# An Overview of Traditional Food Preservation Methods of Gazhiphema Village: A Means of Food Security

Dr. Nemmminthang Lhouvum and Thou Liveini
*Department of Sociology, Don Bosco College (Autonomous), Maram, Manipur, India*

**Abstract: This article explores the traditional food preservation of Gazhiphema known as (Vafiimai) of Laii village in Senapati district of Manipur. Gazhiphema village is primarily Poumai Naga village with a population of 5518 according to 2011 census. The village technique of food preservation is not only practical but is also intrinsically related to their way of life. It plays a vital role for food security. The objective of the article is to explore the traditional food preservations method; how food has been processes, preserved, stored and consumed by the local. Their food habit system defines the rich cultural legacy that is being transmitted from generation to generation. Traditional preservation techniques such as fermenting, smoking and sun-drying are briefly discussed in this paper. These three major themes broadly encompass the preservation of seasonal food, varieties of meat, fish, fruits and vegetables not only for enhancing the flavour but also in ensuring food security and preserving the local heritage. Using a qualitative research design a semi- structured interviews were conducted coupled with participant and non-participant observation method. The collected data was analysed by using thematic analysis in identifying patterns.**

**Keywords: North East India; Naga Tribes; Tribal Food Preservation; Traditional Knowledge**

## INTRODUCTION

Food preservation is the process to handle and treat a food in order to control its spoilage by stopping the attack and growth of food borne diseases causing microbes; to avoid oxidation of fats (rancidity) and to maintain the nutritional value, texture and flavour of the food.[1] It is the science of keeping food from rotting or decomposing so that it can be maintained in excellent condition for future use.[2] Food customs vary greatly among societies worldwide, even among those with similar cultural backgrounds. Food preparation, consumption, and storage practices reflect the socio-cultural fabric of a community, serving as a symbol of their heritage and embodying traditional knowledge passed down through generations to preserve ethnic identity (Britwum & Demont, 2022).[3] Traditional food systems of indigenous tribes contain treasures of knowledge that have evolved over generations through continuous interaction of their cultures with local ecosystems.[4] Food preservation has occupied a significant place in the age old tribal life when modern form of food preservation was not available. But in course of time this unique practices do not only serve as a means of food security but are highly in demand because of their unique taste and hence has become an integral part of their way of life. In the same way, the Poumai Naga of Gazhiphema village practice indigenous method of food preservation that is inextricably crucial in ensuring a steady supply of food particularly during times when fresh product is

[1] Rajabhuvaneswari Ariyamuthu, Valentine Rupa Albert, and Sangeetha Je. (2022). *An Overview of Food Preservation Using Conventional and Modern Methods*. Journal of Food and Nutrition Sciences 10(3): 70-79. http://www.sciencepublishinggroup.com > …. Accessed September 20, 2024.

[2] Loveleen Arora, and Ramneet Kaur. (2022). *An Overview on Food Preservation Methods*. International Journal of Innovative Research in Computer Science & Technology (IJIRCST) 10 (2 March): 164-168. https://journal.acspublisher.com › .... Accessed September 22, 2024.

[3] Cited in Dhira Mani Das and Dr Kh. Narendra Singh. (2024). *Traditional Food Preservation Methods and its significance: A Study Among the Bodo Community of Kokrajhar District, Assam.* International education and research Journal 10 (5 May). https://ierj.in › index.php › ierj › article › download. Accessed September 22, 2024.

[4] Singh. A.B. and Teron. R. (2017). Ethnic Food Habits of Angami Nagas of Nagaland State, India. International Food Research Journal 24 (3): 1061-1066. http://www.ifrj.upm.edu.my. Accessed March 23, 2025.

scarce. Variety of food items viz; vegetables, species, meat, drinks/beverage, grains, fruits etc., are preserved using the traditional methods like fermenting, smoking, sun-drying, canning, pickling for further uses. These techniques of food preservation reflect the close relationship of the people with their environment bridging the gap of food security, emphasizing sustainability and resourcefulness in food storage and consumption.

## OBJECTIVE OF THE STUDY

The main objective of the study is to explore and document the traditional food preservations method employed by the community of Gaziphema (Laii) village. The study sought to:

1. To identify the various types of food preserved by the villagers.
2. To highlight the techniques used to preserve different kinds of food.
3. To understand the reason behind food preservation and their relevance.

### Study Area

The study was conducted at Gaziphema village known as Laii (Vafiimei) of Senapati District, Manipur. The village is predominantly a Poumai Naga village with a population of 5518 according to 2011 census. The village economy is of self-sufficient type where a significant proportion of the households are engaged in agricultural practice. Besides a small section of them are also engaged in farming of bananas, stink beans and lemon.

