

RESEARCH ARTICLE

Traditional food and beverage products of *Sartang* tribe in West Kameng district of Arunachal Pradesh, India

Duyi Samyor¹, Ajitabh Bora^{2*}, Baikuntha J Gogoi²¹Department of Food Technology, Rajiv Gandhi University, Rono Hills, Doimukh-791112, Arunachal Pradesh.²Defence Research Laboratory R & D Centre, DRDO Salari - 790001, West Kameng District, Arunachal Pradesh.*Corresponding author: ajitabh.drl@gov.in

Article No.: ABJBR75; Received: 10.08.2023; Peer-reviewed: 30.12.2023; Accepted: 15.05.2024; Published: 30.06.2024

Doi: <https://doi.org/10.5281/zenodo.12702701>

Abstract

Field study conducted in Sartang dominated Salari village of West Kameng district of Arunachal Pradesh has documented 23 types of traditional food and beverage products derived from cultivated and wild plant species, domesticated animal and fishery sources. It also documents traditional food processing technology, knowledge and methods. Investigation has revealed some unique traditional food processing methods and knowledge system which has the deep linkages with local culture, traditional customs and tribal world view. Diversity of traditional food system recorded from Salari village has the potential to ensure local food, nutritional, commercial and livelihood security to the Sartang community and the adjacent tribes.

Keyword: Beverages; Dairy Product; Salari; *Sartang* Tribe; Traditional Food; Livelihood Security; West Kameng; Arunachal Pradesh

1. Introduction

Arunachal Pradesh is reported as one of the richest botanical province of India and part of the Himalayan hotspot region blessed with rich biodiversity and local culture (Myers et al., 2000; Jambey et al., 2017). Salari is a small village under Dirang block in West Kameng district of Arunachal Pradesh, India (Figure 1). It is located in mid hills at an altitude of 1250 m from the mean sea level. The village is connected with the district headquarter Bomdila by an all weather road which is located at around 28-29 km. The district derives its name from the river Kameng that flows through it and is a major tributary of river Brahmaputra (Jambey et al., 2017). The district is bordered by Tawang district in the North, Bhutan in the West, East Kameng district in the East and Assam in the South and harbours total population 83,947 persons (Anonymous, 2011; Census of India, 2011).

The economy of the region is dependant primarily on agriculture and horticulture. The fertile soil and favorable agro-climatic environment prevailing over the region is one of the major advantage for good agricultural production. Rice is the staple crop of Sartang tribe and they usually follow terrace and wet cultivation (Deki et al., 2018). Waxy red rice is also cultivated which is used in preparation of rice beer. In wet cultivation of paddy, pisciculture is being practiced by few farmers. Present study was designed and carried out among the Sartang tribe residing in Salari region with an aim to document and describe their various foods and beverages products which contribute to local food and livelihood security.

2. Methodology

2.1. Study site and tribal community

West Kameng district of Arunachal Pradesh fall within a geographical coordinates of 27.3428° N latitude and 92.3024° E longitude characterized by lofty mountain ranges with undulating terrains dominated by subtropical and temperate coniferous, evergreen and

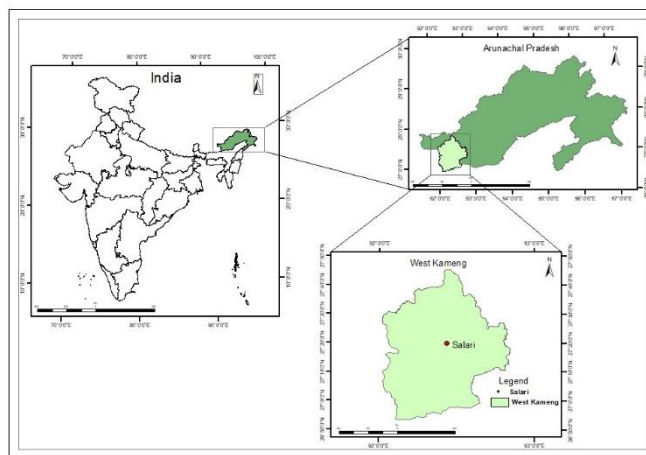


Figure 1. Map of study area showing Sartang inhabited area of West Kameng district of Arunachal Pradesh.

