

Study on a Few Traditional Fermented Food Practices of Mising Community of Dhemaji District, Upper Assam, India

Bhaba Kumar Pegu¹, Puja Sarmah^{1,*}, Jelshing Yein², James Sanong¹

¹Department of Life Sciences, Dibrugarh University, Dibrugarh, Assam, INDIA.

²Assamese Department, Ujoni Majuli Kherkatia College, Majuli, Assam, INDIA.

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INTRODUCTION

Among different ethnic tribes in the Himalayan region of India indigenous fermented foods is a significant part of the diet. For the development of various flavours, aromas and textures fermentation is considered one of the oldest and most economical methods. Through this method, different microbial populations are manipulated to produce biologically enriched food.^[1] One of the oldest methods for processing and preserving food is fermentation has been known worldwide from ancient civilizations. Fermentation of food materials is used as a way for enhancement of flavour, and preservation of food by the ethnic and indigenous people of this region from time immemorial.^[2] Microbes are the major ingredient in the production of different fermented food and beverages. By using different substrates and non-pathogenic micro-organisms as starters fermented foods are prepared, and these are then sold in the local market for consumption.^[3] All non-Aryan ethnic tribes of Northeast India had a tradition of having their brand of homemade traditional fermented food. Indigenous fermented food of this region is closely connected to practically all aspects of their socio-cultural, and religious ceremonies and ritual events.^[4] The different ethnic tribe from various region of India especially people from North-East India has very distinct and region-specific procedure for fermenting food and utilizing various specific substrate.^[5-7] The Mising tribes belong to the Indo-Mongoloid group of the Indian population. The

Correspondence:

Ms. Puja Sarmah,

Department of Life Sciences, Dibrugarh University, Dibrugarh-786004, Assam, INDIA.

Email id: rs_pujasarmah@dibru.ac.in

Dhemaji district of Upper Assam, India is well known for its rich cultural diversity of various ethnic groups.

MATERIALS AND METHODS

Study Area

In the villages and rural areas of Dhemaji district, Assam where the tribal people are dominant an extensive field survey was conducted for a duration of three months (September-December 2021). Based on available information on distribution of traditional fermented food the region for study was selected. The households which are majorly involved in the manufacturing of fermented food was selected and surveyed for information.

RESULTS

Method of preparation of Numsing

- Numsing is a semi-dried and semi-smoked paste-like product prepared by mixing fish and different plant species. Maximum of 2 to 5 kg of different fish is required for the preparation of Numsing. Different plants ingredient is used in the preparation of Numsing (Figure 1).
- Collection of fish from the market (Different fish) and washed with clean water.
- Removed the gills, scales, and intestine.
- On a specially made bamboo rack fishes are dried in the kitchen or Sundry.

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Figure 1: Processing of Numsing by traditional methods.



Figure 2: Preparation of Iku by traditional method.

- Dry fish was mixed with different plants ingredient in a traditional grinder (Kubuli).
- The mixture was transferred to the bamboo container (Otung) sealed with dry paddy straw.
- Keep in 2 months inside the kitchen.

Method of preparation of Iku

Mising community prepare Iku with fermented bamboo shoots (Figure 2). Not only bamboo shoots but the preparation of Iku includes hollow matured bamboo stems opened from one side (*Bambusa balcoa*), an earthen pot, a bamboo tray, Kubuli (traditional grinder) as raw material and utensils. After washing the bamboo shoots properly, it is peeled and grinded. This grinded material is kept in earthen pots called killing. Some amount of water along with chili and salt is added to it and for fermentation the mouth of the earthen pot is covered for about 30 days with banana leaves. This pot is usually kept in bamboo racks inside the kitchen.

