



## A new paradigm of the *en masse* flowering in thorny bamboo

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**Abstract:** The present paper highlights the records and occurrences of flowering in *Bambusa arundinacea*. The flowering in this species is generally gregarious and was seen earlier during 1960s and recently in March 2016 in North West Uttar Pradesh.

**Key words:** Flowering; *Bambusa arundinacea*; Uttar Pradesh

### Introduction

The word bamboo is believed to have been derived either from the Indian word “Mambu” or from Malayan word *Bambu*. Bamboo is called Green Gold, Poor Man’s timber, Friends of people, or the cradle to coffin timber. Bamboos are grasses belonging to the family Poaceae. Several species like rice, wheat, oats, barley and maize belong to this family. Bamboos are perennial grasses under the sub-family *bambusoideae*. Bamboo species vary in height from 1 ft to over 100 ft tall and have stem diameters ranging from 1 mm to 30 cm. Certain species can grow up to 1 ft/day. It is estimated that about 80% of the bamboo growing area of the world is confined to South and South-East Asia, from India through Myanmar, China, Malaya, Indonesia, Japan and Korea. Authentically there are 49 genera and about 840 species of bamboos reported in the world (Clayton, *et al.*, 2012). India is considered as one of the largest reserves of bamboos in the world with  $\pm 113$  species under 20 genera. During recent field visits in March 2016 in the North-West Uttar Pradesh Saharanpur and adjoining areas, I have observed a new paradigm of the *en masse* flowering in *Bambusa*

*arundinacea*. The identity of this species was confirmed with the help of legal deeds (Clayton, *et al.*, 2012; Brandis, 1990). This species is found throughout the moist parts of India, up to an altitude of 1,250 m. It is also cultivated in the plains of North-West India, and on the hills of Andhra Pradesh, Tamil Nadu and Karnataka. In the sacred grove (Baba Narayan Das Jood Mandir) of village Jaroda Panda of district Saharanpur Uttar Pradesh, this species is continuously flourishing since hundreds of years back (Image-1).

### Records of Flowering in *Bambusa arundinacea*

India has a large number of gregariously flowering bamboos (Gadgil and Prasad, 1984). Spiny bamboo is most commonly cultivated bamboo in India. A review of literature reveals that several workers did comprehensive work on flowering in bamboo (John and Nadgauda, 2002; Nath, *et al.*, 2014; Shukla, 2012; Pillai, 1901; Adhikari, 1928; Rao, 1988; Mohan, 1992) and reported flowering in *Bambusa arundinacea* in different parts of India (Table 1).

Table 1:

Locality	Flowering date (s)	References
Malabar	1804	Bourdillon, 1895
South Kanara (Dakshina Kannada)	1836	Brandis, 1899
Wynaad & Corg (Kerala)	1866	Kurz, 1876
Narbudda river (Central India)	1839, 1870 and 1878	Brandis, 1899
Dehradun (Uttaranchal)	1836, 1881 & 1926	Blatter and Parker, 1929; Blatter, 1930
Upper Weinganga Valley, Balaghat District (MP)	1818 and 1865-1870	Nicholls, 1885
Dehradun (Uttaranchal)	1832 and 1882	Nicholls, 1885
Chandka Range, Puri Forest Division Orissa	1929 and 1969	Das, 1969 and Mitra and Nayak, 1972
Peninsular India	1868-72, 1912-16 and 1958-62	Gadgil and Prasad, 1984
Agroforestry System of Kanyakumari (Tamilnadu)	2013	Jeeva and Sheeja, 2013

