



POKA-A TRADITIONAL RICE WINE OF THE GALO TRIBE OF ARUNACHAL PRADESH, INDIA

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Abstract- Arunachal Pradesh, the unique territory previously known as the North East Frontier Agency, is a mountainous region extending between the Brahmaputra Valley, whose eastern part it encloses like a horseshoe, Tibet to the north, Burma to the east, and Bhutan to the west. It is the home to 110 ethnic groups (sub-tribes) of great cultural diversity, but in many respects there is an overall uniformity. The *Galo* population estimated at 80,597 (2001 census) makes them the one of the most populous tribe of Arunachal Pradesh. *Poka*, a traditional rice wine plays an important role in the socio-cultural life of the *Galo* tribe of Arunachal Pradesh. It is consumed during most of the festive occasions and celebrations. This paper reports the traditional way of preparation of the wine with ethnobotanical observation.

Key words- *Poka*, Rice wine, *Galo*, Arunachal Pradesh, Agricultural, *Mopin*, starter, alcohol.

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Introduction

Arunachal Pradesh is considered to be luxuriant in biodiversity and has been recognized as the 25th biodiversity hotspot in the world [1]. It is spreading over an area of 83,743 sq km with a variation in altitude from 150-6,500 m and unique climatic conditions. The original inhabitants of Arunachal Pradesh belong to 26 major tribes and 110 sub-tribes [2]. *Galo* is one of the prominent tribes occupying the southern part of Abor Hills, bounded by in Simen River east, Subansiri in the west, Siyom River Bayor Adi (Hill) in the north, and Lakhimpur district of Assam in the south. The maximum population of *Galo* is mainly concentrated on West Siang District. The tribe is composed of several groups inhabiting a compact area, comprising of many villages, and all are culturally and socially linked together [3]. The people are dependent on agriculture which is the backbone of their economy. They are socio-economically dominant in their area. *Donyi-Polo* religious traditions persist to a degree in most *Galo*, although Christianity is on the rise in recent years especially in the foothill areas [4]. With this traditional belief, they perform festivals that are mainly agricultural based. *Mopin* is the main festival of the tribe which is celebrated

for four to five days in the month of April for social prosperity and wealth. Rice is their staple product; they produce it for food and preparation of rice-wine (*Poka*). They traditionally practice shifting cultivation (*Jhum kheti*) which involves intensive labor and often employs the entire village during cultivation and harvesting of the crops. *Galos* have tremendous traditional knowledge to use natural resources to a great extent. They are well known for production of household liquor, *Poka*, which is associated with social, cultural socio-economical context. They offer it in their festivals like *Mopin*, at the onset of harvesting, their marriage and *Shhradha* ceremonies.

Methodology

The present study is based on Basar village (27°59'N 94°40'E.), which is situated in the West Siang District of Arunachal Pradesh. It has an average elevation of 578 metres above mean sea level and has a pleasantly cold climate. According to the 2001 India census, Basar has a population of 3,834 *Galo* (Tribe) people. Males make up 56% of the population and females form 44%. Basar has a mean literacy rate of 72%, where 61% of the males

and 39% of the females are literate. 16% of the population is made up of children less than 6 years of age. It has a population density of 11 person per km [2]. Intensive field work was carried out during the 2010-2011. Investigations were made by interrogating the village local people mainly women, visits to local market and also by studying various literature. PICs (Prior Informed Consents) were taken during the investigation. Routine methods of botanical collection and herbarium techniques were followed. While collecting ethnobotanical aspects, standard approaches and methodologies were followed. Plant samples were identified by comparing their morphology recorded during field trips as well as laboratory studies, with local floras and monographs and with the help of plant taxonomists. The voucher herbariums were submitted to the Weed Herbarium of Assam Agricultural University, Jorhat.

Results

Starter Culture Preparation

The starter culture (locally known as *Apong Kusure*) is concocted by women folk with rice flour and several herbs (table1). Water is then added to form dough like mass with moisture content of 55-60% and then is inoculated using dry powdered starter from previous batches, followed by thorough mixing. The inoculated dough is shaped into small flattened or ball-shaped cakes about 4 cm in diameter and 1 cm thick. These are then covered with a thin layer of rice husks. The cakes are then sun-dried on a bamboo tray for 3-4 days.

Ethnobotanical Observation

The study recorded a number of six commonly used plants belonging to four families as enumerated below with photographs. The plants have been described in the table according to alphabetic order of botanical name along with their respective vernacular (Local) name (s) and the name of the families.

