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《中国植物志》（英文版）竹亚科青篱竹属和新小竹属的修订*

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摘要： 基于最近的分子系统学研究、近期发表的新类群以及国际植物命名法规的相关条款，对《中国植物志》（英文版）竹亚科的两个属进行了修订。中国是否有青篱竹属（*Arundinaria*）的分布一直是个争论不休的问题。分子系统学不支持广义青篱竹属，因此原置于青篱竹属下的4个种应恢复到巴山木竹属（*Bashania*）中。包括近期发表的新类群在内，巴山木竹属在中国共有10种。西藏新小竹（*Neomicrocalamus microphyllus*）是一个没有合格发表的裸名，其正确名称应为新小竹（*N. prainii*），而云南新小竹（*N. yunnanensis*）则可能是梨籐竹属的成员。

关键词： 青篱竹属；巴山木竹属；新小竹属；*Flora of China*；竹亚科
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Revision of *Arundinaria* and *Neomicrocalamus* (Poaceae: Bambusoideae) for the *Flora of China*

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Abstract: Revision of some newly and previously published taxa of the woody bamboos, or the Bambusoideae in China resulted in some nomenclatural changes for the *Flora of China*. Based on recent molecular analyses, the delimitation of *Arundinaria* s. l. is not confirmed. Four species treated in *Arundinaria* in the Flora are currently resurrected in *Bashania*. With six additional species not accepted or treated in the Flora, there are 10 species of *Bashania* in China. Specimens used for *Neomicrocalamus microphyllus* (*nom. nud.*) should be treated in *N. prainii*, while *N. yunnanensis* is possibly a member of *Melocalamus*, not of *Neomicrocalamus*.

Key words: *Arundinaria*; *Bashania*; *Neomicrocalamus*; *Flora of China*; Bambusoideae

The bamboo accounts in the recently published *Flora of China* (as FoC thereafter) volume 22 (Poaceae) provide the most updated knowledge of taxonomy and phytogeography of the woody bamboos, i. e. the Bambusoideae in China (Li *et al.*, 2006). Among the thirty-four genera in FoC, *Arundinaria* Michaux is one with a complex taxonomic history. Some researchers proposed that *Arundinaria* consisted of the North American species and some narrowly defined East Asian genera, such as *Bashania* P. C. Keng & T. P. Yi, *Oligostachyum* Z. P. Wang & G. H. Ye, *Pleioblastus* Nakai, and *Pseudosasa*

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Makino ex Nakai (Clayton and Renvoize, 1986; Soderstrom and Ellis, 1987; Chao and Renvoize, 1989; Yang and Zhao, 1993, 1994; Li, 1997), while other taxonomists treated this genus as endemic to eastern North America, with the aforementioned genera as its close relatives (Suzuki, 1978; Keng and Wang, 1996a; Ohrnberger, 1999). In the FoC bamboo accounts, the morphologically closest Asian species under *Arundinaria*, i. e., those from *Bashania* and *Sarocalamus* were included in *Arundinaria*, with *Oligostachyum*, *Pleioblastus*, and *Pseudosasa* treated as separated genera (Zhu *et al.*, 2006). On the grounds of recent molecular analyses (Triplett and Clark, 2010; Zeng *et al.*, 2010; Zhang *et al.*, 2012), the genus *Arundinaria* should be treated in a narrow sense, which consists of the three North American species exclusively. Herein, the delimitation of *Arundinaria* s. l. seems to be not reasonable. It is suggested that the four species in *Arundinaria* in FoC be treated in *Bashania*, with six additional species which were not recognized or newly described after the publication of FoC accounts (e. g. Shi *et al.*, 2008). Nomenclatural changes are needed for *Arundinaria* for the FoC. We explained the invalid name *Neomicrocalamus microphyllus* and its correct nomenclatural status. Here we report some of our recent results.

11♣. *Neomicrocalamus* P. C. Keng, J. Bamboo Res. **2** (2): 10. 1983.

新小竹属 xin xiao zhu shu

Type of the genus: *Neomicrocalamus prainii* (Gamble) P. C. Keng. Generic description follows FoC (Li and Stapleton, 2006).

