

Study On Fermented Food Products of Some Ethnic Tribes and Communities of Northeast India

Abstract

Fermentation of food material for their preservation and taste enhancement is a common practice amongst the ethnic tribes and communities of Northeast India. The fermented food products occupy a special position in the socio-cultural practices of these ethnic groups. The present paper aims at studying the fermented food products prepared by 6 different tribes and communities of Northeast India and document the indigenous knowledge associated with these ethnic groups. 16 unique fermented food products were documented of which 5 different alcoholic beverages, 4 types of fermented fish items and 3 types of fermented bamboo shoot products have been recorded. Other fermented food products are fermented Areca nut, fermented mustard green and fermented mustard seeds.

Keywords: Fermented Food, Ethnic Tribes and Communities, Northeast India.



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Introduction

Fermentation is the slow decomposition of organic matter due to the activity of microorganisms under anaerobic or semi-anaerobic conditions (Chaudhary et al., 2018). It usually involves the process which includes mass culturing of microorganisms for the formation of a product. The process of fermentation has been used by ethnic tribes since time immemorial. Perhaps, it is the oldest method known to mankind, used for the production and preservation of food (Das & Deka, 2012). In addition to increased shelf life, fermentation enhances the flavour, digestibility and nutritional value of food products (Jeyaram et al., 2009). Fermented alcoholic beverages are also of great traditional importance and occupy a special place in socio-cultural activities. These are frequently consumed by different tribes and communities of Northeast India due to their medicinal and therapeutic properties (Teron, 2006; Bhatt et al., 2017). The traditional food habit of the tribal population is determined by festivals and rituals which form a mosaic of ethnic cultural combination. Fermented food has always been an integral part of ethnic food habit (Tiwari et al., 2006). Currently, it is consumed locally within the respective ethnic groups and has not been able to gain much popularity among the masses. Native microorganisms should be preserved as they have vast biological importance and potential genetic resources associated with ethnic fermented food (Chakravarty et al., 2014). The present paper aims at studying the fermented food products prepared by 6 different tribes and communities of Northeast India and document the indigenous knowledge associated with these ethnic groups and their respective processes of preparation.

Aim of the Study

The main aim of the study is to bring to the forefront the invaluable traditional knowledge which the indigenous people possess. The indigenous tribes and communities have a reservoir of information that has been passed down from generation to generation. Fermentation of food products is one of such practices. Each indigenous group have their own unique method of fermentation which needs to be documented and preserved before it is lost in the race of modernization. Therefore, this study is conducted to record the fermented food products of 6 different tribes and communities of Northeast India and their processes of preparation.

Methodology

The study was carried out for a period of six months from Oct'2018 to Mar'2019. It encompassed two states including four districts and six ethnic communities. The ethnic tribes and communities included under the study were: Nocte tribe from Sanliam village, Tirap (Arunachal Pradesh); Karbi tribe from Kakochang, Karbi Anglong (Assam); Mising Tribe from Balijan, Bokakhat (Assam); Deori tribe from Deorigaon, Dibrugarh (Assam), Nepali community and Assamese community from various locations in Dibrugarh (Assam). Extensive field trips were made to the various locations during the study to document the traditional knowledge system associated with the preparation of fermented food products. Local villagers, especially the elders and women, were interviewed for collection of information. Interview was conducted using structured and unstructured

questionnaire. The processes of fermentation of different products were photographed at the time of preparation.

Result and Discussion

The present study resulted in the documentation of 16 different types of fermented food products prepared by 6 different ethnic groups of North east India. The most popular fermented food product is Alcoholic Beverage. 5 different types of alcoholic beverages prepared by 5 different tribes and communities have been documented. It is followed by Fermented fish and Fermented bamboo shoot. 4 types of fermented fish and 3 types of fermented bamboo shoot products have been recorded. Other products are Fermented *Areca* nut, Fermented mustard green and Fermented mustard seeds.

Results are depicted in tabular form in Table I and Table II.

