

Traditional Fermentation Practices in Bodo Cuisine: Indigenous Knowledge, Health, and Cultural Identity

Banduram Brahma

Asst prof; Dept. of Bodo, Bongaigaon University, Bongaigaon

DOI: <https://doi.org/10.51584/IJRIAS.2025.101100120>

Received: 04 December 2025; Accepted: 13 December 2025; Published: 23 December 2025

ABSTRACT

Fermentation is a longstanding component of traditional Bodo cooking practices, and is characterized by the deep ecological knowledge, seasonal contexts, and health-conscious food systems of a community. This paper will examine the various methods of fermenting among the Bodo people of Assam with a concentration on a select few fermented foods, including napham (fermented fish), onkla (a rice flour based curry usually with fermented bamboo shoot), jou (rice beer), gundru (dried radish), and various other preserved meats and vegetables. These practices highlight indigenous knowledge systems to store food, while food systems contributed to food preservation imaginable without today's refrigeration and provide nutrition and health contributions to gut health. Fermented foods have traditionally incorporated bamboo vessels or clay pots in natural (slow) fermentation techniques, to represent a sustainable, community-based learning career with respect to intergenerational voicing of knowledge. Though fermented foods nutritionally provide utility, each aspect of traditional Bodo culture retains a key facet of identity developed through fermentation foods in every day meal consumption e.g., festivals, community, spiritual and cultural behaviour. As the world continues to demonstrate increasing interest in nutritional value, probiotics, sustainable diets, the culinary heritage of Bodo culture may represent a meaningful example of traditional knowledge categories and in cultural sustainability.

Keywords: Fermentation, Indigenous knowledge, Bodo cuisine, Traditional food preservation

INTRODUCTION

Food is never just nourishment. For many indigenous societies, it is memory, identity, ecology, culture and expression. In the Bodo people of Assam, conventional methods of fermentation are part of their food and food system infusing ecological knowledge, seasonal rhythms, preservation logic, health values and cultural identity. The Bodo make up a significant indigenous population in Assam, dwelling in districts like Kokrajhar, Chirang, Udalguri, Tamulpur and Baksa. Their food, farming way and forest edge ecosystem have developed a repertoire of fermented foods and drinks that answer at once preservation in a hot humid climate, employ local substrates (rice, fish, bamboo shoots, radish, wild herbs) and support social cultural practices. This article outlines the different fermentation practices in Bodo food: the substrates, processes, seasonal & ecological conditions, preservation logic, health ramifications (especially in microbial/gut health and access to nutrients), and how this practices build cultural identity and inter-generational knowledge transmission. With the aid of published literature, food-science and ethnographic research, this paper contends that Bodo fermentation technology is an advanced indigenous food-system that provides lessons on sustainable diets, community resilience, and culture.

LITERATURE REVIEW

Traditional food preservation methods among the Bodo have been reported in various academic studies. Baro (2016) in "Food-Habits and Traditional Knowledge System of Bodos of Assam: A Study" describes the centrality of traditional technological knowledge fermentation, smoking, drying in the Bodo food system. Das & Singh (2024) discuss overall food preservation techniques among the Bodo group, such as fermentation, sun-drying, smoking and pickling, and show their cultural and nutritional value. Specifically, Narzary et al. (2021) deal with fermented fish foods in South and Southeast Asian cuisine, including among the Bodo, and look into nutrient

content and cultural value. Deka et al. (2025) present the process of cereal-based and fruit-based alcoholic drinks among the Bodo, including starter cultures and storage.

Tanjung et al.'s (2021) ethnobotanical compendium further documents the plant species utilized in starter cultures for fermented alcoholic drinks among the prominent ethnic communities in Assam, such as Bodo. This literature sets up that Bodo fermentation culture is rooted in ecological knowledge, ethnobotany, cultural tradition, preservation logic, and nutrition. There still lies a gap in weaving these strands together under the umbrella of indigenous knowledge + health/nutritional contributions cultural identity. This paper tries to fill that gap by concentrating exactly on how fermentation among the Bodo acts as preservation, health support, and identity marker.