About four species. Bhutan, SW China, NE India, Vietnam. One species in China.

Molecular analysis suggested that *Neomicrocalamus yunnanensis* (T. H. Wen) Ohrnberger may be closely related to *Melocalamus* Bentham, not a member of *Neomicrocalamus* (Yang *et al.*, 2008). Recent molecular analyses suggest that *Neomicrocalamus* is not closely related to *Racemobambos* Holttum, but a member of the Bambusinae (Yang *et al.*, 2008; Goh *et al.*, 2013).

1. *Neomicrocalamus prainii* (Gamble) P. C. Keng, J. Bamboo Res. **2** (2): 10. 1983.

新小竹 xin xiao zhu

Arundinaria prainii Gamble, Ann. Roy. Bot. Gard. Calcutta **7**: 21. 1896; *N. microphyllus* Hsueh & T. P. Yi, *nom. nud.*, C. Y. Wu (ed.), Fl. Xizangica **5**: 50. 1987.

Species description follows FoC (Li and Stapleton, 2006).

Mountain forests, river banks, rocks; 1 200–2 600 m. S Xizang, W Yunnan [India (Meghalaya), Myanmar].

Specimens examined: Yunnan: Gongshan, Dulong River, alt. 1 400 m, 15 Oct. 2003, H. Q. Yang 010 (KUN). Tibet: Medog, 22 Oct. 2003, H. Y. Ma HYM202 (KUN), alt. 1 220–2 200 m, 15 Aug., 1977, T. P. Yi 77181 (SIFS) (designated as 'type' of *N. microphyllus* by Yi, 1983).

Neomicrocalamus microphyllus Hsueh & Yi appeared as a 'new species' in *Journal of Bamboo Research* in January 1983 (Yi, 1983), prior to the valid publication of the genus in July 1983 (Keng, 1983) (which is against Art. 43. 1), and with two 'types' (against Art. 37. 2, see Ex. 1) (McNeil *et al.*, 2006). It was treated as a species in *Flora Reipublicae Popularis Sinicae* (Keng and Wang, 1996b). In the *Flora of China*, it was mentioned under the generic descriptions only (Li and Stapleton, 2006). Comparison of the original material of *N. prainii* (Prain *s. n.*) at Kew and the 'type specimens' of *N. microphyllus* made it possible to reach a conclusion that the two are conspecific. In addition, the molecular phylogeny of the major groups of the paleotropical woody bamboos (Yang *et al.*, 2008) indicated that *N. microphyllus* and *N. prainii* grouped in one clade with strong support, which provided an independent evident for the taxonomic treatment.

♣ Numbering followed the FoC bamboo accounts

22. *Bashania* P. C. Keng & T. P. Yi, J. Nanjing Univ. (Nat. Sci. ed.) **1982** (3): 722. 1982.

巴山木竹属 ba shan mu zhu shu

Type of the genus: *Bashania fargesii* (E. G. Camus) P. C. Keng & T. P. Yi. Generic description follows *Arundinaria* Michaux in FoC (Zhu *et al.*, 2006).

About twelve species: E Himalaya to SW China, Vietnam; ten species (all endemic) in China.

In our recent phylogenetic studies, eight species of *Bashania* were sampled (except for *B. auctiaurita*, *B. baoxingensis* and *Arundinaria racemosa*). They were nested within the *Phyllostachys* clade (or clade V) in the plastid analysis together with taxa in other sixteen genera (e. g. *Chimonobambusa*, *Fargesia*, *Indocalamus*, *Phyllostachys*, etc.) (Zeng *et al.*, 2010; Zhang *et al.*, 2012). However, due to lack of informative characters, the relationships among those taxa were unresolved. In the GBSSI phylogeny, the eight sampled species were mainly clustered in two subclades: the *Pseudosasa usawae* ~ *Gelidocalamus* sp. 1 subclade (including *Bashania aristata*, *B. fargesii* and *B. qingchengshanensis*) and the alpine *Bashania* subclade (including *B. abietina*, *B. fangiana* = *B. faberi*, *B. qiaojiaensis*, *B. spanostachya*, *B. yongdeensis*) (Zhang *et al.*, 2012). This topology implied some geographical significance. The alpine *Bashania* species usually occur on mountains from 3 000 m to 4 000 m in southwestern China, and they are generally 1–3 m tall, having initially 1–3 branches with complement proliferating to become broom-like. Whereas the other three species are normally distributed below 2 000 m, and 2–8 m in height with 3–6 branches. The species distributed at similar altitude seem to be closely related. The non-monophyly of *Bashania* raised some taxonomic problems. However, because our phylogenetic researches are just at the beginning of a more complete picture, the update of the phylogeny with more nuclear markers and the other three species of *Bashania* in the near future will make it more credible to revise the genus *Bashania*. In this paper, we would like to clarify the delimitation of *Arundinaria* in the FoC, and sounder taxonomic revision should be made later.