deciduous forest types with rich biodiversity and local culture (Jambey et al., 2017). West Kameng district is a home to different ethnic communities which co-exist, namely, *Sherdukpen*, *Monpa*, *Aka*, *Miji*, *Bugun* and *Sartang*. Sartang is one of the lesser known tribe with a total population of over 2000 - 5000 persons with distinct language and cultural practices which falls within Trans-himalaya Tibeto-Burman linguistic family (Bodt, 2021). The Salari region (Figure 1) has a total Sartang population of 492 enumerated from 111 households as recorded in Village Education Survey Register. Sartang is now one of the constitutionally recognized major tribal community of Arunachal Pradesh (Gazette of India, 2021) residing in Bomdila,

and mainly found in Salari and Rahung under Dirang circle, and Jerigao, Khoina and Khoitam under Nafra circle, and also distributed in Tembang circle of West Kameng (Bodt, 2021). Sartang sustain their rural livelihood through agriculture and animal husbandry and use wide variety of wild edible and cultivated plant species (Deki et al., 2018).

2.2. Field survey method

The study was carried out using questionnaire format and household visits were made in Salari village of West Kameng district of Arunachal Pradesh to record the traditional food and beverage products used by the Sartang community during the Month of December to February 2017 – 2018. The main components of questionnaire were (a) agriculture and food processing, (b) veterinary information. In the general open-ended category, questions like name, age, gender, occupation etc. were asked. In agriculture and food processing category, questions were based on type of farming, usage of pesticides, names of kharif and rabi crops, names of native fruits or vegetables, names of fruits and vegetable introduced from outside Salari, name of cash crops, etc. In veterinary information category, questions were based on type of domestic animals reared, health status of the domesticated animals, reproductive assistance (like artificial insemination or assistance during birth) from veterinary clinic, Rabies vaccination in case of dog bite, etc.

3. Result and discussion

3.1. Diversity of local food and beverage products

Present investigation has recorded 23 types of traditional food and beverage products derived from domesticated animal and fisheries, wild edible fruits and vegetables species available in the community forest and agricultural field, kitchen garden of the Sartang dominated area of Salari. They have been observed to have a very simple and unique traditional food habits to ensure their nutritional requirements. The agro-climatic condition of the region favours luxuriant growth of diverse species of fruits and vegetables. Various cereal based food and beverages constitutes major food products of Sartang. Local food and alcoholic beverages were important items of their food habit. These food items have been reported to be widely used in different socio-cultural occasions, especially during celebration the annual Tang festival, which is celebrated to commemorate the pre-buddhist era of Sartang tribe. They have been observed to be fond of fermented foods like fermented soyabean, locally known as *Sukni*. Cereals such as rice, maize, finger millet, etc. were generally used for alcoholic fermentation. Distilled alcohol were also reported to be prepared from various fruits such as kiwi, guava, pear, peach, himalayan dogwood, wild apple, etc. Alcohol beverages have been reported to be used in every occasion such as festivals, celebration, anniversary, funerals, etc.

3.2. Cereal products

3.2.1. Apoom

Apoom is a cereal based item prepared by using immature maize. Smoked meat, meat bone, local spices, salt etc. can be added in the recipe.

3.2.2. Chokchi

Chokchi is basically a soup prepared by using immature maize. Immature maize is put into boil water and ingredients like salt, pepper, vegetables and sometime even smoked meats are chopped and added.

3.2.3. Dangkhri

In this recipe, mature maize is made into powder and cooked with vegetables.