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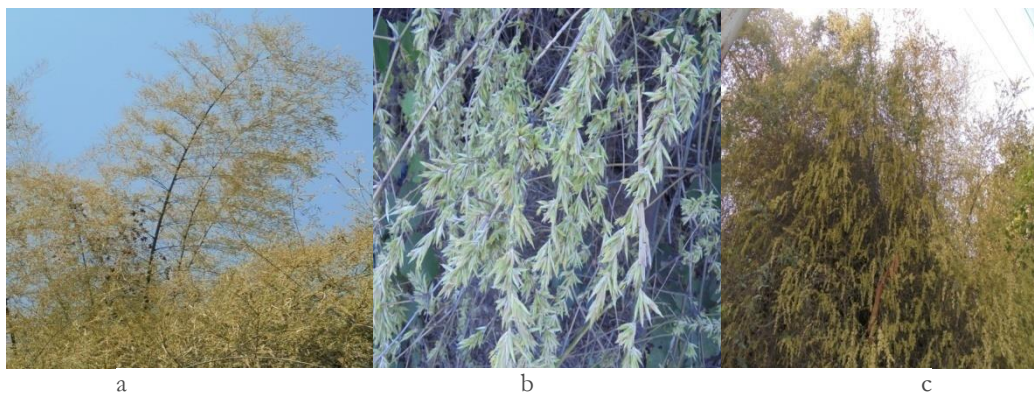
***Bambusa arundinacea***

*Bambusa arundinacea* (Retz.) Willd. (*Bambusa spinosa* Roxb. ex Buch. -Ham.) Local Name: The spiny or thorny bamboo. Flowering in bamboo is a very rare and natural botanical enigma. I have recorded *en masse* flowering in *Bambusa arundinacea* during March 2016, on several sites in North West Uttar Pradesh including Saharanpur forest division. Some important sites include hundreds of clumps at a 1100 years old sacred grove (Baba Narayan Das Jood Mandir, Image-1) located in Jaroda Panda village of Saharanpur district (at 29.6501 N Latitude and 77.506 E Longitude.), on the boundary of Remount training school and depot Dehradun road Saharanpur (at 29° 58' N Latitude and 77° 33' E Longitude, Image-2), and on Behat road and in Gandhi Park, Meerut. The bamboo clumps of Saharanpur district flowered *en masse* and gregariously. The above said grove contains rich genetic diversity of *Bambusa arundinacea*. Most bamboos flower once every 60 to 130 years. *Bambusa arundinacea* flowers in 50-60 years. According to villagers earlier gregarious flowering in the said sacred grove was seen during 1960s. Thus, it gives an idea about its flowering cycle. Bamboo flowering is a sign of severe drought and famine. After flowering and fruiting, the bamboo 'clumps' are sure to die. But rodents that feast on bamboo seeds multiply their numbers and start attacking agricultural crops once the bamboo plant perishes after flowering. Thus, it was truly said by Dai Kai Zhi (467 AD) that when the roots and culms are about to rot, blossoms and seeds then appear. They are certain to die when sixty. Quotation about bamboo flowering can be seen in the Indian epic *Mahabharata*, written 5000 years ago. In this epic Draupadi, the Pandavas wife cursed the felonious King Jayadrath after her

abduction that he would be destroyed in the same way as bamboo perishes after flowering and fruiting. There is no scientific method yet developed for predicting flowering but some symptoms that develop during flowering in bamboo are (1) Branches tend to be stunted and bushy (2) General production of new shoots stops (3) Freshness and vigor disappears giving sickly look and (4) In some cases yellow/white vertical streaks develop on the stem. Flowering in bamboo is not controlled by environmental factors but it is controlled by some genetic factors (Panwar, 2008). Since synchronous flowering was seen from Meerut to Saharanpur region of Western Uttar Pradesh, so it appears that not only the photo-inductive cycles but also some secretion (volatile) might cause gregarious flowering in all the clumps together. In bamboo flowers are wind-pollinated and seeds are sets in large quantity. The seeds are rich in protein and regenerate to repeat the life cycle. Local people in the area called this flowering in bamboo as '*chawal aa gaye hai*'. A godly '*kebir*' prepared from this chawal was served to the local people in the above said grove.



**Image 1:** Tract of Bamboo in Sacred Grove



**Image 2:** Flowering in Thorny Bamboo in North West Uttar Pradesh

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