Key to species of *Bashania* in China

1a. Culms 3–8 (–13) m tall; internodes grooved above branches; rough, finely striate, waxy; leaf blade 10–32 cm wide, thick, dark, glossy; inflorescence branches pulvinate, becoming reflexed; pedicels pubescent …… **2**

1b. Culms 1–3 m tall; internodes terete, smooth; leaf blade (2.2–) 3–10 cm wide, thin, light, matte; inflorescence branches not pulvinate, remaining erect; pedicels glabrous …… **6**

2a. Culms 2–4 cm in diameter; culm sheaths tardily deciduous; 4–6 leaves for each ultimate branch …… **3**

2b. Culms 0.3–1 cm in diameter; culm sheaths persistent; 1–3 leaves for each ultimate branch …… **4**

3a. Culm sheath auricles half-moon-shaped; lemmas obviously aristate …… ***B. aristata***

3b. Culm sheath auricles absent; lemmas lightly aristate …… ***B. fargesii***

4a. Culm walls 2.5–3.5 mm thick; lightly waxy-powdery below nodes …… ***B. baoxingensis***

4b. Culms solid or subsolid; internodes with a persistent yellow-brown tomentose ring below nodes …… **5**

5a. Culm sheath auricles falcate; branches 1–3 …… ***B. auctiaurita***

5b. Culm sheath auricles absent; branches 5–12 …… ***B. qingchengshanensis***

6a. Culm sheath auricles present …… ***B. abietina***

6b. Culm sheath auricles absent …… **7**

7a. Branches solitary …… ***B. qiaojiaensis***

7b. Branches 3–5 …… **8**

8a. Culm sheath blades reflexed …… ***B. faberi***

8b. Culm sheath blades erect …… **9**

9a. Culms 0.6–1.2 cm in diameter; culm sheaths sparsely setose …… ***B. spanostachya***

9b. Culms 0.3–0.4 cm in diameter; culm sheaths glabrous …… ***B. yongdeensis***

1. ***Bashania abietina*** T. P. Yi & L. Yang, J. Bamboo Res. **17** (4): 1. 1998.

马边巴山木竹 ma bian ba shan mu zhu

Culms 1.5–2.5 m, 8–13 mm in diameter; internodes (7) 13–18 (23) cm, terete, or flattened on one side above branches, glabrous, with a lightly white waxy ring below nodes; wall 2.5–3.5 mm thick, pith initially lamellate; intranode 1.5–3 mm. Branches solitary. Shoots purple; culm sheaths persistent, shorter than internodes, with white setae at base; auricles falcate, deciduous, purple; oral setae 6 mm; ligule arcuate, fimbriate, purple, 0.5–1 mm; blade erect, lanceolate. Leaves 3–5 per ultimate branch; sheath glabrous, margins smooth; auricles falcate, purple, oral setae 4–6 mm; ligule truncate, 0.7 mm, glabrous; blade linear-lanceolate, 6–8.5×0.8–1 cm, glabrous, abaxially grey-green, secondary veins 3–4 paired. Inflorescence unknown. New shoots Apr.–May.

• Under forests of *Abies fabri*; 2 500–3 200 m. Sichuan (Mabian).