Table 1- Plants used in the preparation of starter cake

Local Name	Botanical name/family	Part Used	Uses
Oin	<i>Clerodendron viscosum</i> Vent/Verbanaceae	Leaves	Antipyretic, laxative, vermifuge
Hibe/Onyor	<i>Debregesia longifolia</i> (Burm. f.) Wedd./ Urticaceae		Flavoring agent
Taka	<i>Diplazium esculentum</i> (Retz.) Sw./Athyriaceae		Laxative
Rare	<i>Pilea sp.</i> /Urticaceae		Antioxidant properties
Oyik	<i>Urtica hirta</i> Bl/Urticaceae		Anti-diarrheic effect
Tita baigun	<i>Solanum kurzii</i> Brace ex Prain/Solanaceae	Fruit	Laxative



Clerodendron viscosum



Debregesia longifolia
(Burm. f.) Wedd.



Diplazium esculentum (Retz.) Sw.



Pilea sp



Urtica hirta Bl



Solanum kurzii Brace
ex Prain

Fig. 1- Some of the commonly used herbs for starter cake preparation

Method of preparation of Poka

Rice husks are stapled on *Tora* (*Alpinia allughas*/ Zingiberaceae) leaves and are burnt slowly till they become black in colour, which may take upto 4-5 hours. Cooled ash is mixed rigorously in equal amount with warm boiled rice. Again, a heap of rice husk is laid on the pounded mass and is combusted slowly. Finally the ash is mixed thoroughly along with starter granules called *apong kusure* @ 2 cakes/1 kg of biomass. The inoculated pounded rice paste is then transferred into a rattan made traditional basket encapsulated with *Tora-pat* (*Alpinia allughas*). The container is sealed tightly and left to ferment for 15-30 days during summer at ambient temperature (in winter it may take up to 2-3 months). After the period of incubation (solid state fermentation), the mass is transferred to a conical shaped commercially available container which is encapsulated with a polythene sheet. The fermented content is eluted by pouring warm water slowly along the sides of the container. The product secreted out of the pore at the bottom of the container is collected and served. It is known as *Poka*. It is ash-colored and sweet in taste containing 4 to 8 percentage of alcohol.



Fig. 2a- A slowly burning heap of rice husk



Fig. 2b- Ash is collected & pounded rigorously with cooked rice



Fig. 2c- Ash is collected & pounded rigorously with cooked rice



Fig. 2d- Second combustion of rice husk on rice and ash dough



Fig. 2e- Mixing of starter cakes



Fig. 2f- Transfer and storage of substrate for solid-state fermentation

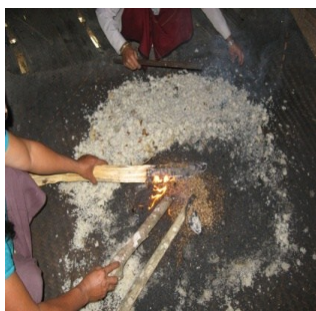


Fig. 2g- Pouring of lukewarm water for collection of Poka



Discussion

The North-East of India is among the most cultural-linguistically rich and diverse regions of all Asia. This is due as much to its position at the cultural-geographical crossroads of East, South, and South-East Asia as to its varied topography and difficulty of travel and access, and consequent opportunities for populations to develop to a degree independently in relatively isolated niches [4]. Rice wine is one of the popular alcoholic beverages in South East Asian countries, postulated to spread as concentric cycle from the area of the middle of Chan Jiang River in the Yunggui area (Yunnan-Guizhou provinces) of China. Preparation of rice wine varies according to locations and traditional practices. Generally, rice wine fermentation can be categorized into submerged and solid state process. Submerged process involving saccharification of rice to liberate sugar and converted to ethanol by submerged fermentation of yeast in liquid medium occur with plenty availability of free water [5]. Solid state fermentation is another way of rice wine production. *Ruou nep* in Vietnam, *Ou* in Thailand and rice wine from Cambodia and Laos are produced using this method. Solid state fermentation is a process where microbial growth and product formation occurs on the surface of solid materials [6]. It was observed that the tribe under study also follows similar kind of processing.

Poka has been considered as a favorite drink among the *Galos*. All tribal women prepare it and men help them in pounding the cooked rice. It was noticed that the beverage is considered as a social drink which helps to bond and encourage people to help each other in every socio cultural aspects. Moreover, the respondents informed about the benefits of the drink in health problems such as dysentery, loss of appetite etc., though ethanol as a major product of alcoholic fermentation is well known for causing intoxication in human.

The preparation of fermented rice wine is an art of technology and is a family secret passed or inherited as a legacy. But, due to various anthropogenic activities, this traditional knowledge has been depleting. Again, knowledge about the significance of the presence of the metabolite and their chemical interaction in this beverage is still insufficient. Exploitation of traditional knowledge in microbes may not lead to destruction or eradication of biodiversity [7], but can contribute significantly in developing value added product for human welfare [8]. Such product with input from scientific and technological knowledge should be encouraged for sustainable utilization of locally available resources and traditional knowledge system. Moreover, people should also be encouraged to develop and capitalize entrepreneurship so as to use available resources for a low cost beverage with clinically documented

health promoting properties.

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