Traditional milk, meat processing and preservation techniques of the Yak Pastoralists of Arunachal Pradesh

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Yak milk products like butter (Mar) and wet cheese (Churpy) form an inseparable part of the ethnic food of Monpa tribe in Arunachal Pradesh. Dried yak meat (Sah Sangba) is also highly relished by them. These products are exclusively prepared by the Brokpa community, yak pastoralists belonging to the Monpa tribe. They have traditional ways of processing and preserving yak milk and meat. The brokpa economy mostly rotates through trading of Yak products. This paper is an attempt to document the traditional ways of processing and preserving yak milk and meat in the Brokpa community.

Keywords: Milk, Meat processing, Preservation, Churpy, Butter, Brokpa, Arunachal Pradesh

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West Kameng and Tawang districts are inhabited by many major tribes like Monpa, Miji, Sherdukpen, Aka and Khowa and minority tribes like Takpa, Lishipa, Chugpa, etc. However, Monpa tribe is presently the dominant tribe of the area. Historically, Monpas are the aborigines of that area and once ruled a Kingdom called Monyal, or Lhomon that existed from 500 BC to 600 AD. It was believed that Monyal stretches from present day Tawang upto West Bengal, Assam, part of Sikkim and even the Duars plains at the Himalayan Foothills. The Monpa people are followers of Tibetan Buddhism of the Gelugpa sect, although several members of the Bhut Monpa are followers of Bon and Animism. The yak raisers, known as the Brokpas, are a pastoral community belonging to the Monpa tribe. Brokpas maintain yak herds under semi-migratory (transhumance) free-range system. During the summer months they move out of their permanent house to migrate their yaks to higher altitudes in search of better pasture and returning back when the summer pasture starts to dry up. Yak is a form of natural capital to them through its milk, meat, wool, hides and cash. Management of yaks ranges from the most primitive to the technologically quite advanced1. Though, yak is reared for its multipurpose utility but the Brokpa economy mostly rotates through trading of yak milk and milk products. With traditional Knowledge and wisdom acquired from generation to generation, Brokpas have developed traditional package and practices for yak husbandry and yak products technology2. Milk products like wet cheese (Churpy) and butter (Mar) form an essential part of the ethnic food of Monpa people. Yak plays an important role in the socio-economic and cultural life of people inhabiting the alpine region in the Himalayas, where the major source of income for the yak farmers comes from yak milk2. Since, cultivable agriculture is almost nil in the high reaches of the yak rearing belt of Arunachal Pradesh, therefore, food preservation for future use - particularly for winter period, is a common practice. The Brokpas have traditional methods of preparation of yak meat and milk products and its preservation. These traditional milk processing and preservation techniques are indicative of the rich culture of the Brokpas.

Methodology

Since the time yaks were domesticated, due to the special, natural and economic characteristics, the yak production system that has been formed is different from other livestock production system1. West Kameng and Tawang districts are the only yak rearing districts of Arunachal Pradesh. Depending on the

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distribution of Yak in the different administrative circles under these districts and its accessibility, 10 villages from Dirang, Mukto, Jang and Tawang circles were selected randomly for the present study. From each of the selected village 5 respondents were consulted. The household considered for the study were families maintaining yak herds as a primary livelihood means. The study was initiated in the year 2008 and continued for two years. Both summer and winter season were utilized for data collection by visiting the village twice in each season. A questionnaire with open ended questions was used to explore and document the same. Interview of the brokpas were done on spot during the field visits. Direct observation of the product processing techniques in the two important summer halt camps of the Brokpas, Bangijung and Sela of Tawang district contributed extensively in photographic documentation. The paper is thus based on the primary data so collected through fieldwork carried out in the villages and mostly documents the traditional techniques of milk and meat processing and preservation in the Brokpa community. To discuss the different aspects of the study and assess its correctness a Focus Group Discussion (FGD) was finally conducted with a group of purposively selected participants comprising of elderly villagers, village headman or Gaonbura and members of Dungkarpa Welfare Association, a local Non Govt. Organisation working for the welfare of brokpa community in West Kameng district and Nguiphu Charitable Society of Tawang district.

Results

The processing of milk

Milk is processed into different types of products by the Brokpas. The most common products are butter (Mar) and wet cheese (Churpy). Only a small portion of the raw milk is used for making salted butter tea. Visitors to the Brokpa houses are offered a beverage made of tea, salt and butter called Shui Zha/Maar Zha, commonly known as Namak chai, which literally means salted butter tea. Yak milk is traditionally processed into fermented milk, and then churned out to produce local yak butter and buttermilk\(^4\). The most important products derived from yaks and yak hybrids are milk, milk products, and the primary milk products are butter and cheese and these products are processed using traditional methods\(^5\).

