



Occurrence of bamboo genus *Gigantochloa* in India and a new species

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ABSTRACT

Bamboo genus *Gigantochloa* was created by Kurz in 1864. Later, Munro in 1868 validly published it. Total 65 species under the genus are known from the world and 13 species are reported from India, out of which 5 species are found in India. Rest all are erroneously reported. A species new to the science is described here.

Keywords: Bamboo, *Gigantochloa*, New species, India.

INTRODUCTION

Generic name *Gigantochloa* was created by Kurz (1864) naming *Gigantochloa attar*, *G. maxima*, *G. apus* and *G. nigrociliata*, which were earlier described under *Bambusa*. Kurz has not provided any reason of his newly created taxon. He merely transferred above mentioned four species into *Gigantochloa*. Munro (1868) separated genus *Gigantochloa* from *Bambusa* in having filaments which are joined together to form a firm tube. This indicates Munro (1868) validly published genus *Gigantochloa* Kurz ex Munro. Gamble (1896) in his monumental work on Bamboos mentioned nine species of *Gigantochloa*, eight of which were known from Myanmar and Malaya, and one was found in Chittagong (Bangladesh) and Assam in India.

Holttum (1956) designated *Gigantochloa attar* as the lectotype species. He described nine species of *Gigantochloa* growing wild and cultivated in the Malay Peninsula. Widjaja (1987) in her excellent publication on the genus *Gigantochloa* from Malaysia recognized eighteen species. In recent publications, sixty three species reported from India, Bangladesh, Myanmar, China, Indonesia, Vietnam, Cambodia, Thailand and New Guinea (Maria *et al.* 2017); out of which eleven species are known from India (Kumari & Singh, 2020). Recently two more species *viz.* *Gigantochloa gangasinghiana* (Naithani *et al.* 2021) and *G. gupteana* (Naithani *et al.* 2023) were described new to the science. Thus today total number of species increased to sixty five.

The distribution of genus *Gigantochloa* in Indian region is of special interest, considering the importance of this genus for bamboo products particularly in Indonesia and Malaysia. In India, out of 13 species, there are three species viz. *Gigantochloa albociliata*, *G. andamanica* and *Gigantochloa bastareana*, have restricted species distribution in Chhattisgarh, India (Naithani & Pal 2006 and 2010).

Barooah & Borthakur (2003) and Sharma & Borthakur (2018) mentioned the occurrence of *Gigantochloa macrostachya* Kurz, *G. nigrociliata* (Buse) Kurz and *G. rostrata* Wong from North-east India. It seems they have overlooked the publication of Naithani (1999) in which occurrence has not been mentioned from India. Thus probably Kumar & Singh (2020) followed Naithani (1999) and treated their occurrence doubtful from India. According to Naithani (1999) *Gigantochloa andamanica* and *Gigantochloa nigrociliata* both are distinct species; *G. nigrociliata* distributed in Myanmar eastwards, while *G. andamanica* is endemic to India. *G. atroviolacea* Widjaja, black bamboo is introduced in Forest Research Institute, Dehradun.

In North east India, *Bambusa tulda* was erroneously identified as *Gigantochloa parviflora* (Brandis & Gamble) Nggen (= *Oxytenanthera parvifolia* Brandis ex Gamble), Naithani (2007 and 2008). A critical study of the material of *Gigantochloa takserah* collected from the type locality in Meghalaya, revealed it to be *Bambusa nutans* Wall. ex Munro (Naithani, 2020).

Kumari & Singh (2020) mentioned the occurrence of *Gigantochloa apus* (Scult. & Sult) Kurz, *G. atroviolacea* Widjaja and *G. pseudoarundinacea* (Steud) Widjaja from North east India. A thorough botanical explorations and scrutiny of literature viz. Bist & Naithani, (2010); Mitra & Mukherjee (2007); Naithani, (2011 & 2020); Naithani et al. (2010); Sharma & Borthakur (2018); Taj et al. (2011); Sharma & Borthakur (2007); Tamang et al. (2013), reveal their absence from present India. Many authors have mentioned the occurrence *Gigantochloa albociliata* from West Bengal and Northeast India. The correct distributions have now been mentioned in the article viz. Naithani & Pal (2007) and Naithani et al. (2021^b).