METHODOLOGY

This is a desk-based integrative review and synthesis of existing literature on Bodo fermentation practices. Major sources were derived through academic databases and journals (e.g., Journal of Ethnic Foods, International Education and Research Journal). The selection criteria involved those dealing with fermentation, Bodo food, indigenous food systems of Assam, and health/nutritional assessments of fermented foods. Having collected pertinent studies, I coded them within three thematic categories: (1) substrates & methods of fermentation, (2) nutritional/health implications, (3) identity and cultural processes. The story comes together by weaving these strands together, featuring exemplary fermented foods (napham, ondla, jou, gundru) and situating them historically, ecologically, nutritionally and culturally.

DISCUSSION AND ANALYSIS

Indigenous knowledge and ecological context

The Bodo cuisine is strongly shaped by the ecology of Assam's Brahmaputra valley and the north-bank floodplain, forest-edge topographies and seasonal cycles. Fermentation is just one of a range of preservation methods devised by the Bodo sun-drying, smoking and pickling are others. These methods, Das & Singh (2024) explain, were crucial within a pre-refrigeration context in which high humidity, monsoon regimes and forest produce demanded stable food systems.

In the context of fermented drinks, Deka et al. (2025) explain how the Bodo employ a polyherbal starter culture known as amao, which is a combination of rice flour and leaves of medicinal plants (like *Scoparia dulcis*, *Musa balbisiana*, *Artocarpus heterophyllus*) that assist in starting fermentation.

Here is a classic instance of indigenous ecological knowledge: choice of local plant species, sensitivity to microbial fermentation, and modification of containers (bamboo mats, banana leaves, clay/metal pots) to the environment. As one instance of a fermented food, napham (fermented fish) has been GI-tagged for the Bodo community.

The fish fermentation acts to store the catch during floods during monsoons when fresh fish would be more difficult to keep. The process includes closing fish in salt/fermenting agent with jars/bamboo containers for two-three months. This process is the best example of how the Bodo converted a perishable aquatic product into a durable component of their food economy.

Another example is onla, rice-flour based curry commonly prepared with fermented bamboo shoot and rice flour is one of the staple crops among the Bodo. The second-order use of fermented bamboo shoot has forest and woodland resource linkages. The seasonal processing and maintenance craft of fermented bamboo shoot illustrates inter-generational knowledge transmission.

Preservation Logic and Health / Nutritional Implications

Fermentation has double functions of preservation (shelf-life extension pre-refrigeration) and nutritional/health property improvement of foods (bioavailability increase of nutrients, generation of beneficial microbes). For

instance, in an investigation of fermented rice (“poita bhat”) in Assam, Goswami et al. (2016) reported that fermentation decreased anti-nutritional content (phytic acid decreased from 1.255 mg/g to 0.353 mg/g within 12 h) and enhanced mineral availability of Fe, Mg, Ca and Zn.

Although that research is not particular to the Bodo, it serves to illustrate the general importance of fermentation across the food systems of the region. In the case of Bodo fermented fish, Narzary et al. (2021) observe that they add cultural and nutrient value, although microbial safety and standardisation are still issues.

In fermented alcoholic beverages, Deka et al. (2025) report that the Bodo stored rice beer (jou finai) is consumed in social contexts; while not simply a “health food”, the controlled fermentation process and use of medicinal-plant starter cultures show an awareness of health effects beyond pure intoxication. Taken together, the fermentation practices contribute probiotics, fermented-substrate nutrients, and preservation making them both food security and health-supportive strategies.

Cultural Identity, Social Function, and Intergenerational Transmission

Outside ecological and nutritional contexts, fermentation among the Bodo is highly cultural. Fermented foods and drinks are used in festivals, hospitality, ritual, and communal identity. Rice beer (jou), for example, is prepared during socio-cultural festivals like Bwisagu, which is a prominent Bodo festival (mid-April). According to Deka et al. (2025), females in households are typically identified with preparation of such traditional drinks, which illustrates gendered cultural information and transmission.

