

## Bamboo in the socio-cultural context of the Meitei ethnic group from the Indo-Burma hotspot region of India

Nongthombam Dayapati Devi,  
Lamyambi Naorem, Heliza Khaidem,  
Yumnam Bidyaluxmi Devi and  
Maibam Dhanaraj Meitei\*

Department of Forestry and Environmental Science,  
Manipur University, Canchipur 795 003, India

The present study documents the socio-cultural association of bamboo products with the Meitei ethnic group in India. From birth to death, the Meiteis have incorporated bamboo products in every socio-cultural context, where the plant is used in the events of ipaan thaba (birth rituals), luhongba (marriage rituals) and potloiba (cremation of departed souls). Further, the techniques used by locals of Andro, Bishnupur and Kakching to process and preserve bamboo shoots in the form of soibum and soidon were also documented. Such traditional knowledge is orally transmitted, it needs proper documentation and preservation.

**Keywords:** Bamboo, documentation and preservation, ethnic groups, socio-cultural association, traditional knowledge.

MEITEI is the largest ethnic community of Manipur, North East India, with a population of around 1,251,307 individuals<sup>1</sup>. The ethnic Meiteis are Mongoloids and speak Meiteilon/Manipuri, which belongs to the Tibeto-Burman language family. Traditionally, they are agriculturists living with sustainable use of forest, wetland and plant resources, such as wild edible plants, timber, fruits, medicinal herbs, flowers and orchids, depending on them directly or indirectly for their livelihood. In the Imphal valley, it is a part of the Meitei culture for most households to grow bamboo (wa in meiteilon) in homesteads. Bamboo groves, locally known as 'wapal', are grown near the surroundings of every household, on roadsides, river banks, sacred groves, etc. (Figure 1). Today, bamboo products are a noteworthy part of the Meitei culture and are being utilized in a number of rituals (Figure 2). Among the 136 bamboo species reported from India, 51 are found in Manipur<sup>2</sup>. The locals utilize several edible bamboo species to prepare 'soibum' and 'soidon' from the fermentation of new shoots. However, such practice and knowledge are limited to only a few restricted and isolated localities in Manipur and are slowly disappearing from society because of socio-cultural changes. Therefore, the present study was undertaken to document and preserve the orally-transmitted knowledge of bamboo products in the Meitei society.



Figure 1 a, b. Wapal from Langmeidong region of Manipur, North East India.



Figure 2. Common handcrafted bamboo items sold in keithels of Manipur (along Mayai Lambi road near Top Shiphai).

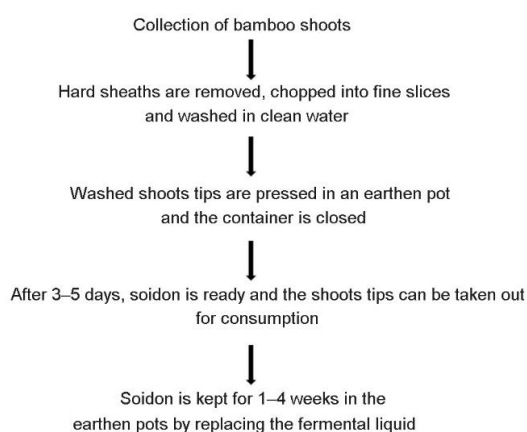
Table 1. Demographic profile of local informants,  $N = 50$

Characteristics	Number
Gender	
Male	28
Female	22
Religion	
Sanamahism	39
Hinduism	11
Ethnicity	
Meitei	50
Education level	
None	8
Primary	27
Secondary	13
Graduate	2
Age (yrs)	
40–50	6
50–60	9
60–70	17
> 70	18

\*For correspondence. (e-mail: maibam.meitei@yahoo.in)



**Figure 3.** Process documentation of (a) Andro, (b) Kakching and (c) Bishnupur soibum.



**Figure 4.** Process documentation of Bishnupur soidon.

Knowledge of bamboo products used in Meitei cultural rituals was gathered using semi-structured interviews of locals from nine villages of Imphal valley, viz. Andro, Kakching, Bishnupur, Kakching Khunou, Langmeidong, Thoubal, Kyamgei, Arapti and Langthabal during 2019–

21 (Table 1). Moreover, the processing and preservation mechanisms of bamboo shoots for soibum and soidon production adopted by locals of Andro, Kakching and Bishnupur villages, the main soibum-producing areas in the Imphal valley, were documented. In total, 15 soibum- and soidon-processing households were interviewed. Further, analysis of moisture, ash content, sodium, potassium, anthocyanin, phosphorus, manganese and iron content of soibum and soidon was done<sup>3–5</sup>.

