

Common Fermented Food Products of North-East States of India

Sikhamoni Borgohain*

Department of Home Science, Assam Agricultural University, Assam, India

Review Article

Received: 03/06/2021

Accepted: 17/06/2021

Published: 24/06/2021

***For correspondence:**

Sikhamoni Borgohain, Department
of Home Science, Assam
Agricultural University, Assam, India

E-mail: sikhamoniborgohain@gmail.com

Keywords: Fermented food;
Microbial diversity; Beverages;
Colocasia leaves; Soybean

ABSTRACT

North Eastern India, with various ethnic groups, offers an excellent opportunity for ethno botanical studies. Indigenous and fermented foods are an intrinsic part of diet of these ethnic tribes. This paper focuses on some of the common practices followed by the indigenous tribal people of North-East India in the production of their respective fermented product. The fermentation technologies practices by the ethnic people reveal a strong correlation of these people with nature and the assessment of microbial benefits. The rich microbial diversity in various sources of fermented foods and beverages reflects that the indigenous people have been harnessing indigenous microbiota for spontaneous fermentation.

INTRODUCTION

This traditional practice of India is amazing in all aspects especially in food culture. The general rule in healthy food habits is that food should be cooked fresh but, if food becomes excessive, maybe rice, then the cooked rice is soaked in water overnight for fermentation. This fermented rice is eaten the next day for breakfast with onions [1].

LITERATURE REVIEW

The North eastern India, with various ethnic groups, offers an excellent opportunity for ethno botanical studies. Indigenous and fermented foods are an intrinsic part of diet of these ethnic tribes. It is the oldest and economical methods of developing diversity of aromas, flavours and textures as well as for food preservation and biological enrichment by manipulation of different microbial population. This paper focuses on some of the common practices followed by the indigenous tribal people of North-East India in the production of their respective fermented product [2].

- To know the fermented food products of North East India.
- To know the common fermented foods of North-East India.
- To discuss the method of preparation of fermented foods.

Nagaland

The Nagas are basically cultivators. Traditionally fermented foods are still a favourite item in the food preparation of Naga tribes. The advent of modern civilization has adversely affected the age-old tradition and thus the younger generations are not exposed to traditional practices. The women folks of Naga villages, process traditional fermented foods, such as fish, animal fats and vegetables and beverages, rice beer as done in all other tribal communities. The most popular raw materials for fermented food items among the Naga tribes are: bamboo shoots, soybean, Colocasia leaves, crabs, animal fats and fish ^[3].

Arunachal Pradesh

Arunachal Pradesh was named in 1972 as a union territory. However in the year 1987 it was constituted as the 24th state of the Indian union. Based on the socio-religious affinities, the people of Arunachal Pradesh are classified into three cultural groups Gompas, Monpas and Sherdukpens. They use fermented food which is rich in nutrition. This food has curative properties to keep people safe from many diseases. Apang or rice beer, Ekung/Hirring, Rakshi, Peruyyan and Ennog, Sai Mod are the fermented products of Arunachal Pradesh ^[4].

Sikkim

Sikkim has its own unique dietary culture with specific cuisine and food recipes. Like anywhere else in the world, food habits here have evolved as the result of traditional wisdom and empirical experiences of generations. Various traditional fermented foods and beverages, which constitute of about 20 per cent of the basic diet for long centuries are prepared and consumed in Sikkim ^[5].

Fermented vegetables and beverages are very common in the Sikkimese tradition. Owing to this, people can preserve vegetables, when they befall out of season. To cope up with the chilly weather, the residents of Sikkim rely on alcoholic drinks that are popular amongst both men and women. An assortment of soups, pickles and beverages make the Sikkim cuisine more flavor some and delicious ^[6].

