



## A new species of *Chimonobambusa* (Poaceae, Bambusoideae) from southwest Guizhou, China

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**ABSTRACT:** During field work, a population of *Chimonobambusa* from limestone areas of southwest Guizhou, was discovered, appearing to be distinct from our previously identified collection. Based on morphological data, the new species is similar to *C. szechuanensis* (Rendle) Keng f. and *C. convoluta* Q. H. Dai & X. L. Tao, but differs by having a thinner culm with only 0.7–0.9 cm in diameter, shorter culm leaf blade, glabrous culm leaf and foliage leaf sheaths, absent culm leaf oral setae, wider leaf blade and more secondary veins. Thus, the new species, formally named as *Chimonobambusa basisolida* C.Y. Deng, Y.Y. Zhang & N.H. Xia, is described and illustrated herein. Based on its morphological characteristics, this new species is assigned to *C. sect. Oreocalamus*.

**KEY WORDS:** *Chimonobambusa basisolida*, *Chimonobambusa convoluta*, *Chimonobambusa szechuanensis*, Guizhou.

### INTRODUCTION

The genus *Chimonobambusa* Makino (1914) including more than 40 species and belongs to the subtribe Arundinariinae of the tribe Arundinarieae (Poaceae, Bambusoideae) (Li and Stapleton, 2006; Vorontsova *et al*, 2016; Zhang *et al*, 2020), it was first recognized as a genus by Makino (1914) and was provided by Nakai (1925) with a Latin diagnosis. *Chimonobambusa* is widely distributed in the subtropics area at elevations from 500 to 2600 m, mainly in China, Burma, Laos, Japan and India, of which more than 35 species in China (Xue and Zhang, 1996; Li and Stapleton, 2006; Vorontsova *et al*, 2016; Cao *et al*, 2022; Niu *et al*, 2022; Lai and Yue, 2024; Zhao and Yue, 2024). Species of *Chimonobambusa* are cold-resistant, some of them can be introduced to areas with low temperature in winter. Their shoots are noted as a delicious food and can be used for fresh food or making pickled and dried shoots (Hsueh and Yi, 1980, 1983; Dai 1982; Wang, 1985; Yi 1985, 1989, 1990a,b,c; Xue and Zhang, 1996; Yi *et al*, 2005, 2011). The diagnostic features of this genus include leptomorph rhizomes with culms diffuse or pluricaespitose; internodes usually cylindrical or quadrangular at the median or basal part of the culms; branches usually three per mid-culm node; culm leaf blades very small, erect, subulate; inflorescence iterarctant, a terminal or axillary leafy panicle. Based on morphological characters, such as culms cylindrical or slightly 4-angular, *Chimonobambusa* Makino was divided into two subgenera by Hsueh and Zhang (1988) namely *subg. Chimonobambusa* and *subg. Quadrangulares*. This treatment was adopted in "Flora Reipublicae Popularis Sinicae Tomus 9(1)" (Xue and Zhang, 1996). Subsequently, Ohrnberger (1990) and Wen

(1994) followed this treatment in their study of *Chimonobambusa* and divided it into three sections, namely *sect. Chimonobambusa*, *sect. Oreocalamus* and *sect. Qiongzhueta*, which actually originated from three prior genera, *Chimonobambusa* Makino (1914), *Oreocalamus* Keng (1940) and *Qiongzhueta* Hsueh & Yi (1980).

Although flowering is not frequent in this genus, it shows considerable diversity in vegetative morphology and many new species or new combination continue to be described (Yi *et al*, 2005; Xia *et al*, 2009; Yi *et al*, 2011; Niu *et al*, 2022) from south China. During floristic surveys of bamboo in 22 October 2022, we collected some specimens of *Chimonobambusa* from southwest Guizhou province, at that time, it was in middle stage of shooting. After scrutiny of data available (Xue and Zhang, 1996; Li *et al*, 2006; Yi *et al*, 2008; Vorontsova *et al*, 2016) and morphological comparison, we found that one specimen could not be assigned to any described species of the genus *Chimonobambusa*. Hence, it is here described and illustrated as a new species.

### MATERIAL AND METHODS

Field observations have been conducted in growing and shooting phases at the type locality more than once. Measurements and assessments of morphological characters of the new species were based on living plants in the wild and specimens gathered from the type locality. Some detailed characters, such as culm buds and foliage leaf oral setae were observed with a stereomicroscope (VMS300A). All specimens were deposited at the herbarium of South China Botanical Garden, Chinese Academy of Sciences (IBSC).