Specimens examined: Sichuan: Mabian, Yaozishan, alt. 2 500–3 200 m, 2 Jun. 1998, T. P. Yi 98520 (holotype, SIFS); same location, alt. 2 571 m, 28°56.000′ N, 103°15.375′ E, 16 Jul. 2007, Y. X. Zhang & Z. J. Wang 07092 (KUN).

This species was treated under *Taxa incertae sedis* in the FoC accounts. After field investigation and molecular study, it is confirmed to be a separate species, rather than a member of *Indocalamus* as suggested by Zhu *et al*. (2006).

2. ***Bashania aristata*** Y. Ren, Y. Li & G. D. Dang, Novon **13**: 473. 2003.

秦岭巴山木竹 qin ling ba shan mu zhu

Culms 2–8 (13) m, 2–4 (6.5) in diameter; internodes 25–40 cm, deep green and with white powder when young; wall 4–8 mm thick; intranode 6–14 mm. Culm sheaths leathery, shorter than internodes, green when fresh and flavescent when dry, densely covered with black to dark brown setae abaxially, with persistent papillae and imprints of setae; ligule 2–4 mm, with small setae on it, denticulate at apex; auricles half-moon-shaped; oral setae erect; blade lanceolate, erect or curved, with caducous cilia at base adaxially. Leaves 4–6 per ultimate branch; sheath 5–20 cm long; auricles absent; ligule 1.5–4 mm, tomentose and with irregular serra; blade 7–17×1–2.3 cm, sparsely velutinate abaxially when young, secondary veins 6 paired; petiole 0.7–0.8 cm. Inflorescence paniculate, 9×3–4 cm; spikelets slender cylindrical, dark brown when mature, 2–3 cm long, 3 mm in diameter; rachilla internodes 2–3.5 mm long, flat, with white microsetae; florets 4–7. Glumes ovate-lanceolate; lemmas ovate to lanceolate, with white microsetae at the base; paleas with two ridges on the back and bifid at the apex; lodicles 3, ciliolate at margin. Stamens 3, with anthers 4–5 mm. Ovary ovoid; stigmas 3, feathery, ca. 2 mm. Caryopsis unknown. Fl. Apr., new shoots Apr. to May.

• Under deciduous broadleaved forest and in temperate coniferous broadleaved mixed forest ranges; 1 100–1 600 m. Shaanxi (Foping, Yangxian, Zhenba).

Specimens examined: Shaanxi: Foping, Sanguanmiao, Chaoyangpo, alt. 1 600 m, 33°39′16.875 N, 107°47′11.25 E, 28 Apr. 1999, Y. Ren 906 (holotype, WNU); same location, alt. 1 706 m, 33°40′28.7″ N, 107°49′04.5″ E, 6 Oct. 2008, Y. X. Zhang & D. Q. Zhang 08080 (KUN).

This species is distributed on the middle part of the south slope of Mt. Qinling, which is one of the main distribution area of the giant panda. In this area, *B. fargesii* occurs as well and forms a dominant forest, while *B. aristata* is distributed sporadically among *B. fargesii*. From the point of view of morphology, these two species have such similar features that it is difficult to distinguish them from the vegetative morphology besides the obvious culm sheath auricles in *B. aristata*. The molecular study denoted that they had a close affinity with each other (Zhang *et al.*, 2012). Based on the geographical distribution, the morphology and molecular phylogeny, we suggest that population study should be performed in

order to clarify the taxonomic status of *B. aristata*.

3. *Bashania auctiaurita* T. P. Yi, Bull. Bot. Res. **6** (4): 27. 1986.

具耳巴山木竹 ju er ba shan mu zhu

Indocalamus dayongensis W. T. Lin, J. Bamboo Res. **13** (4): 3. 1994.

Culms 1–2 m, 0.3–0.8 cm in diameter; internodes 17–33.5 cm, terete, or flattened on one side above branches, glabrous, solid, with a yellow-brown tomentose and waxy ring; sheath scar initially densely yellow setose. Branches 1–3. Culm sheaths persistent, shorter than internodes, abaxially sparsely yellow-brown setose, margins brown ciliate; auricles absent, or falcate; oral setae 2 mm; ligule 0.5 mm; blade erect, triangle or lanceolate, 3 cm. Leaves 1–2 (3) per ultimate branch; auricles deciduous; ligule 0.5 mm; blade 16–26×1.5–4.3 cm, secondary veins 5–9 paired. New shoots unknown.