Table I: Various Fermented Food Products of Different Tribes and Communities And Their Uses

Fermented Food Products	Tribe/ community	Local name	Uses
Alcoholic Beverages	Deori	Sujen	It plays a vital role in the socio cultural life of Deori tribe.
	Assamese	Xaj- pani	Used in their religious purposes as traditional drinks and also have healthy and high medicinal values.
	Mising	Apong	It is indispensable to the social and religious life of Mishing people.
	Karbi	Hor	It is an integral part of the socio cultural life of the Karbi and also consumed as refreshing drinks.
	Nocte	Kham	Prepared during festivals, family functions, rituals. Used as refreshing traditional drinks as it has medicinal values.
Fermented fish	Deori	Chucha	It is used as an appetizer and a form of preserving surplus seasonal fishes.
	Assamese	Hukoti	It adds to the flavour of dishes and preservation for longer time during the period of non availability of fishes.
	Mising	Numsing	Eaten as condiment with <i>Colocasia</i> stems and also as soups.
	Nocte	Ngari	It is a favourite appetizer of the local people. It is a method of short term preservation.
Fermented <i>Areca</i> nut	Assamese	Tamul	It is used in ritual purposes like puja, bihu and in marriages and funeral as an offering of devotion.
Fermented Bamboo Shoot	Assamese	Khorisa	It is cooked with meat, fish or with other vegetables to give aroma and distinct flavour.
	Karbi	Han-up	Its pickle is used as a side dish and also cooked with fish and meat to give tangy taste to food
	Nocte	Bas-tenga	Used as a pickle or added to other dishes to enhance their flavour.
Fermented Mustard green	Nepali	Gundruk	They are good appetizer and consumed by mixing with soups and other dishes.
Fermented Mustard Seeds	Assamese	Kharoli	It is cooked as condiment and eaten as a side dish with rice.
	Assamese	Kahudi	Used as a pickle with other dishes.

Table II: Presence or Absence of Fermented Food Product within the Tribes and Communities under Study

Sl.no	Tribes/ Communities	Fermented food products					
		Alcoholic Beverages	Fermented dried fish	Fermented areca nut	Fermented mustard green	Fermented mustard seeds	Fermented bamboo shoots
1.	Assamese	+	+	+	-	+	+
2.	Nepali	-	-	-	+	-	-
3.	Deori	+	+	-	-	-	-
4.	Mising	+	+	-	-	-	-
5.	Karbi	+	-	-	-	-	+
6.	Nocte	+	+	-	-	-	+

Alcoholic Beverages

Alcoholic beverage is one of the most popular fermented food items prepared by the ethnic tribes and communities of Northeast India. Out of the 6 ethnic groups under study, 5 groups have been found to prepare alcoholic beverages. Xaj-pani is prepared by the Assamese community, Sujen by the Deori Tribe, Apong by Mising, Hor by Karbi and Kham by the Nocte tribe.

In each group the process starts with the preparation of the starter cake which primarily consist of plant parts and a fraction of previously prepared starter material as inoculants. The starter material is mixed with cooked rice, covered with leaves, dry straw and left aside for fermentation to occur. After the completion of fermentation, the liquor is extracted.

Fermented Fish Products: Chucha, Hukoti, Numsing and Ngari are the different types of fermented fish products prepared by the Deori, Assamese, Mising and Nocte ethnic groups respectively. The process is a mixture of salting-drying and drying-smoking. Dried fishes are mixed with different types of herbs and grounded into a thick paste. The paste is stuffed into bamboo culms or cylinders, sealed and kept aside for fermentation to occur. This method is shared by Deori, Assamese and Mising ethnic groups.

The Nocte directly stuffs salted and seasoned fishes into bamboo cylinders without prior drying. The bamboo cylinders are tightly plugged and kept over the fireplace for fermentation to occur. The fish prepared by this method can be preserved for only a month.

Fermented Bamboo Shoot

Khorisa, Han-up and Bas-tenga are the different types of fermented bamboo shoot products prepared by Assamese, Karbi and Nocte ethnic groups respectively. The Assamese use earthen pots for filling grinded bamboo shoots. The Karbi use conical bamboo baskets, inner wall lined with banana leaves. The Nocte boil the bamboo shoots prior to

fermentation and store in bamboo baskets lined with local leaves. Fermented bamboo shoots are further sundried, stored and used in the preparation of various dishes.

Fermented Mustard Green

The fermented mustard green or vegetable mustard 'lai saak' **Gundruk** (*Brassica juncea*) is a traditional fermented food of Nepali community. The leaves are allowed to wilt, dried for 2-3 days and then crushed. The crushed leaves are seasoned, pressed into an earthen pot and made air tight. It is then left in a warm place for 15-20 days for fermentation to take place.

Fermented Mustard Seeds

Kharoli and Kahudi are 2 types of fermented mustard seed products prepared by the Assamese community. Indigenous soda or Kolkhar is added to grinded mustard seeds and dough is prepared which is wrapped in banana leaves and kept aside for fermentation. Kahudi or pani-tenga is prepared with mustard seeds and pulp of thekera tenga (*Garcinia pedunculata*) which are grinded together and kept for fermentation.