The village is divided into three block as Laii (main village), New Laii, and Laii Sharifii. The village shares its border with Ukhrul District in the east and Phek District of Nagaland in the West and North. The hill areas have a range of altitude up to 1800 meters above the sea level. The riverine plains of Ngairi/Lanye and Zairi river in the east and sub-tropical forests in the west and northern lowlands of Laii Shirafii.

## METHODOLOGY

Methodological techniques such as observation and interview have been used for collection of primary data. Besides, secondary data has also been collected primarily from e-resources. A semi-structured interview was conducted with different people including the elder and teen members of the community. The questions were open- ended, allowing participants to explain the techniques employed on how food is been processed, preserved, stored and consumed. Fieldwork was carried out during the month of June and mid of July, 2024. The collected data was analysed by using thematic analysis under common themes like smoking, fermentation and sun-drying.

## RESULTS AND DISCUSSION

The process of food preservation practice by different communities worldwide is deeply engrained with one's cultural identity and practices. The food preservation methods employed by the local of Gaziphema village reveals their close proximity with their natural environment thereby bridging the gap between food culture and practice. This practice emphasises sustainability and resourcefulness of the local in processing, preserving and storing of numerous food for sustainable consumption.

### Smoking Based Preservation

Smoking is the most common method for the preservation of meat of different kinds viz; beef, pork, buffalo or any jungle animals, while pork is a common choice. Smoke meat enhances the flavor of the meat and is considered a delicacy almost found in every household. The process begins by selecting the meat, cleaning, cutting, and by trimming the excess fat if necessary. They are then cut into small pieces or thin strips. The strips are cut in a uniform size to ensure even drying. After that the meat is marinated with salt including local herbs or species for flavor, Salt is the primary ingredient used for preservation and taste. Traditionally, the people hang the meat in a ventilated area or near the fire place. They often used a bamboo pole or rack to hang the meat. The meat strip is then place above the fire maintaining low temperature avoiding it to over burn so as to infuse the meat with flavor. For smoking, woods are usually used to generate smoke. So, choosing the right wood is a necessary step. To remove moisture from the meat, the meat are place in the sun mostly during the day ensuring that the meat is exposed to adequate air flow to facilitate drying in direct sunlight. Sun drying is a crucial step in the process as it removes moisture from the meat, there by preserving it. The duration of drying varies depending on sunlight and heat intensity and humidity levels but typically takes

several days or weeks. During the drying process, the meat strips is turn occasionally to ensure even drying on all sides to prevent spoilage. Once the meat is thoroughly dried it is store in a clean, dry container or bamboo baskets. In traditional Naga household dried meat is often stored in bamboo tubes or basket lined with banana leaf to keep it safe from pets and moisture. This method is popular for creating a variety of dishes and cherished culinary tradition in every household.

Fermentation Based Preservation

Fermentation is the simplest and effective method of food processing due to its technical and economic advantages. It increases the shelf life and sensory quality, improves food digestibility, promotes removal of anti-nutritional factors and detoxification of toxic components. The traditional fermented foods are associated with unique functional microorganisms that enhance its nutritional, health promoting and therapeutic values (Nirmala et al., 2014, Rai and Jeyaram, 2015). This has served as a sustainable method of health food production, which has become an intricate part of the world's diet.[5] Food fermentation is also one of the common methods practice by the Naga people. Nagas are very fond of fermented foods. They often flavour their simple curries with different kind of fermented food items and herbs. The women folks of Naga villages, process traditional fermented foods, such as fish, animal fats and vegetables and beverages, viz. 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.[6] They are very fond of fermented foods as they often flavour their simple curries with different kind of fermented food items and herbs. The people of Gaziphema process traditional fermentation food such as rice beer, bamboo shoots, animal fats, beverages, crabs and axone.

a. Rice Beer: Rice beer is known as Zutho or khazii, rice beers hold cultural significant among the Naga tribes and also the tribals. It is brewed at home and use in various rituals and celebrations in the past. It often involves a straight forward fermentation process using locally available ingredients.

