Indigenous knowledge of traditional processing of Selroti, a cereal-based ethnic fermented food of the Nepalis

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The Nepalis of the Himalayan regions of India, Nepal and Bhutan prepare a cereal-based fermented food, Selroti using their indigenous knowledge. The paper documents the traditional knowledge of the ethnic Himalayan people on preparation of Selroti and its ethnical importance.

Keywords: Traditional knowledge, Selroti, Fermented food, Nepalis

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A global interest in rice and its fermented product is increasing due to their calorigenic value, unique quality characteristics and high acceptability1. In most of the countries, rice is fermented either by using mixed-culture(s) into alcoholic beverages, or by natural fermentation into leavened batter-formed dough breads which are usually baked or steamed2. Some of the common cereal-based fermented foods across the world have been extensively studied; these include masa of South Africa, mawé or ogi of Benin, ben-saalga of Burkino Faso, kenkey of Ghana, sourdough of America and Europe, tarhana of Turkey, etc3-8. The well-documented Indian cereal-based non-alcoholic fermented foods are idli, dosa, jalebies, and Indian cereal-based alcoholic beverages are bhaati jaanr and kodo ko jaanr9-14. Ethnic fermented food is a distinct food culture of the Nepalis living in the Himalayan regions of India, Nepal and Bhutan15. Depending on the agro-climatic conditions, various types of cereals crops such as rice (Oryza sativa L.), maize (Zea mays L.), finger millet (Eleusine coracana Gaertn.), wheat (Triticum aestivum L.), barley (Hordeum vulgare L.) and buckwheat (Fagopyrum esculentum Moench.) are cultivated and eaten as staple food items by the Nepalis in the Himalayas. To the best of our knowledge, traditional processing and product characterisation of Selroti has not been documented. The aim of the paper is to record the indigenous knowledge of the ethnic people of the Himalayas on production of cereal-based fermented food, Selroti.

Methodology
Survey was conducted in randomly selected 214 households in villages located in Sikkim, representing the major ethnic Nepalis, and other tribes, the Bhutias and the Lepchas. Information was collected on consumption of Selroti using questionnaire. Amount of Selroti consumed in every meal by each person was weighed directly and daily per capita consumption was estimated as gm/capita/day. Indigenous knowledge on traditional processing of Selroti batters, its mode of consumption and ethnical importance of the product was documented based on the information sought from the local people of the respective places.

Results
Data on acquiring of Selroti from home-made or market purchase, annual production and per capita consumption of Selroti by ethnic groups in Sikkim were calculated. Selroti is prepared at home (75.6%) comparable to market purchase (14.3%). Among the ethnic groups, 89% of Nepali prepared Selroti followed by the Lepcha 6.6% and the Bhutia 4.4%, respectively. Per capita consumption of Selroti in Sikkim was calculated as 8gm/day. Average annual production of Selroti per household in Sikkim was 18.5 kg (data not shown). Selroti is a popular fermented rice-based ring shaped, spongy, pretzel-like food item consumed in Sikkim.
like, deep-fried food item commonly consumed in Sikkim and the Darjeeling hills in India, Nepal and Bhutan. It is prepared during religious festivals and special occasions. Selroti is a Nepali word for ring-shaped rice-based bread.

During Selroti preparation, rice (Oryza sativa L.) local variety attey is sorted, washed, and soaked in cold water for overnight or 4-8 hrs at ambient temperature. Sometimes, milled rice is also used during Selroti preparation. Water is then decanted from the rice by using bamboo made sieve called chalni and spread over a woven tray made up of bamboo, locally called naanglo and dried for 1 hour. Soaked rice is pounded into coarse powder in a wooden mortar and pestle known as okhali and mushli, respectively (Fig. 1). Larger particles of pounded rice flour are separated from the rest by winnowing in a bamboo tray. Then, the rice flour is mixed with nearly 25% refined wheat (Triticum aestivum L.) flour, 25% sugar, 10% butter or fresh cream and 2.5% spices/condiments containing large cardamom (Amomum subulatum Roxb.), cloves (Syzygium aromaticum Merr.), coconut (Cocos nucifera L.), fennel (Foeniculum vulgare Mill.), nutmeg (Myristica fragrans Houtt.), cinnamon (Cinnamomum zeylanicum Bl.), and small cardamom (Elletaria cardamomum Maton.) are added to the rice flour and mixed thoroughly. Some people add tablespoon full of honey or unripe banana or baking powder (sodium bicarbonate) to the mixture, depending on quantity of the mixture. Milk (boiled/unboiled) or water is added, kneaded into a soft dough and finally into batter with easy flow. Batter is left to ferment (Fig. 2) naturally at ambient temperature (20-28°C) for 2-4 hrs during summer and at 10-18°C for 6-8 hrs during winter (Fig. 2). The oil is heated in a cast-iron frying pan locally called tawa. The fermented batter is squeezed by hand or daaru (metallic serving spoon), deposited as continuous ring onto hot edible oil (Fig. 3) and fried until golden brown and is drained out from hot oil by poker locally called jheer or suiro or also by a spatula locally called jharna. Deep-fried Selroti is served as confectionery (Fig. 4).