• Under broadleaved forest along the river bank; ca. 580 m. Hu'nan.

Specimen examined: Hu'nan: Zhangjiajie, Zicaotan, alt. 580 m, 15 Nov. 1985, T. P. Yi 85403 (holotype, SIFS).

This species is only recorded in Zhangjiajie, Hu'nan, China. After careful observation of the type specimens, we suggest that this species is closely related to *Gelidocalamus* or *Indocalamus* in morphology rather than *Bashania*. Further studies including field collection and molecular research should be carried out.

4. *Bashania baoxingensis* T. P. Yi, J. Sichuan Forestry Sci. Tech. **21** (2): 13. 2000.

宝兴巴山木竹 bao xing ba shan mu zhu

Culms 2–2.5 m, 0.6–1 cm in diameter; internodes 20–30 (38) cm, terete; sheath scar prominent, yellow-brown setose. Branches 3. Culm sheaths persistent, shorter than internodes, abaxially brown setose, margins brown ciliate; auricles and oral setae absent; ligule truncate or arcuate, 0.5–2 mm; blade reflexed, triangle or lanceolate. Leaves 2 or 3 per ultimate branch; sheath pubescent; auricles small; oral setae 2–12 mm; ligule 0.5–2 mm, initially with 3–8 mm setae; blade 9–15×1.8–3.8 cm, light green, secondary veins 7–9 paired. New shoots Apr.–May.

• Thickets at the foot of mountains; ca. 1 460 m. Sichuan (Baoxing).

Specimen examined: Sichuan: Baoxing, Mingli, alt. 1 460 m, 5 Jul. 1998, T. P. Yi 98552 (holotype, SIFS).

This species is mainly distributed in Baoxing, Sichuan, China. It resembles *B. fargesii*, but differs from *B. fargesii* in shorter height, internodes without white waxy powder, culm sheath blade reflexed, 2 or 3 leaves per ultimate branch. The relationship between this species and other *Bashania* is pending.

5. *Bashania faberi* (Rendle) T. P. Yi, J. Bamboo Res. **12** (2): 52. 1993.

冷箭竹 leng jian zhu

Arundinaria faberi Rendle, J. Linn. Soc. Bot. **36**: 435. 1904; *Arundinaria racemosa* Munro subsp. *fangiana* A. Camus; *Bashania fangiana* (A. Camus) P. C. Keng & T. H. Wen; *Gelidocalamus fangianus* (A. Camus) P. C. Keng & T. H. Wen; *Sarocalamus faberi* (Rendle) C. M. A. Stapleton; *Sinarundinaria faberi* (Rendle) P. C. Keng; *Sinarundinaria fangiana* (A. Camus) P. C. Keng.

Species description follows *Arundinaria faberi* Rendle in FoC (Zhu *et al.*, 2006).

• Subalpine coniferous forests, especially *Abies*; 2 300–3 500 m. Guizhou (Fanjingshan), SW Sichuan, Yunnan (Dongchuan, Wumeng Shan).

Specimens examined: Guizhou: Fanjingshan, 18 Oct. 1982, T. P. Yi 82240 (SIFS). Sichuan: Baoxing, alt. 2 500 m, 16 Jul. 1998, T. P. Yi 98593 (SIFS); Beichuan, 17 Aug. 1984, T. P. Yi 84127 (SIFS); Ebian, Z. Q. Li No. 1 (SIFS); Hongya, alt. 2 630 m, 11 May 1998, T. P. Yi 98452 (SIFS); Kangding, alt. 3 400 m, 16 Aug. 1998, T. P. Yi 98667 (SIFS); Leibo, 3 Dec. 1983, T. P. Yi 83200 (SIFS); Mabian, 5 Jun. 1995, T. P. Yi 95006 (SIFS); Mt. Omei, 2 Aug. 1974, T. P. Yi 74205, 74206 (SIFS), 14 Apr. 1983, T. P. Yi 83005 (SIFS), 15 May 1984, T. P.