In recent past, species growing in Forest Research Institute, Dehra Dun, (FRI) Uttarakhand were sporadically flowered viz. *Bambusa bambos* (Naithani & Semwal 2017; Chandra et al. 2022); *Gigantochloa*

albociliata (Naithani et al. 2021). Rest *Cephalostachyum pergracile*, *Bambusa polymorpha*, *Dendrocalamus membranaceus*, *Dendrocalamus longispathus* were observed in sporadic flowering.

During identification work of bamboo species was conducted in FRI. Author observed and collected one flowering specimen. A critical study revealed that it belongs to the genus *Gigantochloa* and hitherto undescribed. Which is now described as *Gigantochloa dehraduneana*, new to the science.

***Gigantochloa dehraduneana* Naithani sp. nov.**

Affinis *Gigantochloa apus* (Schult. & Scult.) Kurz but differs in having dark brown hairs in older culm sheaths; dark brown sheaths present only at the base of blade at lower side. Group of spikelets covered with prominent triangular bracts.

A caespitose bamboo with distance of culms 5-10 m; nodes raised; buds present; branches few, about 2-6 in number, 1cm in girth, swollen at base; internodes 20-40 cm long, 15-30 cm in girth, deep green. Culm sheaths brown, 30-45 cm including blade, 24-34 cm broad covered with many dark brown hairs near the base of blade, scattered in other parts of sheath, broader on either side of blade by narrow thick auricles, raised upwards; auricles about 1.5-3 cm in lateral extent, about 2 mm high, with prominent bristles on the margin; imperfect blade 12-18 cm long, ovate triangular, acuminate at apex, glabrous on upper surface with brown hair at the joint of sheath on lower surface; ligule 4 mm high shining, toothed. Leaves 12-25 x 1-3.5 cm, lanceolate mostly rounded or sometimes slightly oblique at the base, apex acuminate, glabrous on both the surfaces, entire on the margins; main vein prominent; secondary veins 8-9 each side of main vein, intermediate 5-6; petiole about 9 mm long; sheath glabrous up to 7cm long, including in a rounded callus; ligule about 1mm long. Inflorescence of 18 - 20 cm long branches. Spikelets group at each nodes of the branch; each group spatheate with 5 -15 spikelets in a cluster. Spathe 2.5 - 3 cm long, glabrous, multinerved. Spikelets sometime bracteates at the base, bracts 3 mm long; midrib prominent thick, minutely hairy, lanceolate, 5 -24 mm long, 2 -2.5 mm wide, curved, floret 3; lower two perfect fertile, upper one rudimentary. Glumes 4, cartilaginous, mucronate; mucro hard, cartilaginous, margins thickly hyaline with brownish cilia on the upper half, cilia 0.4 - 0.6 mm long, nerves prominent.

Lower glume 3 mm long, 11 nerved, ovate, acute-mucronate at tip, 2nd glume ovate, 4.5 mm long, 3rd glume ovate, 6 mm long, 4th glume ovate – lanceolate 8.5 mm long. *Lowest lemma* 15 -21 mm long, 15 nerved, acute, margins ciliate in upper half; cilia brown, 0.5 mm long; nerves prominent. *Palea* 8 mm long, 2 nerved, margins folded, keels ciliate. *Anthers* 6, 3 mm long, brown, with hairy tip; filaments surrounded by a tube-like structure. *Ovary* 0.3 - 1 mm long, oblong, stigma plumose.

Type-Arboretum Compartment No.3 (Bambusetum), Forest Research institute, Dehradun, Uttarakhand, 25/2/2022, H. B. Naithani and Anup Chandra, Sr.II No. 5869, Acc.No.173170 (Holotype DD). H.B.Naithani and Anup Chandra, Sr. II No. 5869, Acc.No.173171 (Isotype DD).

Etymology- The Taxon is named on the Capital of Uttarakhand i.e. Dehradun which is a famous center of Forestry Research and Education.