3.2.4. Kakung

Kakung is a local name for roasted mature maize food item. It is basically a snack item. Mature maize is plucked and corns are separate from its corn stick. It is then roasted (Figure 2a), pounded in

a wooden pounder (Figure 2b) and the powder is winnowed (Figure 2c). Coarsely pounded corn items are ready to eat as food item. It is either soaked in milk tea or local butter-salt tea before eating it.

3.2.5. Kabjeh

Kabjeh (Figure 2d) is a cereal based snack item which is prepared during the Buddhist New Year locally known as Losar. The main ingredients of this particular items are *maida* (branless wheat), refine oil, salt/sugar. Some people prepared adding food colorants too. The first prepared *kabjeh* is always offered to God.

3.2.6. Lashomichi kakung

Lashomichi kakung is a snack item. It is a popped corn. Matured corn is heated and let to pop out.

3.2.7. Jhum putang

Jhum means buckwheat and *putang* means noodles. A manual hand press made from wood (*Chersing*) is used to prepare noodle (Figure 2e). The dough is pressed in-between the wooden planks. The lower plank has a hole which extrude out the noodles from the dough, when exerted pressure (Figure 2f). The noodles are then cooked and eaten as a main course.

3.2.8. Jhum hemleh

Hemleh looks like roti. Buckwheat powder is kneaded into dough and small balls of dough are flatten manually and cooked on the firewood charcoal.

3.2.9. Gicham guih

Gichaam means Finger millet and *guih* means food prepared from Finger millet. Finger millet grains are milled in a traditional miller called *Choskor* (Figure 3a). The powdered millet is then cooked in boiled water until the dough is fully cooked.

3.2.10. Niseh bokpi

Wheat is called *niseh* by the Sartangs. *Niseh bokpi* is a preparation from wheat. In boiled water, wheat is added and stirred until water is fully absorbed by the wheat. Mixture is made into cooked dough and eaten with meat items (Figure 3b).

3.3. Vegetable product

3.3.1. Mullu ski dong

Mullu ski dong is a dried vegetable preparation. Mature radish is shredded and kept under sun drying (Figure 3c). The dried shredded radish are then cooked with meat items and vegetables.

3.3.2. Thingnichu

It is basically a salad item. Wild mushroom is sun dried (Figure 3d). Dried mushroom is cooked in plain water. After the mushroom is cooked, the water is drained out. The cooked mushroom is then added with salt and green chilli and served.

3.3.3. Mimichidang

This mushroom is yellow in colour and recipe prepared from this mushroom is called *Mimichidang*. Fermented soyabean and meat item also can be cooked together.

3.3.4. Sukni

Sukni is a local name of fermented soyabean (Figure 3e). It is prepared from cooked soyabean. Matured gourd is collected and deseeded. Gourd, locally known as *Tangkro* (Figure 3f) is dried properly under sunlight. Cooked *Sukni* is put inside the gourd and stuffed fully. Gourd is then fully covered with mud. It is then kept near the fireplace for a year.

3.3.5. Dhachulung

It is a meal preparation using *Colocasia* leaves. Addition of meat and other is upto one's taste and interest.

3.3.6 Khazi

Khazi is a common term for any salad item. It can be prepared from any green leafy vegetables, fermented food item, local spice, wild thin bamboo shoot, different wild roots, etc. (Figure 4a).

3.4. Dairy products

3.4.1 Sushoom

Sushoom is a dairy food item prepared by using different curdling agent. This preparation resembles with paneer. Traditional coagulants are used for the preparation viz. *Mitchi phak* (maize wine), *Maplong akoh* (wild fruit juice) and *Meethikh akoh* (wild apple juice) (Figure 4b).

3.4.2 Susuh

It is a milk product where the coagulated milk are packed inside the dried yak skin cover called *Susuh chorchik* (Figure 4c) and the product name is *Susuh* (Figure 4d).