The traditional ways of processing and storing of milk product can be described together. Brokpas usually process milk only when sufficient quantity is collected, which is usually 2-3 day’s or even a week’s collection, stored without boiling. To make butter they use indigenously made cylindrical milk churners called Zopu. Many brokpas prefer the milk to be a little fermented for processing. Butter is churned out by pushing the plunger/dasher, fitted to the churner, up and down the churning container, with the milk, for more than a thousand times. The dasher has perforations that aid in catching the cream above the dasher and allows the milk to drip down. It is a tedious time taking activity (Fig. 1) and the brokpas have churning songs that they like to hum while churning out butter. The rhythm of these songs/chants seems to fit the action being carried out. Once the butter is collected on top of the milk so churned, it is collected in a separate container (Fig. 2). The left over skimmed milk is then put into a pan and boiled, and the milk upon heating curdles immediately (Fig. 3). The milk solid so formed is the wet cheese, called Churpy, which is put into a sieve, made of weaved bamboo stripes for draining out excess fluid (Fig. 4). Finally, the whey left after churning is called Churku, is often fed to the animals (Fig. 5). Brokpa consume butter mostly with salt tea and often smear butter on their hands and face like a lotion. They express that churpy enhances the taste and flavour of their ethnic food and therefore added to all types of vegetable as well as meat preparations.

Preservation of milk products

The processed products (Fig. 6) are preserved in many ways. Butter is mostly stored in locally made food storing boxes called Zaï. Butter to be stored for longer duration is kept in animal skin bags, referred to as Maar Tang (Figs.7&8). Once the bags are filled with butter it is stitched and kept aside. They sale or barter the whole bags or cut it into pieces (Fig. 9) and sale it on weight basis.

Similarly, Churpy is directly kept in Zai (Fig. 10), kept over fireplace for smoke drying (Fig. 11) or sold out as fresh Churpy (Fig. 12). Calf skins, Zhorchut (Fig. 13) are specially dried and processed by the Brokpas for use in packing milk products. If churpy is to be stored for long durations it is ripened in calf skin bags, called Churtang (Fig. 14). Churpy is preserved in this manner for many years and referred to as Zhorchut Chura (Fig. 15). The more the Churpy is ripened, the more it is valued. It forms an essential part of the ethnic food of the Monpa tribe. The technology of Churpy making is one of the low
cost technologies developed by the people and is well
adopted by the people of the highland and the dry
matter percentage of Churpy range from 24-25%,
consistency ranging from the soft, hard and slightly
hard, colour white to orange, taste and odour sour to
pungent, pH 5.97-7.06. However, this indigenous
method of churpy making was stated to have a
disadvantage of post product contamination5. It is due
to the natural freezer like temperature in the high
altitude region that the products stored in bamboo
boxes and animal skin bags can be preserved for
longer durations without adding any preservatives.
The yak butter is wrapped for storage in a bag of calf
hide, or yak rumen (or, in some places, wrapped in
broad, hard leaves) and may be placed in a wooden
container and the butter can be kept in this way for
one or two years without going mouldy6.

Very often milk products are taken out from their
original packaging and repacked in tree leaves or in
polyethylene bags by the middlemen involved in
marketing for sale in the township areas of the region
as shown in Figs.16 & 17. Freshly plugged leaves of
morlah, a rhododendron tree, mostly available in the
mid altitudes of the region are used for the purpose.
Whenever, these leaves are carried to higher altitudes
it gets dried up. Such leaves are soaked in water for
4-5 hrs before using it as packaging material.

All the items used by the Brokpas for processing
and storing yak products like churners, storing boxes
and skin bags are made in their community. This
reflects their extraordinary potential in crafting works
too. The wood and bamboo processing techniques,
adopted by them are a complex set of processes
embodiying Traditional Indigenous Technological
Knowledge.

Preservation of meat products
Slaughtering of yak is very rare amongst the yak
pastoralists. They mostly consume the meat of
animals that died its natural or accidental death.
Occasionally unproductive animals are slaughtered
during festive occasion like the New Year Festival of
Losar in the month of February. Preserving meat for
future use is a common practice and mostly done in
three ways.

1. Drying of Yak meat in room temperature as large
pieces (Fig.18).
2. Smoke drying of Yak meat over fireplace (Fig.19).
3. Sun drying of yak meat by cutting it into small
stripes (Fig.20).

Yak meat is usually a byproduct from dead
animals, killed by predators, and occasionally from
slaughter of surplus castrated steers and aged females
and the herdsmen usually cut yak meat into long
narrow strips (approximately, 4-5 cm wide and 30 cm
long) and dry it by suspended from woven hair ropes
and these can be preserved for 1-2 yrs7. The meat
strips dry up gradually under natural temperatures,
humidity and circulation of the air, including direct
influence of sun rays. This is the most common form
of drying meat. It is also the oldest method of meat
preservation and consists of a gradual dehydration of
pieces of meat cut to a specific uniform shape that
permits the equal and simultaneous drying of whole
batches of meat and continuous evaporation and
weight losses during drying cause changes in the
shape of the meat through shrinkage of the muscle
and connective tissue. Further the meat pieces become
smaller, thinner and to some degree wrinkled and the
consistency also changes from soft to firm to hard8.
Intensive meat smoking is always a combination of
two effects, drying the meat by reducing its moisture
content through hot air and the condensation of smoke
particles on the meat surface together with their
penetration into the inner layers of the product and
both have preservative effects and prolong the
shelf-life of the product8.