Identification of Bodo fermented products through GI tags highlights their identification with identity and heritage. As per the report, jou gwan, napham, ondla, narzi have been given GI status, indicating culinary uniqueness and also a culture brand. The home-based fermentation processes (bamboo, banana leaves, clay pots, fire-place storage) embody communal living, nature appropriation, and cultural transmission.

These foods transmit not only recipes to younger generations but ecological patterns, seasons, social roles (preparation, offering), and hospitality and community values. Preparing, storing, and offering fermented foods creates a sense of belonging and cultural continuity.

Challenges & Sustainability Issues

Although strong, these ancient fermentation processes are under threat. Urban migration, modernisation, diet diversification, disappearance of local substrates, and competition with industrially processed foods encroach on the processes. Das & Singh (2024) refer to the challenge for the Bodo people in keeping food-preservation techniques (fermentation, sun-drying, smoking) intact in the face of changing lifestyles.

Standardisation, micro-biological safety, and documentation of fermentation starter cultures are also absent (Narzary et al. 2021) which can restrict wider marketing or production scale of these foods. On a more optimistic note, GI tagging provides an avenue for retaining heritage and potentially commercialising fermentation-based foods and drinks in manners that honor tradition and community rights.

CONCLUSION

The Bodo people of Assam's traditional fermentation routines are much more than mere food-preparation habits. They are living embodiments of indigenous ecological understandings, healthy food systems, cultural identities and community resilience. Through fermented fish (napham) and bamboo-shoot curries (ondla), rice beers (jou), and other pickled vegetables and meats, these routines show how a people accommodated to their ecology, social organization, and cultural pace. Nutritionally, fermentation improves nutrient access, supplies health-promoting microbes and facilitates preservation under climatic conditions requiring low-energy storage. Culturally, the fermented foods facilitate ritual, hospitality, identity, social bonding and inter-generational learning.

In the wake of worldwide concern for sustainable diets, food-heritage valorisation, and probiotics, the Bodo fermentation heritage presents a strong case study. With a view towards conservation and promotion, activities

might include documentation of starter cultures, research on safety and standardisation, community-managed value chains (such as GI-tagged foods), and younger generations' education. In this way, the Bodo fermented-food practice can provide both local community resilience and worldwide lessons in sustainable, culturally-embedded food systems.

WORKS CITED

1. Baro, Maneswar. "Food-Habits and Traditional Knowledge System of Bodos of Assam: A Study." *International Journal of Advanced Research*, vol. 4, Aug. 2016, pp. 1769-1774.
2. Das, Dhira Mani, and Kh. Narendra Singh. "Traditional Food Preservation Methods and Its Significance: A Study Among the Bodo Community of Kokrajhar District, Assam." *International Education and Research Journal (IERJ)*, vol. 10, no. 5, May 2024.
3. Deka, Anamika Kalita, Sunshri Basumatary, and Dibakar Chandra Deka. "Methodology of Ethnic Cereal-Based and Fruit-Based Beverages of Bodo Community of Assam." *Journal of Ethnic Foods*, vol. 12, Article no. 23, 12 June 2025.
4. Narzary, Yutika, et al. "Fermented Fish Products in South and Southeast Asian Cuisine: Indigenous Technology Processes, Nutrient Composition, and Cultural Significance." *Journal of Ethnic Foods*, 2021.
5. "Compendium of plants used for preparation of traditional alcoholic beverages by four major ethnic communities of Assam, Northeast India." *Biodiversitas Journal of Biological Diversity*, 22 (2021): 2019-2031.
6. "Eight Traditional Products of Assam's Bodo Tribe Granted GI Tag." *The Study IAS*, 2024.
7. "Assam's Bodo Culture Gains Recognition with GI Tags for Traditional Rice Beers and Food Items." *The Statesman*, 2024.
8. Goswami, Gunajit, Himangshu Baruah, Robin Chandra Boro, and Madhumita Barooah. "Fermentation Reduces Anti-Nutritional Content and Increases Mineral Availability in Poita bhat." *Asian Journal of Chemistry*, vol. 28, no. 9, 2016.