Yi 84062 (SIFS), alt. 2 500–2 800 m, 29°31′47.7″ N, 103°19′38.1″ E, 4 Nov. 2007, J. M. Lu & P. F. Ma 071104 (KUN); Pengxian, 4 Apr. 1988, T. P. Yi 88005 (SIFS); Tianquan, alt. 2 700 m, 27 Jun. 1998, 98617 (SIFS); Wolong, alt. 2 510–3 800 m, 26 May 1977, T. P. Yi 77015 (SIFS), alt. ca. 2 600 m, 25 Mar. 2008, Y. X. Zhang & P. F. Ma 08018 (KUN). Yunnan: Dongchuan, 18 Jan. 1978, T. P. Yi 78008 (SIFS).

6. *Bashania fargesii* (E. G. Camus) P. C. Keng & T. P. Yi, J. Bamboo Res. **1** (2): 37. 1982.

巴山木竹 ba shan mu zhu

Arundinaria dumetosa Rendle; *A. fargesii* E. G. Camus; *A. fargesii* E. G. Camus var. *grandifolia* E. G. Camus; *Indocalamus dumetosus* (Rendle) P. C. Keng; *I. fargesii* (E. G. Camus) Nakai; *I. scariosus* McClure.

Species description follows *Arundinaria fargesii* E. G. Camus in FoC (Zhu *et al.*, 2006).

• Mountain forests, pure bamboo forests; (1 100–) 1 700–2 000 (–2 500) m. Gansu, Hubei, Shaanxi, Sichuan.

Specimens examined: Gansu: Wenxian, alt. 970 m, 25 Mar. 1984, H. L. Wang 0295 (NF). Shaanxi: Foping, alt. 1 090 m, 33°35′48.0″ N, 108°0′48.6″ E, 8 Oct. 2008, Y. X. Zhang & D. Q. Zhang 08082, 08083, 08084 (KUN); Nanzheng, 8 Nov. 1979, J. L. Lu 79010 (NAS); Ningshaan, alt. 1 600 m, 24 May 1959, J. Q. Xing 2213 (NAS); Shiquan, alt. 900 m, 8 May 1959, J. Q. Xing 359 (NAS), alt. 1 120 m, 16 May 1959, J. Q. Xing 1098 (NAS); Weinan, Z. D. Zhu & Q. S. Zhao 7708 (N & NF); Zhenba, alt. 1 600–1 700 m, 6 Dec. 1973, S. Y. Qiao 66 (N & NF). Sichuan: Kaixian, 25 Aug. 1975, T. P. Yi 75443 (N); Nanjiang, alt. 1 300–1 800 m, 15 Sep. 1975, T. P. Yi 75542 (N); Tianquan, 3 Aug. 1998, T. P. Yi 98658 (SIFS); Wanyuan, alt. 1 550 m, 7 Sep. 1975, T. P. Yi 75474 (N).

7. *Bashania qiaojiaensis* T. P. Yi & J. Y. Shi, J. Sichuan Forestry Sci. Tech. **28** (4): 1. 2007.

蔓竹 man zhu

Culms 20–50 cm, 0.3–0.5 (0.7) cm in diameter; internodes 1–6 cm, terete, glabrous. Branches solitary. Shoots purple; culm sheaths persistent, glabrous, margins ciliate; auricles absent; oral setae 3–4 mm, purple; ligule 0.5 mm, truncate, purple, glabrous; blade reflexed. Leaves 3; sheath glabrous; auricles small, purple; oral setae 3–7; ligule truncate, 0.2–0.3 mm, glabrous; blade 4–7 cm × 0.5–1 cm, glabrous, secondary veins 2–3 paired. New shoots May.

• Pure bamboo forests on top of mountains; ca. 3 300–4 000 m. Yunnan (Qiaojia, Yaoshan).

Specimens examined: Yunnan: Qiaojia, Yaoshan, Maiping Village, Yaoshan, alt. 3 300–4 000 m, 19 May 2007, T. P. Yi 07015 (holotype, SIFS); same location, alt. 3 378 m, 27°11′16″ N, 103°05′18.9″ E, 22 May 2007, Y. X. Zhang 07046, 07047 (KUN).

