly 3 per ultimate branch; sheath thinly white powdery, base strigose; auricles and oral setae absent; ligule to 5 mm or more, margin ciliate, apex truncate or slightly sinuous; blade adaxially green, abaxially pale green, oblong or narrowly ovate, 18–28 × 4.7–6 cm, glabrous, secondary veins 10–13 pairs, transverse veins distinct, margins entire or one minutely spinescent. New shoots Apr–May.

• Forests; ca. 1400 m. Zhejiang.

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