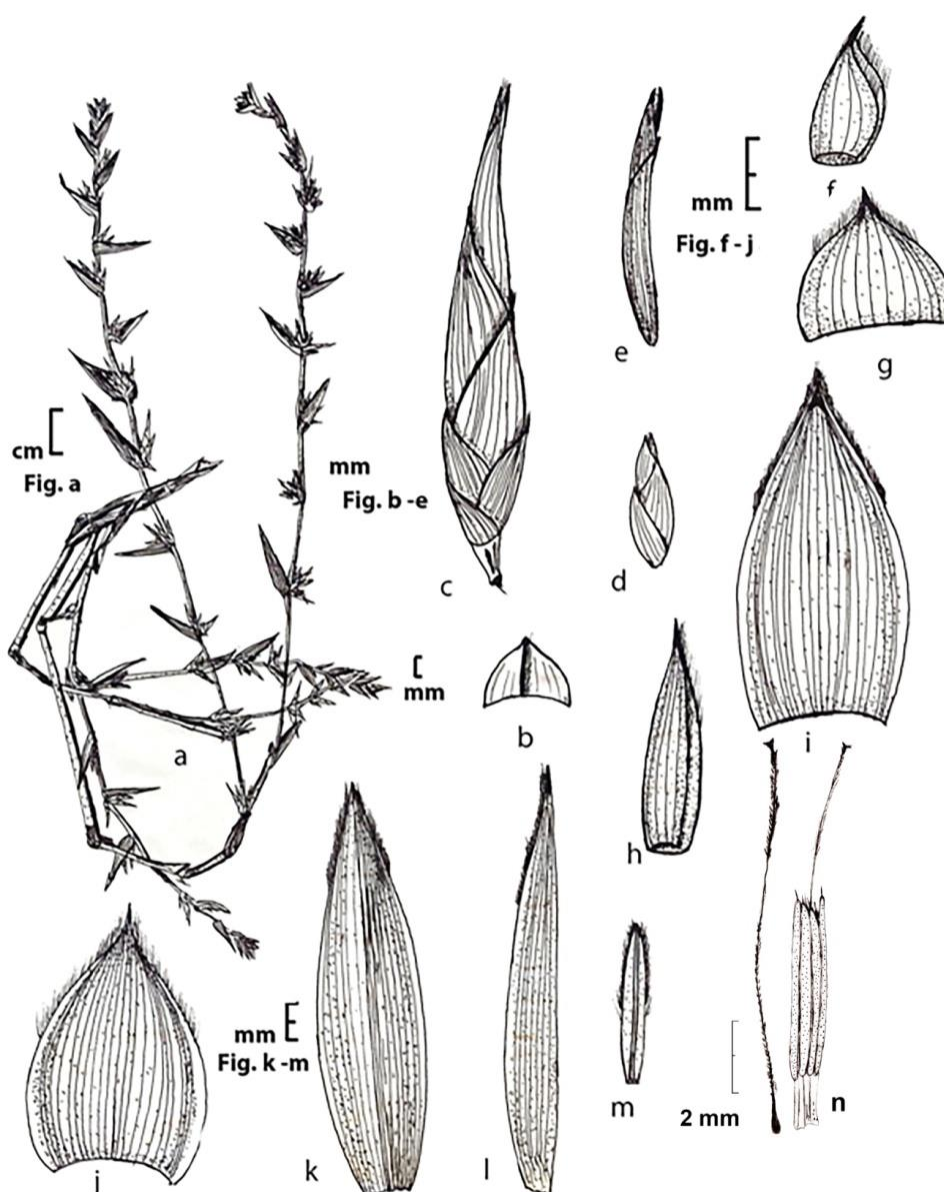


Plate 1. Fig. a-n: a.) A part of plant with inflorescence, b.) Spikelet bract, c.- d.) Spikelets of various length in the same cluster, e.) Floret (glumes removed), f. - g.) Lowest glume, h.) Second glume, i.) Third glume, j.) Fourth glume, k. – l.) Lowest lemma m.) Lowest Palea, n.) Flower with Ovary, anthers and a tube below anthers.



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