The process of preparing rice beer involves;

i. Ingredients: The ingredients used for making wine commonly include rice, wheat and yeast. Typically wheat is commonly used as the main ingredients. Yeast is also included in the process. The traditional method uses natural yeast present in the environment or in previous batches of wine.

ii. Preparation: Preparation method is done by soaking and washing the polished rice grains. The rice is rinse thoroughly to remove excess starch and dirt, after which it is soak in water for an hour or some minutes. This helps soften the grains for easier fermentation.

iii. Steaming: After soaking, the water is draining off by placing in a bamboo tray/basket or any type of basket. The rice is then steam until it is fully cooked. The rice should be tender but not mushy. After fully steamed, the rice is allowed to cool down by placing it in a room temperature. Once cooled, the steamed rice is being transfer to a clean container or vessel.

iv. Inoculation with Yeast: The yeast inoculum is added to the cooled steamed rice, where the yeast initiates fermentation, converting the sugars in the rice into alcohol.

v. Fermentation: The container is cover loosely to allow for airflow, which is essential for

[5] Cited in Thangjam Anand Singh, Wahengbam Romi, Santosh Keisam. (2019). "Traditional Fermented Foods of ethnic people of Manipur, India." In Dr. Th. Anand Singh Dr. Prakash K. Sarangi Dr. Neeta Sarangthem (Ed.), *Food Bioresources and Ethnic Foods of Manipur, Northeast India*. (101) India: Empyreal Publishing House. https://www.empyrialpublishinghouse.com. Accessed March 23, 2025.

[6] Ashiho A Mao and N Odyuo. (2007). Traditional fermented foods of the Naga tribes of Northeastern, India. Indian Journal of Traditional Knowledge 6(1): 37. https://www.researchgate.net › ... Accessed March 23, 2025.

fermentation. Traditionally, the mixture is often kept in earthenware pots or bamboo containers lined with banana leaves.

vi. Fermentation period: The fermentation process typically takes several days to a week, depending on ambient temperature and the desired alcohol content. During fermentation, it is stir occasionally to ensure even fermentation and to release any trapped gases. Once fermentation is complete, the liquid is strained to remove any remaining solids. While some prefer to allow the wine to mature for a few additional days in a cool place to enhance its flavor.

b. Fermented Soybean: Fermented soybean is commonly known as *Akini* or *Axone*, in the local dialect it is known as *herfemata*. It is a staple ingredient in Naga Cuisine. It is characterized with flavor and stickiness and is used in chutneys, curries and as a side dish. It is prepared by cleaning the soybean seeds and by soaking the seeds in the water overnight or up to 9/10 hours, after which they are rinse with clean water. It is then cook by boiling them in a clean pot without adding any spices like salt, chili etc. The cooked beans are then wrapped in banana leaves together and is covered tightly preventing from air and pest. The process is then followed by keeping it near the fireplace and let it ferment for a week. To maintain durability and free from spoilage it is dry in the sun. The dry fermented soybean is then stored for future consumption.

c. Bamboo shoots: Another important food fermentation item is bamboo shoot which is a common practice by many. Bamboo shoots fermentation is carried out during May, June and July when new shoots sprout. The process involved the collection of young and tender bamboo shoot. After removing the outer scales, cleaning and cutting them evenly (big/small) it is put in a jar that is closely tighten and then is kept in a cool room temperature. The fermentation p fermentation period took three to four months. The fermented bamboo can be used in various dishes, it add a unique tangy flavor to curries and stews.

d. Animal fats: The fermentation of animals fats especially that of pork is another delicacy of the Poumai Nagas. The pork fats are usually cut into small pieces and is then stored in a container to ferment. It will take about 7 to 15 days for basic fermentation and could also extend to 1 month for intense flavour.

e. Fruit based fermented beverage: The different Naga tribes usually prepared various kinds of fruits beverage. The different type of fruit beverages prepared by the people of Gaziphema mostly includes wild apple, gooseberry, plum, passion fruits and banana. Fruits like gooseberry and wild apple are process by washing, peeling of the skins and removing the seed. Depending on one's choice the fruit can either be boil or not boil. The fruit is then transfer in an earthen pot or jar. Sugar or jaggery is then added in jar. The lid is then tightly closed and it is keep for 1-2 week for fermentation. The pulp of passion fruit, plum and banana are directly place in a jar and soaked with sugar syrup. The longer you keep the stronger the drinks become. These fermented products are taken as beverage.

f. Lime or Lemon juice is also an important item preserved by the people of Gaziphema. Lemon is preserved and kept by squeezing out the juice from the fresh fruits and is then kept in a jar or bottle by covering it tightly for further uses. The local mostly use the lime juice in their tea. It is also a common practice of the local to mix this juice with water and sugar and used it as energy drinks when they go to the field. The practice of making this juice is also a major source of income of some families where half liter bottle of lime juice cost INR 300. The lime juice is believed to have medicinal values, such as curing indigestion, preventing kidney and stones and also help in maintaining balance of the body. The lime juice can be store for a long period of time extending to a year or more without being spoiled.