Fermented alcoholic beverage

Apong

Apong was the Mising traditional brand of local drink prepared from rice (Figure 3). It was a traditional prepared

in every household of Mising community. Two types of rice beer are prepared in Mising community. Pr: ro Apong and Noggin Apong had their separate methods of the fermentation process. Powders of homemade catalysts called epop were applied to the cooked rice and then stocked into an earthen jar (Kihiling) and kept fully closed with straw corks. The epop starter cake of fermented alcoholic beverage widely used different plants ingredients (Figure 4). These plant ingredients give enormous flavor to fermented alcoholic beverages. The earthen pitches were laid on the smoke-reached loft of the house for fifteen days, during which time the preparation become chemically fermented and ready for brewing. In the case of Po:ro the cooked rice was spread over a broadsheet, made of bamboo sticks (Dola), to make the hot rice saturated and kneaded with powders of ashes especially got charred from straws (Amrong), and husk (ampe). Besides rice, the women experimented



Figure 3: Preparation of Apong by traditional method.



Figure 4: Different plants ingredients used starter culture cake epop.

preparation of Noggin Apong from other substances too. Noggin Apong needed a selective sort of rice-fresh and sticky. So, to get a quality taste of the drink, fine smooth, and noggin should preferably be fermented from Ampu-abun and Lie-ambun (Glutinous rice). Po: ro Apong color appearance was brown and black while Noggin Apong color appearance creamy or white color. The ingredient from which Apong was prepared is called Ponyok in the case of Po: ro and Arug in the case of Noggin Apong. In rural areas, we have observed the Ponyok and Arug widely used as a feed of pork and fishery diet.

DISCUSSION

Mising people widely consume traditional fermented food. Two types of fermented food were consumed Numsing and Iku and 2 types of traditional fermented alcoholic rice beer were consumed. Every household prepared the fermented food and rice beer. In a rural area of Mising community, peoples depend on agricultural activities. During cultivation time (May-July and December to January). Mising people were highly consuming fermented food and alcoholic beverage. Fermented foods and their products are prepared and consumed worldwide. It was observed within the study area different ethnic groups prepare diverse forms of traditional fermented foods and beverages. These traditional fermented food products consumed by the local people of the northeastern states of India are rich in various nutrients such as protein, vitamins, carbohydrates, fat, and minerals.^[6] Indigenous fermented food and alcoholic beverages are prepared to utilize different substrates and non-pathogenic microorganisms as starter and processing cultures to be sold at the local markets for local consumption. Lactic acid bacteria (LAB) play a major role in the production of most fermented foods and beverages.^[3] Efforts should be made for the introduction of technologies involving strain improvement, process improvement, raw material improvement, the study of probiotic activity, and the production of hygienic and pure microbial starter cultures. Moreover, intensive collaborative research work is required for the standardization and commercialization of these fermented products owing to their taste and high nutritional value, which can impart health benefits and food security, especially to the low-income groups. On the Indian subcontinent, fermented foods and beverages are a primary part of traditional heritage and culture. Even today indigenous fermented foods such as soybean products, bamboo shoots, fish, meat, vegetables, leaf, etc. contribute to a large proportion of the daily

intake of the people of the northeastern states of India.^[8] The fermented products of Mising community needs a thorough, careful, and comprehensive study and the present investigation focuses on the necessity of these. Because of their unique taste and high nutritional value commercialization and standardization of these fermented product needs intensive collaborative research work, which can enhance health benefits and food security, especially to the low-income groups. This is important because it will boost the livelihood of the rural people and contribute to the sustainability of the regional economy. Different kinds of microorganisms producing nutraceutical and novel compounds may be isolated from fermented foods if proper research is carried out.

CONCLUSION

Traditional fermented food and alcoholic beverage widely used in marriage, rituals and festivals of Mising Community. But further evaluation on other aspects- local technology of preparation of Traditional fermented food dynamic of microbial population during different stages of fermentation, secondary metabolites, nutritive and non-nutritive components, minerals, toxicity and preservation will be necessary to meet scientific scrutiny. Biotechnological interventions can improve microbial strains and selective enrichment of bioactive compounds and improve the quality of final products.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATION

LAB: Lactic acid bacteria.

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