**Table 1.** Morphological comparison of *Chimonobambusa basisolida* and related species.

Characters	<i>C. basisolida</i>	<i>C. szechuanensis</i>	<i>C. convoluta</i>
Culm diameter	0.7–0.9 cm	1.5–2 cm	1–2 cm
Internodes	14–20 cm long, glabrous	18–22 cm long, glabrous	12–16 cm long, initiate with pubescence
Culm leaf sheaths	glabrous	glabrous	with brown setae
Culm leaf oral setae	absent	unknown	absent or 1–2
Culm leaf ligules	arcuate or truncate, ca. 0.5 mm long, entire	arcuate or truncate, 0.5–1 mm long	<1 mm long, fissured
Culm leaf blade	subulate, ca. 0.5 mm tall	subulate, 3–5 mm tall	lanceolate, 1.5–2 cm tall
Foliage leaf sheaths	glabrous	margins with brown pubescence	abaxially and margins with brown pubescence
Leaf number of the ultimate branch	3–5	1–3	3–4
Leaf blades	8–23 × 1.5–2.2 (–2.8) cm, glabrous	18–20 × 1.2–1.5 cm	16–20 × 1–1.2 cm, adaxially with short white pubescence
Secondary veins	6–8 pairs	4–6 pairs	4 or 5 pairs

## TAXONOMIC TREATMENT

*Chimonobambusa basisolida* C.Y. Deng, Y.Y. Zhang & N.H. Xia, *sp. nov.* **Fig. 1**

**Type:** CHINA. Guizhou, Xingyi county, Moshidi village, el. 1282 m, 104°54'42"E, 24°59'53"N, 22 October 2022, C.Y. Deng, Y.Y. Zhang et al 2022102201 (holotype: IBSC! ; isotype: IBSC!).

**Diagnosis:** Similar to *Chimonobambusa szechuanensis* (Rendle) Keng f. and *Chimonobambusa convoluta* Q. H. Dai & X. L. Tao, but differs by having a thinner culm with only 0.7–0.9 cm in diameter, shorter culm leaf blade (ca. 0.5 mm), glabrous foliage leaf sheaths, wider leaf blade (up to 2.8 cm) and much more secondary veins.

**Description:** Small sized bamboo. **Rhizomes** leptomorph, internodes cylindrical, 1.2–3 cm long, 4–5 mm in diameter, hollow, nearly solid, glabrous, walls ca. 1.5–2 mm thick; nodes slightly prominent, 1–3 roots at each node, glabrous; rhizome buds broad-ovate to subrounded, 2–3 × 2–4 mm, glabrous. **Culms** pluricaespitose, erect, 2–3.5 m tall and 0.7–0.9 cm in diameter; internodes terete or base slightly 4–angled, with two longitudinal ridges and three grooves above branching points, 14–20 cm long, glabrous, mid-culm internodes hollow, walls 2.5–3 mm thick, basal internodes solid; basal nodes with 7–9 root thorns; supranodal ridges prominent at branched nodes, sheath scars prominent, corky, with brown pubescent, intranodal regions ca. 2 mm long, glabrous. **Primary buds** solitary, ovate, yellowish green, 6–8 × 4–5 mm, margins ciliolate. **Mid-culm branch** complement with 3 branches, erect, subequal, 25–35 cm long, inclined at an angle of 30° with the culm, internodes 0.5–2 cm long, hollow, glabrous, supranodal ridges prominent; foliage leaf sheaths thinly leathery, shorter than internodes, abaxially glabrous. **Culm leaf sheaths** long triangular, caducous, thinly leathery, 7.5–9.5 cm, ca. 1/2 as long as internodes, initially brown at upper part, latter becoming pale brown, abaxially glabrous, longitudinal ribs conspicuous, upper parts of margins sparsely ciliate, deciduous when old; auricles and oral setae absent; ligules arcuate or truncate,

ca. 0.5 mm long, entire; culm leaf blades erect, subulate, ca. 0.5 mm tall, involute, both sides glabrous. **Foliage leaves** 3–5 per ultimate branch; foliage leaf sheaths 5–7.5 cm long, initially purplish red, later becoming green, abaxially glabrous, margins glabrous, longitudinal ribs conspicuous; auricles absent; oral setae 3 or 4, erect, scabrid, 3–4 mm long, deciduous; ligule truncate, ca. 0.5 mm long, entire; pseudo-petioles 2–4 mm long, glabrous; blades lanceolate, papery, 8–23 × 1.5–2.2 (–2.8) cm, base widely cuneate, apex acute, glabrous, margins serrulate, longitudinal secondary veins 6–8 pairs, transverse veins inconspicuous. Inflorescence unknown.

**Phenology:** New shoots producing during September to October.

**Distribution and habitat:** This new species is only found in Xingyi County, southwest Guizhou, China. It occurs in the limestone areas and grows at an altitude of 1282–1340 m, together with other taxa as *Castanea mollissima* Blume, *Platycarya strobilacea* Sieb. et Zucc., *Quercus glauca* Thunb., *Phyllanthodendron anthopotamicum* (Hand-Mazz) Croiz etc.