Drying and dehydration Techniques

a. Rice: As rice is the staple food of the village they mostly cultivated large plot of land. They practice both terrace and settled cultivation where different types of rice is grown and consumed by the people. Some of the notable rice includes *Makro* (white sticky rice), *Tatho, Tanga Tii* (black sticky rice), *Tanga Kra* (white rice), *Paolrou* (type of rice mostly planted in terrace), *Kithouri* (tall plant rice), *Makho Kohro* (red rice).The harvested rice is preserved by storing them in a large bamboo made structure basket known as *Baoh*. It has a storage capacity that ranges from 30 to 90 *Vao* (a local standard measurement that can contain 15 to 20 kg). These structures are made from bamboo sticks interwoven tightly to create an airtight compartment for storing of grains.

The structure appearance looks like an oval. A unique storage vessel is also made from a single trunk of wood to store the grains. It is fitted with a cover to protect the contents (probably grains) where the grain are being preserve and kept inside in order to prevent from moisture and insects. These rice containers are mostly put inside the house protecting from rain. Beside rice, the local also grow other food grains like wheat and millet. Wheat is commonly used for making wine. It is also often use in festive dishes and also for making desserts like bread.

b. Bamboo shoots: Bamboo shoot is one of the most popular food consumed by the local. For longer storage the young bamboo shoots are clean and boil for a few minutes after which they are cut into thin sliced and smaller piece, and are place in the sun to let it dried. Occasional stirring is a major process involve in this method. It typically takes 3 to 7 days for drying depending on factors like weather conditions, thickness of slice bamboo and drying method. In rainy days the slice bamboos are smoke dry in the kitchen fire place that would take about 5 to 7 days. Once the slice bamboos are properly dry it is then store for future used. Dry bamboo shoot is a delicacy and can be added in all kinds of curry specially meat.

c. Beefsteak plant or perilla seeds: The Perilla leaf and seed are known to have medicinal values for treating asthma, nausea, sunstroke, and to reduce muscle spasms. While in food the seed is used as a flavoring. Locally known as *tsii* is a common food flavouring items of the local. It is harvested when the plant is matured and is dried off. The seeds are separated from the plant and then dry in the sun. Once the seeds are completely dried, they are been kept in a dry calabash also known as bottle gourd to prevent from spoilage and insects. The perilla seed is used for cooking by roasting them in the fire for some seconds and by pounding it finely. To add this flavor in any dishes, one should always add them when the water is cold. They are also often added in making of local sticky rice bread/cake known as *lirii tou*. The pounded perilla seed is applied on the two side of the bread and is grill. This bread is popular on wedding occasion as an important dessert.

d. Maize: Maize is also one of the common items preserved by the people of Gaziphema. Maize are preserved and store once the maize is fully mature and its seeds are hard. Almost every household preserved maize by tying and hanging them in rows above the fireplace or in kitchen rows. Maize play a significant role in the daily life of the people as it is mostly used to fed animals and birds like pig, chicken and duck. The dried maize are also eaten by roasting, and as a soup added with wheat and sugar. In olden time, maize is use for making wine mixed with wheat by soaking them overnight and by pounding them together and placing them in an earthen pot and fermenting them with yeast. Maize is also consumed in liue of rice. And at a time rice and maize are being cooked together and consumed. This happens when there is not enough rice due to unavailability of enough land to cultivate or plough.

e. Dried fish: The oldest traditional way of preserving fish was to let the wind and sun dried it. The people of Gaziphema preserve different type of fish that are found in the field and river. It is use as a flavor in dishes and as side dishes with meal. Fish are preserved through traditional methods as drying, smoking and salting. The small fish locally known as *Kaikhe* that is found in the field is dried by placing them near the fire or by drying them in the sun. After the fishes are properly dry they are kept in a bamboo made basket by placing them near the fire. They are commonly used to flavor dishes and can be used throughout the year.

f. Vegetables: The most common vegetables preserve by the people of Gaziphema are cabbage, chives and yam stem. These are process by sun drying in a simplest way. The cabbage is process by cleaning and rinsing with water after which it is boil for some minutes. They are then slice into pieces and is exposed in sun for drying. Yam stem is process by taking off the access water from the stem and is then sun. Chives leaf is also preserve by squeezing out access water from it and sun drying it. These vegetables is preserved and kept by the people to be consumed during the lean season. Beside mustard leaf, and beans seed are also preserved by sun drying.

g. Spices: When we talk about spices, a spice is any seed, fruit, root, bark or other plant substance which is used for flavoring or coloring food. Spices like chili, spring onion, garlic, turmeric and ginger are the common spices preserved by the local.