However, large pieces of yak meat are dried in
normal room temperature in the high altitude areas
like Bangjung and Lunguthang of Tawang district.
The natural refrigerator like temperature in the high
alpine region, round the year, prevents the meat from
getting spoilt and simultaneously helps it to dry off in
a slow process. Brokpas consume the dried meat in
two ways. Mostly they cut it into small pieces and
boil it in water after addition of salt and a little
amount of churpy for enhancing the taste and flavour.
They also consume it by directly roasting it over fire
or hot ember.

Discussion
Yak herdsmen obtain all their needs from the
yak in the form of milk, meat, hair, draft power,
etc. Modernisation has little effects in their lives as
they remain ignorant and adhere to the traditional
culture, beliefs, folklores, religion and community
dictates while pursuing a livelihood by herding Yak.
Economically, these yak keepers appear to be self
sustaining due to their limited needs but in reality
they are poor and not at par with the mainstream
Monpa people.
Fig. 1-15: 1; Milk churned in a Zopu in front of a fireplace, 2; Butter/Mar, collected from the top layer of the churned milk, 3; Cheese, Churpy, formed after boiling of the skimmed milk, 4; Fresh Churpy (Chura Mingba/Chura Karpu) kept for draining out the excess water, 5; The whey, churku, left after churpy making is fed to the animals, 6; A Brokpa with his weekly collection of milk and milk products, 7; Animal skin, called Mung Nang, dried for further processing, 8; Animal skin being processed into bags for storing Butter (Maar tang), 9; Cut piece of the Maar tang to reveal the Butter inside., 10; Direct storing in boxes., 11; Smoke drying of churpy., 12; Churpy being weighed in a local balance (Shrang) for sale., 13; Calf Skin (Zhor Chut) being dried for further processing and use for packing milk products, 14; Calf Skin processed into Churpy storing bags (Chur Tang), & 15; Zhorchut Chura, the cheese after ripening in the calf skin bags
Milk, meat processing and preservation by the brokpas are very traditional and have no touch of modern techniques. From the techniques used for processing to making of items for processing and storing of processed products underlies indigenous technological knowledge of the community, which have been passed on from one generation to the next. No written texts are available in these techniques. A part of their produce is consumed in the family and the surplus amount sold or exchanged for other items of daily needs like salt, oil, vegetables, etc. mostly in the pattern of barter exchange in their community. Introduction of modern techniques for improving the quality of products prepared and expanding the market beyond their community is very much essential for fetching better remuneration of their produce as cash income.

Yak and its products not only provide the Brokpas with a livelihood but it is used to create social relations in their societies and are often subjected to other forms of transects like clearing of grazing taxes (iserin), debts, bride price, etc. With the dwindling population of yak in the region the livelihood of the brokpas are at stake and so are their produce. The Brokpas may be called as the sole curators of yak and its habitat in Arunachal Pradesh. It is highly necessary that an indebt study of their lifestyle, the ecosystem they live in and their indigenous traditional knowledge base in all aspect of their life be explored and ways to supplement their income source be searched out in order to make them self sufficient and help sustaining the age old profession of yak herding in the region.

Significance of study

The present study aimed at documenting the traditional ways of processing and preserving yak milk and meat in the Brokpa community. It was observed that while protecting and preserving the traditional practices Brokpas stay close to their traditional ways and values. Their processing, preservation and selling techniques are still very primitive. Technological advancement was limited to some organized Government institutions only. Scientific efforts of such institutions like value-added Yak milk, meat and wool products are yet to be adopted by yak herdsmen at large scale. Advances in dissemination of these technologies are likely to boost up the economic returns from yak rearing and help in keeping the age old livelihood means safe.
Conclusion

Processing and preserving techniques of milk and meat in the Brokpa community are indicative of their rich culture and it is essential to protect and preserve these to save their ethnic identity. However, owing to the fact that the younger generation are reluctant to continue with this age old profession of yak herding for a livelihood, efforts must be directed at improving the economic returns of the Brokpas. This can be achieved through development and dissemination of techniques for value-addition of yak milk, meat and wool products, producing ‘organic’ milk and meat, developing eco-tourism in the yak inhabited areas etc. It shall be the ‘money gain’, which would motivate the yak herdsmen to increase yak farming activity in the high altitude pastures².

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