Fermented Areca Nut

Fermentation of Areca nut 'tamul' (*Areca catechu*) is done by the Assamese community. It is done in two different ways. In the first method, the nuts are placed in the pit and covered with jute cloth and soil mixed with some amount of cow dung. It takes 3-4 months for fermentation to be completed. If done properly, the nuts can be preserved for over two years.

In another method, the raw Areca nuts are soaked in water. A specific smell indicates the completion of fermentation. By this process, the nuts can be preserved for 3-4 months.

Photo Plate



Fig 1: Products of the Assamese community. **A:** Indigenous soda from banana peel (Kolkhar); **B:** Areca nuts buried in a pit; **C:** Areca nuts for fermentation; **D:** Ingredients for fermentation of mustard seeds (Kharoli and Kahudi); **E:** Starter cake for Xaj-pani (Vhekur pitha); **F:** Rice for preparation of alcoholic beverage (Xaj-pani); **G:** Extraction of alcoholic beverage; **H:** Fermented fish (Hukoti).



Fig 2: Preparation of Alcoholic beverage by Deori Tribe. **A:** Starter cake (Mod Pitha) and rice for fermentation; **B:** Mixing of cooked rice and starter material; **C:** Storage of liquor in earthen pots.



Fig 3: Bamboo shoot fermentation in Karbi Tribe: **A:** A typical Karbi kitchen with rack over fireplace for smoke drying; **B:** A Karbi woman filling bamboo shoots for fermentation; **C:** Different stages of fermented bamboo shoot.



Fig 4: Mising Tribe: **A:** Grinded leaves for preparation of starter cake; **B:** Traditional grinder (Kipar); **C:** A typical missing kitchen with hanging bamboo rack over kitchen flame; **D:** Extraction of alcoholic beverage (Apong); **E:** Starter cake for fermentation (Aopo Pitha); **F:** Storing of Apong in earthen pot.

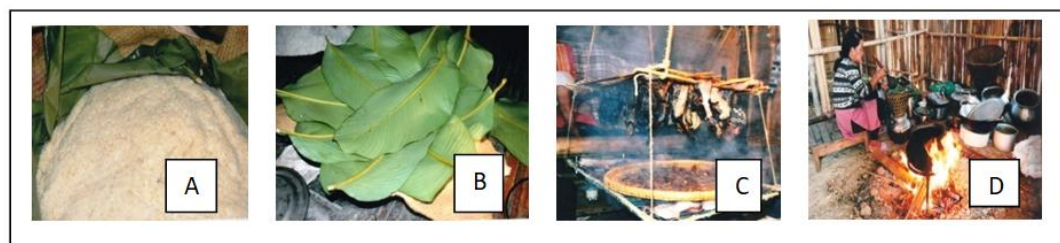


Fig 5: Nocte Tribe: **A:** The starter cake (Bicchi) for fermentation of alcoholic beverage (Kham); **B:** Bicchi mixed with rice and covered with banana leaves for preparation of Kham; **C:** Drying procedure of fish for preparation of 'Ngari'- a fermented fish product; **D:** A Nocte tribe women brewing Kham in a typical Nocte tribe kitchen.



Fig 6: Preparation fermented mustard green (Gundruk) by Nepali community. **A:** Crushing of mustard green leaves for fermentation; **B:** All stages of preparation of gundruk; **C:** Gundruk ready for consumption.

Conclusion

The fermented food products are quiet common among the ethnic groups of Northeast India. As stated by Bhatt et.al. the large scale frequent consumption of locally made drinks/beverages, standardization of their qualitative ingredients, fermentation processes as well as enhancing their shelf life s very essential could help in upgrading of the socio-economic condition of the local inhabitants. Analysis of nutritional and medicinal value of locally brewed beverages is important as it would help in popularization of these products and their consumption at wider scale. According to Gogoi et.al. (2013), the bioactive principles which contribute to medicinal and therapeutic qualities, may be target for interdisciplinary research involving nutritionist, biotechnologist, agronomist and many other experts from different fields of study. The ethnic population take great pride in preparation of the fermented products and continuing the legacy which has been passed down to them by their ancestors from generation to generation. It is a cultural heritage which needs to be preserved. A number of plant species are used for the preparation of various types of fermented products. As stated by Teron, (2006), these plants are potential media for yeast culture. The commercial exploitation of these plants as yeast media may be explored.

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