Assam

Assamese culture is traditionally a hybrid one developed due to assimilation of ethno-cultural groups in the past. Rice is one the main dishes of Assam. In the list of fermented foods rice beer, khorisa, hukan mass etc. are popular foods. Khorisa (fermented bamboo shoot) are used at times to flavour curries while they can also be preserved and made as pickles ^[7].

Meghalaya

Meghalaya is an enchanting destination and its food and cuisine are as unique and delicious to their culture and lifestyle. Like many other states in the North East India, the cuisine of Meghalaya is prepared from indigenous and organic ingredients. Most of the dish savour in Meghalaya have simple recipe yet very tasty and flavoursome. Also the foods cooked in this part of the country are healthy and nutritious. Fermented soybean (tungrymbai), bamboo (lungsiej), and fish (tungtap) consumed by the Khasi tribes from Meghalaya in North-eastern India ^[8].

Manipur

Manipur is a state in northeastern India, with the city of Imphal as its capital. It is bounded by Nagaland to the north, Mizoram to the south, and Assam to the west; Burma (Myanmar) lies to its east. In Manipur, traditional fermented soyabean (hawaijar), bamboo shoot products (sojjim, soidon), fish products (ngari, hentak), mustard lead extract (ziang sang, ziang dui) and fermented beverages (atingba and fruit wines) have been consumed as a regular food in different recipes over a long periods of time ^[9].

Mizoram

Mizoram is one of the states of Northeast India, with Aizawl as its capital city. The name is derived from Mi (people), Zo (lofty place, such as a hill) and Ram (land), and thus Mizoram implies "land of the hill people". Mizo people are ardent fans of meat. They consume different forms of meat such as pork, beef, chicken, duck, lamb, etc. Pork is a

very important part of their food menu. The pork is made by the mizos in various ways ranging from boil to fry to smoked. Bekang is the popular fermented product of Mizoram [10].

Tripura

Tripura is a state in Northeast India. The cuisine of Tripura is traditionally known as Mui Borok to its natives. The dishes consist of dry and fermented fish known to the people as Berma and are prepared without oil, making it healthy. Other dishes include fish curries, stews along with bamboo shoots, herbs and meat roasts [11]. Some of the popular dishes of Tripura include Chakhwi, different assortments of Mwkhwai, Champrai, Gudok, Khalok, Utmai and Chuak (Table 1) [12].

Table 1. Common fermented foods of North-East India.

Fermented Food	Name in different State	Method
Soya bean	Axone or Akhone (Nagaland) Kinema (Sikkim) Bekang (Mizoram) Hawaijar (Manipur) Tungrumbai (Meghalaya) Peruyyan (Arunachal Pradesh)	It is prepared by boiling the beans till it become soft and water is drained out. The cooked beans are then wrapped in banana and kept above the fireplace to ferment for a week .Within a week, the beans are used in chutney preparation along with chilly, tomato and salt. The fermented beans are kept in cake form above the fireplace or individual beans are separated, dried in the sun and stored in containers.
Fish	Ngari (Manipur) Hentak (Manipur) Tungtap (Meghalaya) Gnuchi (Sikkim) Berma (Tripura)	Small fishes are used as a whole and big ones are cut into smaller pieces. Fish is washed and put inside a bamboo and tightly plugged with leaves, and kept over the fireplace for fermentation. Within few days the fish becomes fermented and ready for use as a tastemaker for vegetable curry.
Bamboo Shoot	Bas-tenga (Nagaland) Mesu (Sikkim) Khorisa (Assam) Lung-seij (Meghalaya) Soibum/Soidon (Manipur) Miya mikhri (Assam) Ekung/Hirring (Arunachal Pradesh) Muya Awandru (Tripura)	Bamboo shoot fermentation process is done during May to June when new shoots are formed. Young and tender bamboo shoots are collected, the sheaths removed, pounded or sliced into small pieces and put in a conical bamboo basket with the inner wall lined with banana leaves. Prior to this, a hole is made at the bottom (tapered end) of the basket and a pointed bamboo stick a little longer than the length of the basket is inserted in the hole passing through the centre for draining the juice/sap. The basket is tied to a post, the upper portion covered with banana leaves and stones are placed above it as weight. The stick passing through the centre of the basket is turned/twisted from time to time to ensure proper drainage of the juice that comes out from the ground bamboo shoots which is collected in a container.
Traditional alcoholic beverages	Kiad (Meghalaya) Sujen (Assam) Atingba (Manipur) Apong (Arunachal Pradesh and Assam) Ennog/ Sai Mod (Arunachal Pradesh and Assam) Kodo ko Jaanr (Sikkim) Xaj – pani (Assam) Zutho (Nagaland) Chauk (Tripura)	Un-hulled glutinous rice grains are soaked in water for 3 days, then the water is drained off and the rice is allowed to germinate for 3-4 days in summer and 7 days in winter. The sprouted rice grains along with the hulls are then pounded in a wooden mortar and pestle to produce the grist. Along with polished glutinous rice grains are soaked in water. After drainage of the water, they are pounded in a wooden mortar pestle. To this rice powder is added boiling water (5 litres to 3 kgs) bit by bit with agitation. This soft rice porridge is allowed to cool and mixed with one handful of the grist in summer and two handfuls in winter. Fermentation of the mash is allowed to proceed in a wooden vessel for 2 to 3 days in summer and 7 days in winter. Then a portion of water is added to the fermented mash and strained through a bamboo basket.