Interviews with local Maiba, Maibi, Arangfam, Lai Senaba and Brahmin pandits of the villages revealed that bamboo products have many applications associated with the socio-cultural norms of the Meitei ethnic group (Supplementary Table 1). The Meiteis have used bamboo as construction material, fencing, handicrafts, food, source of energy, tools for day-to-day use and in agriculture, transport, musical instruments, sports equipment, fodder and various cultural practices. In addition, bamboo products are used in different rituals such as Lamtagi Thangja, Yaosang, Cheiraoba, Heikru-Hidongba, Taarpan katpa, Emoinu eratpa, Mera Wayungba and Lai Haraoba.

**Table 2.** Phytochemical screening of soibum and soidon consumed by Meitei community

Plants	Phytochemicals											
	CA	PR	PH	TN	FL	SP	ST	TR	GC	AK	AQ	CM
Andro soibum	+	+	+	+	+	+	-	+	-	-	-	+
Kakching soibum	+	+	+	+	+	+	+	+	-	-	-	+
Bishnupur soibum	+	+	+	+	+	+	-	+	-	-	-	+
Bishnupur soidon	+	+	+	+	+	+	+	+	-	-	-	+

CA, Carbohydrates; PR, Proteins; PH, Phenols; TN, Tannins; FL, Flavonoids; SP, Saponins; ST, Steroids; TR, Terpenoids; GC, Glycosides; AK, Alkaloids; AQ, Anthraquinones; CM, Coumarins.

**Table 3.** Nutraceutical properties of soibum and soidon consumed by Meitei community

Plants	Moisture (%)	Ash content (%)	Anthocyanin (mg/g)	P (ppm)	Na (ppm)	K (ppm)	Mn (ppm)	Fe (ppm)
Andro soibum	94.09	26	0.243	0.07	22.1	350.5	2.06	7.99
Kakching soibum	91.22	14	0.112	2.29	11.7	277.8	3.05	7.88
Bishnupur soibum	91.22	14	0.185	0.67	47.3	332.5	4.97	5.97
Bishnupur soidon	91.99	11	0.163	11.46	14.6	431.2	1.62	9.56

P, Phosphorus; Na, Sodium; K, Potassium; Mn, Manganese; Fe, Iron.

For the preparation of fermented soibum and soidon products, young shoots were collected from wild or wupal, or purchased from market during monsoon season, i.e. May to September. The fermentation process is mainly carried out by the elders of households. The tradition has been perfected through practice and is transmitted orally to the young generation by elders. Today, soibum- and soidon-processing households are becoming limited in number. Figures 3 and 4 show the different mechanisms of soibum and soidon processing by the locals of Andro, Kakching and Bishnupur villages. From the documentation, it can be observed that the fermentation process adopted by the villages are nearly identical. Later, the fermented products are sold at a decent price in the local keithel or bazaar of these villages. Next, the products are transported to major keithels of Manipur and ultimately, the products find their way to the local chakhum or kitchen. The shelf life of the products ranges from 1 to 2 years, depending on care taken during processing. Further, the phytochemical analysis of soibum and soidon showed the presence of various constituents which are responsible for their medicinal or nutraceutical properties (Table 2). The study showed the presence of flavonoids, tannins, phenols, terpenoids, saponins, coumarins, anthocyanin and steroids. Elemental composition analysis of the fermented bamboo shoots showed high potassium content ranging from 277.8 to 431.2 ppm (Table 3). The results show that they serve as a good source of potassium. Diets with a good source of potassium and being low in sodium help reduce the risk of high blood pressure and stroke<sup>6</sup>. Manganese and iron content ranged from 1.62 to 4.97 ppm and 5.97 to 7.99 ppm respectively. Therefore, analysis of the medicinal or nutraceutical properties supports the fact that the fermented bamboo shoots serve as a good reservoir of nutrients for the Meitei ethnic group.

At present, the oral tradition is scattered and known only by a few individuals. Moreover, cultural heritage represents

a slowly disappearing asset. Thus, such knowledge needs in-depth documentation for its preservation and protection.

*Conflict of interest:* The authors declare that there is no conflict of interest.

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