8. *Bashania qingchengshanensis* P. C. Keng & T. P. Yi, J. Nanjing Univ. (Nat. Sci. ed.) **1982** (3): 728. 1982.

饱竹子 bao zhu zi

Arundinaria qingchengshanensis (P. C. Keng & T. P. Yi) D. Z. Li, Novon **15**: 600. 2005.

Species description follows *Arundinaria qingchengshanensis* (P. C. Keng & T. P. Yi) D. Z. Li in FoC (Zhu *et al.*, 2006).

• Hardwood forests; 800–1 200 m. Sichuan (Dujiangyan, Qionglai).

Specimens examined: Sichuan: Dujiangyan, Qingchengshan, 25 Jun. 1981, T. P. Yi 80037 (holotype, SIFS); same location, alt. 1 180 m, 30°54.770′ N, 103°33.677′ E, 7 Jul. 2007, Y. X. Zhang & Z. J. Wang 07085 (KUN).

Some morphological characters of this species are similar to *Gelidocalamus* and *Indocalamus*, and the recent molecular phylogeny indicated that this species was related to *Indocalamus longiauritus* (Zhang *et al.*, 2012).

9. *Bashania spanostachya* T. P. Yi, Acta Bot. Yunnan. **11**: 35. 1989.

峨热竹 e re zhu

Arundinaria spanostachya (T. P. Yi) D. Z. Li; *Sarrocalamus spanostachyus* (T. P. Yi) Stapleton.

Species description follows *Arundinaria spanostachya* (T. P. Yi) D. Z. Li in FoC (Zhu *et al.*, 2006).

• Dominating undergrowth of *Abies georgei* and *Rhododendron* forests; 3 200 – 3 900 m. SW Sichuan.

Specimens examined: Sichuan: Huili (Beimushan), 18 May 1987, T. P. Yi 87249 (holotype, SIFS); Mianning, Tuowu, 30 Dec. 1990, T. P. Yi 90186 (SIFS); Xichang, Luojishan, alt. 3 442 m, 27°34.879′ N, 102°23.040′ E, 18 Jul. 2007, Y. X. Zhang & Z. J. Wang 07093 (KUN).

10. ***Bashania yongdeensis*** T. P. Yi & J. Y. Shi, Forestry Res. **20** (6): 864. 2007.

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Culms 30–70 (110) cm, 0.3–0.4 cm in diameter; internodes 5–10 cm, terete, or flattened on one side above branches, purple spotted, glabrous; wall 1.5–2 mm thick; intranode 1–2 mm. Branches 1–5. Shoots purple; culm sheaths persistent, shorter than the internode, glabrous, margins yellow-brown ciliate; auricles absent; oral setae 1–4, 2–3 mm; ligule truncate, 0.5 mm; blade erect, triangle or ovate triangle. Leaves 2–3; sheath glabrous; auricles absent; oral setae 3–5, purple; ligule truncate, ca. 0.5 mm; blade ovate-lanceolate, 3.5–5 cm×0.6–0.8 cm, glabrous, secondary veins 3–4 paired. New shoots May.

• On top of mountains, pure bamboo forests; ca. 3 200 – 3 500 m. Western Yunnan (Yongde, Daxue Shan).

Specimens examined: Yunnan: Yongde, Daxue Shan, alt. 3 200 m, 23 Sep. 2007, T. P. Yi 07022 (holotype, SIFS); same location, alt. 3 375 m, 24°6′57.5″ N, 99°38′48.7″ E, 20 Jul. 2007, Y. X. Zhang & P. F. Ma YXZ0903 (KUN).

Taxa incertae sedis

Arundinaria racemosa Munro, Trans. Linn. Soc. London **26**: 17. 1868, emend.

This species was listed in *Flora of China*, but no specimens have been collected in China. Stapleton *et al.* (2004) cited Yi (1983) as a record of its distribution in China. However, no vouchers were cited by Yi (1983). *Arundinaria racemosa* may be a member of *Bashania*, but this should be confirmed by molecular study and more fieldwork.

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