3.5. Non- alcoholic and alcoholic fermented beverages

3.5.1 Chingchik jo

In Sartang tribe, tea is called *jo*, green leaf is called *arap* (Figure 5a). The tea prepared from *Chingchik* leaves is called *Chingchik arap jo* (Figure 5b) *Chingchik* is a wild herb. The tea is prepared by wilting green leaves which is then mixed with firewood charcoal and ash. The mixture is dried under sunlight after washing in water. The wilted leaves are boiled in water. Salt or sugar is added as per individual's choice.

3.5.2 Bzorukh arap jo

Bzorukh arap jo is prepared from leaves of a wild tree known as *Bzorukh* (Figure 5c). Tender leaves are boiled in water along with addition of ash and kept for drying under sunlight. The wilted leaves later were used for tea preparation (Figure 5d)

3.5.3 Hingpo singtoh jo

Red oak is called *Hingpo* in Sartang tribe and heartwood of *Hingpo* is called *Singtoh* (Figure 5e). Tea prepared from *Hingpo singtoh* is called *Hingpo singtoh jo*. This tea is prepared by boiling the heartwood (*Singtoh*) of red oak tree in water (Figure 5f).

3.6. Alcoholic beverages

3.6.1 Michi phak

Michi means Maize and *phak* means alcohol prepared from maize. The maize corn is separated and dried under the sun. The dried corn are then stored in a bamboo basket known as *Michi yub*. The corn are then made into coarse flakes using local chakki (*Choskor*). The coarse grounded corns are boiled. After cooking the corn, the cooked corn are spread into bamboo tray locally known as *Ringtakh kho* for cooling. After the corn is cooled down, starched based yeast called *Phooh* (Figure 6a) is added (3 ball of rice starch in 10kg of rice). The mixture is kept for one day in *Ringtakh kho* and shifted into a container later. *Michi phak* (Figure 6b) is filtered through a can filter locally known as *Thog*. The filtrate is kept upon a bamboo based con (*Kajer*) to support the *Thog*. The collection is done in a round tumbler (*Digbro*). *Michi phak* is very popular because of its appealing colour and taste. The alcoholic beverage made from the corn is ready to serve after 1 week, but *phak* gets better if it is kept for more than a year in an air tight bucket.

3.6.2 Chu phak

Chu phak is an alcoholic beverage prepared from rice. The process is more or less same with *Michi phak*. Rice is cooked and spreaded in an bamboo tray locally known as *Ringtakh kho*. Yeast is added for the fermentation process. Colour of *Chu phak* is whitish (Figure 6c). Rice beer gets better with time. So, the villagers used to keep the mixture



Figure 2. a. Roasting of corn, b. Wooden pounder, c. Fresh *Kakung*, d. *Kabjeh*, e. *Chersing*, f. Lower part of *Chersing*

in air tight plastic bucket (Figure 6d) for years. *Chu phak* is also used in offering to God (Figure 6e) during the local festivals like *Tang* and *Chiksaba* (Figure 6f)

3.6.3 Greygi chu phak

It is an alcoholic beverage prepared from red rice. The preparation is same with *Chu phak*. The colour of *Greygi chu phak* is reddish and sweet in taste.

3.6.4 Kichaam phak

Kichaam means Finger millet. It is an alcoholic beverages prepared from finger millet.

3.6.5 Aroh

Aroh is a clear distilled alcoholic beverages unlike *Michi* and *Chu phak*. It is prepared by distillation of cereals like Rice beer (*Chu phak*), Maize beer (*Mitchi phak*), Finger millet beer (*Gichaam*) and fruits like Orange (*Chalik aroh*) (Figure 7a), Guava (*Ambok aroh*), Kiwi (*Kiwi aroh*) (Figure 7b), Apricot (*Milechi aroh*), Himalayan dogwood (*Machmin aroh*), etc. *Aroh dikh* is a set where *Aroh* is prepared (Figure 7c).