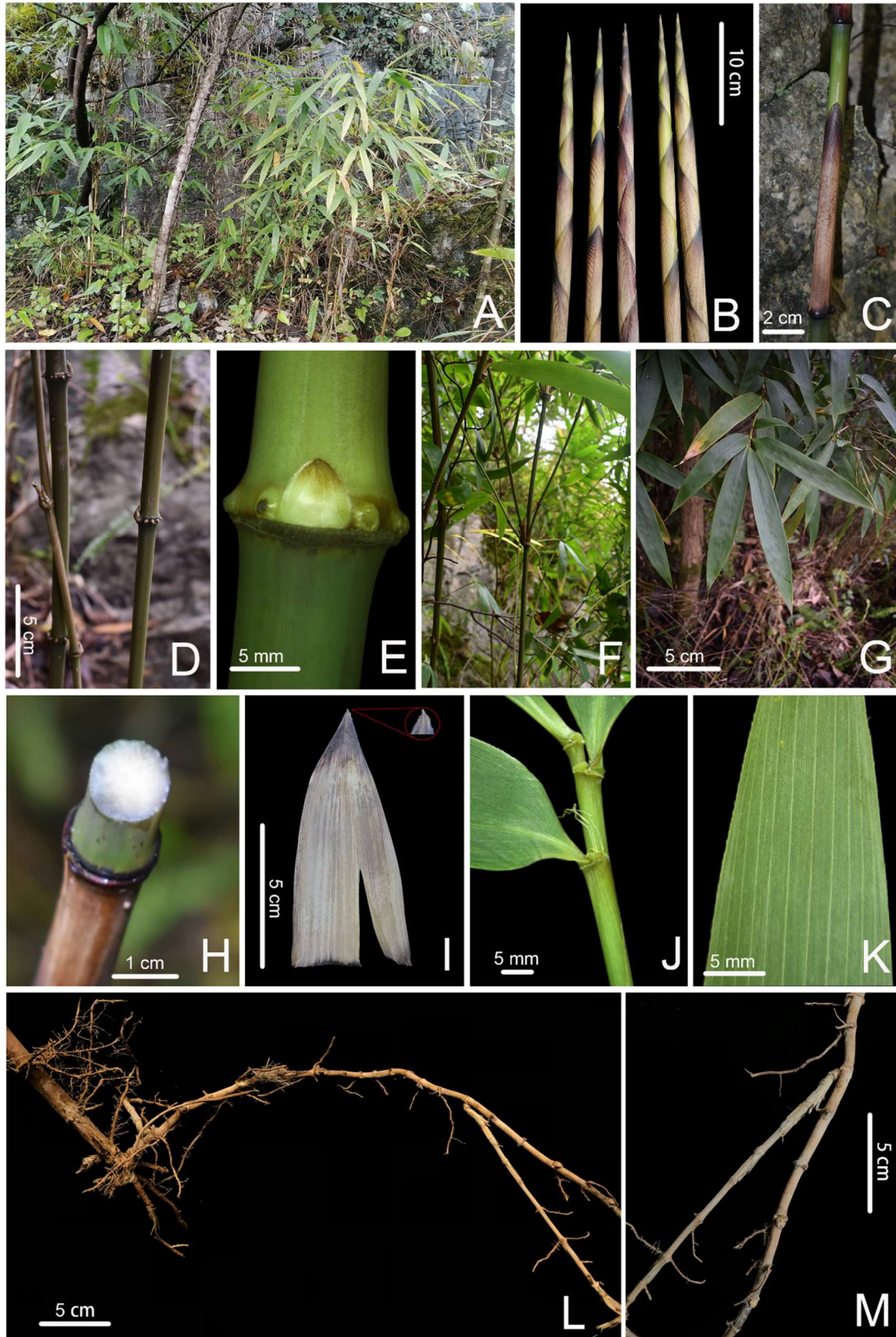
**Etymology:** The specific epithet refers to basal internodes solid. The Chinese name is given as "兴义方竹"; XīngYì Fāng Zhú (Chinese Pin-Yin transliteration)

**Vernacular names:** Xiǎo Cì Zhú (Chinese pronunciation), 小刺竹 (Chinese name).

**Notes:** *Chimonobambusa basisolida* obviously belongs to *Chimonobambusa* sect. *Oreocalamus* which is characterized by usually internodes terete or base slightly 4–angled, basal nodes with 7–9 root thorns, 3 branch at mid-culm nodes, culm leaf blades erect, subulate. It is similar to *Chimonobambusa szechuanensis* (Rendle) Keng f. and *Chimonobambusa convoluta* Q. H. Dai & X. L. Tao (Rendle 1916; Dai 1982). More detailed morphological comparison between *C. basisolida* and another similar species are presented in Table 1.

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**Fig.1.** Photographs of *Chimonobambusa basisolida* C.Y. Deng, Y.Y. Zhang & N.H. Xia. **A.** Habitat; **B.** New shoots; **C.** Young Culm; **D.** Culm; **E.** Buds; **F.** Branches; **G.** Foliage leaves; **H.** Culm, showing the solid base; **I.** Culm leaf; **J.** Foliage leaf sheath; **K.** Abaxial surface of foliage leaf; **L.** Culm and Rhizome; **M.** Rhizome. Photographs by You-Yuan Zhang.



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