DISCUSSION AND CONCLUSION

The fermentation technologies practices by the ethnic people reveal a strong correlation of these people with nature and the assessment of microbial benefits. The rich microbial diversity in various sources of fermented foods and beverages reflects that the indigenous people have been harnessing indigenous microbiota for spontaneous fermentation. Climatic conditions also play major role in the type of fermented foods produced in the temperate, sub-tropical and tropical climates of this region. Besides the food items mentioned here, other products like. Modern science and technological knowledge should be united to produce beneficial results.

REFERENCES

1. Murungkar DA, et al. Preparation techniques and nutritive value of fermented foods from the khasi tribes of Meghalaya. *Ecol Food Nutr.* 2006;27-38.
2. Bhatt BP, et al. Commercial edible bamboo species of the North-Eastern Himalayan Region, India. Part I: Young shoot sales. *J Am Bamboo Soc.* 2004;17:4-20.
3. Chakrabarty J, et al. Substrate utilisation in traditional fermentation technology practiced by tribes of north cachar hills district of Assam. *Assam University J Sci Technol.* 2010.
4. Das AJ, et al. Fermented foods and beverages of the North-East India. *Int Food Res J.* 2012;19:377-392
5. Deori C, et al. Ethnobotany of sujen, a local rice beer of Deori tribe of Assam. In *J Tradit Knowl.* 2007.
6. Megoneitso R, et al. Ethnobotanical studies in Nagaland, Sixty two medicinal plants used by the Angami Naga. *J Econ Taxon Bot.* 1983;4:167-172.
7. Rao RR, et al. Ethnobotany of the ao and angami nagas of Nagaland. *J Econ Taxon Bot.* 1990;3:593-604.
8. Sarmah A, et al. Rattan and bamboo flora of North-East India in a conservation perspective. *Int Book Distributors.* 2001;25:37-45.
9. Sureja AK, et al. Cultural significance and diversities of ethnic foods of North-East India. In *J Tradit Knowl.* 2007;6(1):79-94.
10. Singh SK, et al. Ngari: An indigenous fermented fish product from Manipur, Part 2. 2010.
11. Tamang JP, et al. indigenous knowledge on north-east women on production of ethnic fermented soybean foods. In *J Tradit Knowl.* 2009;8:122-126.
12. Tiwari, S.C. and Mahanta, D. Ethnological observations fermented food products of certain tribes of Arunachal Pradesh. In *J Tradit Knowl.* 2007;6:106-110.