Present study revealed rich traditional food and beverage knowledge of the Sartang tribe of West Kameng district of Arunachal Pradesh. They prepare variety of food and beverage products which has a deep connection with their culture, customs, ethos and world views. Cash crops like tomato, cabbage and orange have been observed to be a good source of income for the local people resident. In the village, contract farming system were prevalent and have a trade link with neighbouring state of Assam especially for tomato and cabbage crop.



Figure 3. a. *Choskor*, b. *Niseh bokpi*, c. *Mullu ski dong*, d. Sun dried wild mushroom, e. *Sukni*, f. Matured round gourd (*Tangkro*) used for *Sukni* fermentation.



Figure 4. a. Khazi, b. Sushoom, c. Susuh chorchick, d. Susuh.

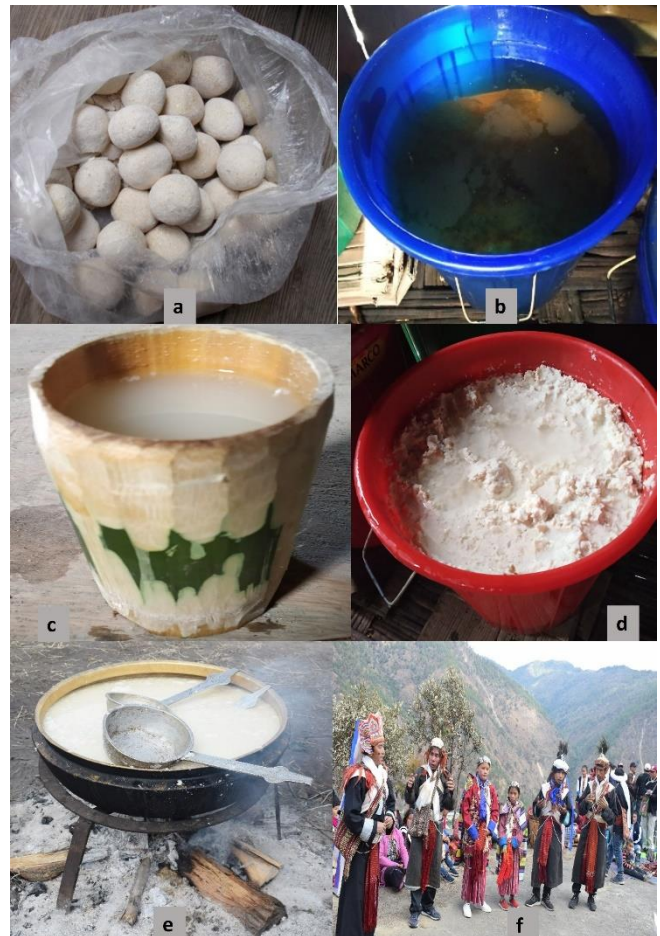


Figure 6. a. Phooh, b. Michi phak, c. Chu phak, d. Chu phak storage container, e. Chu pak ready for offering to God, f. Chiksaba festival of Sartang tribe



Figure 5. a. Chingchik arap, b. Chingchik arap jo, c. Bzorukh arap, d. Bzorukh arap jo, e. Hingpo singtoh, f. Hingpo singtoh jo

Earlier studies of [Pallabi et al \(2014\)](#) and [Deki et al \(2018\)](#) also reported Sartang to be non-vegetarian in food habit which use variety of wild edible plant species and animal products. Common carp variety of fish have been observed to be popularly grown in the paddy cum fish culture. The villagers domesticate livestock like cow and goat for commercial as well as domestic purposes while they domesticate Jersey breed of cows in the village ([Ranjay et al., 2007](#); [Sanjib et al., 2019](#)). The villagers consume forest based food items like wild mushrooms etc. for their food and nutritional security. Fermented food items like soybean, locally known as *Sukni* and dairy products like *Sushoom* are quite popular among the locals which were also reported earlier by [Ranjay et al \(2007\)](#), [Tag et al \(2014\)](#) and [Deki et al \(2018\)](#).