The following traditional equipments are used during preparation of Selroti as documented during survey. Okhali and mushli- It is a pair of wooden mortar and pestle, respectively used to pound soaked rice. Naanglo- It is a bamboo stripes woven tray used to dry soaked rice. Chalni– It is a sieve either made up of metal wire or bamboo stripes. Sieve made up of bamboo has bigger holes to drain water from soaked rice. Sieve made up of metal wire is finely woven and is used to sieve pounded rice. Suiro– It is a pointed bamboo stick used to turn Selroti upside down, lift, and drain oil and to take out the fried Selroti. Jheer– It is a poker made up of metal wire to drain out the deep-fried Selroti from hot oil. Daaru– It is a metallic serving spoon used to pour batter onto the hot edible oil. Tawa– It is a cast-iron frying pan used to fry Selroti. Jharna– it is a metal spatula and has a wide flat blade with holes. It is used to drain oil from the fried Selroti. Thumsey– It is a bamboo-made basket use to store freshly fried Selroti.

Selroti is served as confectionary bread with aalu dam (boiled potato curry), simi ko acchar (pickle prepared from string beans) and meat. It can be served hot or cold. Selroti can be stored at room temperature for two weeks. The preparation of Selroti is an art of technology and is a family secret passed from mother to daughter. Women prepare it and men help them in pounding the soaked rice. Survey result indicated that Selroti is mostly prepared at home. Some people are economically dependent upon this product. Since the time immemorial Selroti is known as a ceremonial food in Sikkim, the Darjeeling hills, Nepal and Bhutan (Figs 5-7). It marks a special occasion of the Nepalis such as marriage, religious and cultural festivals. Ethnical importance of Selroti was documented during survey and noted.
Discussion

Information on indigenous knowledge and antiquity of Selroti was sought from village elders and older women during survey. Roti is a Nepali word for bread. Out of many kinds of bread, the Nepalis consume, two of them have a special place in the society. One is Babari and the other is Selroti. Babari is round, solid pancake, whereas Selroti is ring shaped pretzel-like bread. Both are prepared from grounded rice flour. It was recorded during interview that in olden days only Babari was prepared and consumed by the people instead of Selroti. Since, the consumers found it difficult to fry in a pan, especially to turn it upside down; they started making rings with the batter. And to turn this ring-shaped bread, they started using a poker locally called suiro (a pointed bamboo stick). Anything lifted with a suiro is called saela in the Nepali language. Probably, the word Selroti might have derived from the word saela. That is how preparation and consumption of Babari among the Nepalis was slowly replaced by Selroti preparation, which has become a distinct food culture of the Nepalis. There is a hypothesis on the nomenclature of Selroti. The word seli is a name for local variety of rice cultivated in foot hills of Nepal. The product prepared from seli variety of rice might have been called as Selroti. In Nepali, the word saal means a year. Since Selroti is prepared during Tiwar, one of the main festivals of the Nepalis, which is celebrated once in a year. People believe that the word Selroti has originated from the word saal meaning confectionary bread prepare during festival once in a year. The antiquity of Selroti remains a myth; no historical documents were available on this product. Documentation of ethnical information on antiquity of Selroti during survey...
will provide vital information on the history and food culture of the Nepalises. In olden days, Selroti preparation did not include the use of spices or condiments but now-a-days, because of the development of diversified taste, people prefer to add spices during preparation.

Selroti has an ethnic importance among the Nepalises. It is served during marriage ceremony of various castes of the Nepalises along with other traditional food items. It is a customary to hand over a basket full of freshly fried Selroti to bride’s parents by the groom during marriage among the Nepalises. This is probably to supplement the sweet-dish, which is traditionally uncommon among the Nepalises, for greetings. Traditionally, newly married Nepali bride visits her parent’s house once in a year. When she returns back to her husband’s house she should carry a thumsey (local name for bamboo basket) contain freshly fried-Selroti. This traditional is known as Pani Roti in Nepali. Selroti is traditionally served along with other traditional food items during Bhai Tika, a Hindu festival of the Nepalises, which is observed to honour the brothers by their sisters. Beside this, it is also served during other festivals of the Nepalises like chaitay dasai, maghay sakranti, bara dasai, etc. Fried Selroti products can be preserved for about 10-15 days without refrigeration and consumed as it is or slightly warmed up. People might have invented such preservation technique to feed themselves while traveling. Carrying fried Selroti is a traditional practice among Nepalises while traveling for long distances.

Conclusion

Selroti is an important fermented rice food of the Nepalises. Per capita consumption of Selroti in Sikkim is 8 gm/day. Indigenous knowledge of the Himalayan people on production of Selroti justifies their skill and expertise for building up a global approach of ethnic foods.

References