1. Chilies are preserved and kept by harvesting the mature and ripe one and by sun-drying it or by placing them above the fire place. Once they've shriveled and darken in color, we can take them off and placed them in a container or basket. Chilies are also preserved in the form of pickle where pickled chilies are fragrant and delicious. They are made by adding chili, salt, oil and vinegar in a jar and keeping it in the sun for a week after which we can used for making chutney or it can also be eaten as it is. These are the two ways of preserving chili but the most common method used by the people is sun drying. The preserved chilies can be used throughout the year.

2. The seasonal spring onion and garlic is a root vegetable whose bulbs grow underground. They are preserved mostly for consumption and also to be planted for the coming season. The mature onions and garlic are dried in the field for several hours before being tied together and hung. After that, they are tied together by bunches and is hung in a dark, warm room until their root dried off. Once the root dried off we can hung them in a well-ventilated area or container where we can used them up to 3/5 months without being spoil. Spring onion is used to add in making chutneys while garlic is used to season many dishes.

3. Turmeric is a flowering plant in the ginger family. It is also known as the most common spices of India. The root of the turmeric is being preserve by the people. The process involved digging out the root, cleaning and rinsing it well with water. Once it has been clean, the outer cover of the turmeric is been peel off after which the turmeric are placed in the sun to let it dried properly. The dried turmeric is then pounded to powder that can be store for years. This spice is used as a flavor in coloring the dishes. It is also apply as a medicine to reduce swollenness and inflammation on the body.

The food preservation methods of Gaziphema not only ensure the community's survival but also reflect the village deep connection to their environment. While the techniques remains effective, challenges such as climate change and modernization also pose future threats. Overall, these preservation techniques represent a vital link between the village past and its future sustainability.

## CONCLUSION

The study of traditional food preservation methods in Gaziphema village reveals a rich cultural heritage and deep- rooted practices that have been passed down through generations. Traditional techniques such as drying, smoking and fermentation play a crucial role in ensuring food security and preserving local heritage. These natural preservation methods is not only environmentally sustainable but also effective in extending the shelf life of food and also impart unique flavors, enriching the local cuisine. It also reveals that food preservation is vital for managing seasonal fluctuations in food availability. Through interviews and observations, it became evident that while modern technology has introduced alternatives, many villagers still rely on the traditional techniques due to their low cost, accessibility, and for the unique flavors. These methods are valued for their sustainability, affordability, and ability to preserve without the need for modern technologies.

In addition, food preservation practices in the village foster a sense of community, as they involve collective efforts where the process not only strengthens bonds within the village but also reflects resilience and adaptability in the face of challenges such as climate variability or economic uncertainty. Additionally, concerns regarding food safety have been raised particularly with practices like smoking and fermenting. Nevertheless, the methods continue to hold social significance.

Acknowledgement: Authors are immensely grateful to Thaizii Paveisho for his assistance in data collection and also to the local informants for their corporation during fieldwork.

## BIBLIOGRAPHY

[1] Ariyamuthu, Rajabhuvaneswari, Albert, Valentine Rupa and Je, Sangeetha Je. (2022). *An Overview of Food Preservation Using Conventional and Modern Methods*. Journal of Food and Nutrition Sciences 10(3): 70-79. http://www.sciencepublishinggroup.com >

[2] Arora, Loveleen and Kaur, Ramneet. (2022). *An Overview on Food Preservation Methods*. International Journal of Innovative Research in Computer Science & Technology (IJIRCST) 10 (2 March): 164-168. https://journal.acspublisher.com › ....

[3] Das, Dhira Mani and Singh, Dr Kh. Narendra. (2024). *Traditional Food Preservation Methods*

*and its significance: A Study Among the Bodo Community of Kokrajhar District, Assam.* International education and research Journal 10 (5 May). https://ierj.in › index.php › ierj › article › download.

[4] A.B., Singh and R, Teron. (2017). Ethnic Food Habits of Angami Nagas of Nagaland State, India. International Food Research Journal 24 (3): 1061-1066. http://www.ifrj.upm.edu.my.

[5] Cited in Thangjam Anand Singh, Wahengbam Romi, Santosh Keisam. (2019). "Traditional Fermented Foods of ethnic people of Manipur, India." In Dr. Th. Anand Singh Dr. Prakash K. Sarangi Dr. Neeta Sarangthem (Ed.), Food Bioresources and Ethnic Foods of Manipur, Northeast India. (101) India: Empyreal Publishing House. https://www.empyrialpublishinghouse.com.

[6] Ashiho A Mao and N Odyuo. (2007). Traditional fermented foods of the Naga tribes of Northeastern, India. Indian Journal of Traditional Knowledge 6(1): 37. https://www.researchgate.net.