Conclusion

Present study has reported 23 types of food and beverage products prepared and used by the Sartang tribe of Salari village in West Kameng district of Arunachal Pradesh which has the deep linkages with traditional local culture and belief systems, and potential to ensure local food, nutritional, commercial and livelihood security to the local residents and adjacent districts. Raw materials for the preparation of these food and beverage products were found to be mostly derived from the cultivated and wild plant species, domesticated animal such as cow, and fishery sources. Some of the traditional food and beverage preparation knowledge, technology and methods were found to be unique which need IPR protection and promotion. Further investigation at biochemical aspect is required to unveil the nutritional potential of these indigenous food and beverage products.

Acknowledgement

Authors are grateful to Defence Research Laboratory, DRDO, Tezpur for providing necessary financial support for undertaking the study and also thankful to Department of Food Technology, Rajiv Gandhi University, Rono Hills, Doimukh-791112, India.

Authors contribution

DS: Contributed field work and preparation of draft manuscript. AB and BJG: Contributed in research design, concept, supervision and final manuscript editing.

Declaration of conflict of interest

Authors have no conflict of interest

References

Anonymous. 2011. *Statistical abstract of Arunachal Pradesh*. Directorate of Economics and Statistics, Govt. of Arunachal Pradesh, Itanagar.

Bodt TA.2021. Sartang (West Kameng district, Arunachal Pradesh, India) - Language Contexts. *Language Documentation and Description* 20: 162-188.

Census of India. 2011. Arunachal Pradesh - Series 13 - Part XII A - District Census Handbook, West Kameng.

Deki T, Sanjib D, Jambey T, Pallabi KH and Tag H. 2018. Rapid ethnobotanical appraisal on Bugun, Sartang and Monpa communities of West Kameng and Tawang Sector of Arunachal Himalayan Region India. *Pleione* 12(2): 283 - 297.

Gazette of India. 2021. Constitutional (Scheduled Tribes) Order, 1950 (Amendment) Act, 2021 (Act No. 32 of 2021). In: *The Gazette of India, Extraordinary, PART II, SECTION I (No. 43)*, Dated 13 August 2021. Published by Ministry of Law & Justice, Govt. of India.

Jambey Tsering, BJ Gogoi, Pallabi KH, Tam N & Tag H. 2017. Ethnobotanical appraisal on the wild edible plants used by the *Monpa* Community of Arunachal Pradesh. *Indian Journal of Traditional Knowledge* 16 (4): 626-637.

Myers N, Mittermier RA, Mittermier CG, da Fonseca GAB and Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 40: 853 - 858.

Pallabi K, Tag H, Sarma HN and Das AK. 2014. Evaluation of Nutritional Potential of Five Unexplored Wild Edible Food Plants from Eastern Himalayan Biodiversity Hotspot Region (India): *International Journal of Biological, Life Science and Engineering*, 8 (3): 1-4.

Sanjib KD, Tridip JD, Deki T, Tsering J, Dipayan P, Debmalya DG, Yanka H, Momang T, Bansod S, Chandraiah G, Ananthan R, Sanjay J, Tag H and Pallabi KH. 2019. Ethnobotanical notes on significant food and medicinal flora used by the indigenous Monpa and Nyishi communities of Arunachal Pradesh, India. *Pleione* 13(2): 291 - 304. doi:10.26679/Pleione.13.2.2019.291-304.

Singh RK, Singh A and Sureja AK. 2007. Traditional Foods of *Monpa* tribe of West Kameng, Arunachal Pradesh. *Indian Journal of Traditional Knowledge* 6(1): 25-36.

Tag H, Tsering J, Pallabi KH, Gogoi BJ and Veer V. 2014. Nutritional Potential and Traditional Uses of High-Altitude Wild Edible Plants in Eastern Himalayas, India. *International Journal of Agriculture, Biosystems Science and Engineering* 8 (3): 395-400.



Figure 7. a. *Chalik aroh*, b. *Kiwi aroh*, c. *Aroh dikh* (distillation utensil)

