



# Ethnobotany, traditional knowledge and socioeconomic importance of native drink among the Oraon tribe of Malda district in India

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## ABSTRACT

**Aim:** Preparation of daily traditional drink by the indigenous tribes is a common phenomenon in India. Oraon tribes in Malda district of West Bengal, India are very much practiced in making of their own native brew, known as Chullu. Therefore, the aim of this study was to explore the whole Chullu procedure technology of the region and its socioeconomic effect on Oraon. Ethnomedicinal investigation of local plants involved in Chullu preparation was another aspect of this study. **Materials and Methods:** The present study was conducted from April 2012 to June 2013. Consecutive field surveys were performed to collect information from Chullu producers to focus the procedure technology of local brew by means of semi-structured individual interviews, informal interviews and group discussion. A semi-structured questionnaire process was also performed to obtain the information regarding the ethnic use of plant species involved in Chullu preparation. **Results:** The present study revealed that four medicinal plant species along with rice having strong local ethnomedicinal value were used to prepare this indigenous drink. Oraon prepare the brew using their unique home-made distillation process. Commercialization of this local brew represents an alternative income to develop their economic condition, especially for poor households. The index of importance value was considered to evaluate the importance, usage, and knowledge of the five studied species. **Conclusion:** It could be concluded that practices of Chullu preparation represent a bonding between ethnic knowledge and Oraon people of the province. Commercialization of Chullu may be considered as a source of alternative way of income for poor households in the region.

**KEYWORDS:** Alternative income, Chullu, ethnobotany, Oraon, Malda district

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## INTRODUCTION

Traditional liquor preparation is a common household practice among different tribal communities in India. They consume native drink (e.g., sajpani, kiad etc.) virtually in every occasion of life such as various festivals, marriage ceremony and even in funeral [1]. Almost all tribes prepare and consume traditional drink but their names, ingredients, and mode of preparation differ greatly from community to community and region to region. Rice is the main ingredient preparing these native drinks or liquors. However, the tribals use local medicinal plant parts along with rice to prepare their native liquor and believe that the beverage prepared in this process prevents headache, insomnia, body ache, urinary troubles and cholera [2-4]. The North-eastern provinces of India, colonized by native Bodo, Garo, Rabha, Karbi, Ahom, Deori, Dimasa, Kachari, etc. communities are best known for the production of household liquors [4,5]. However,

there is virtually no data available regarding the traditional alcoholic beverage preparation in the sub-Himalayan non-hilly region of Bengal.

Malda, district of West Bengal in India, is characterized by its diversified historical dynasty, mango production, rich wetland, natural vegetation and its diversified ethnic groups including Santala, Oraon, Rajbanshi, Namasudre, Polia, Mundas, Malpaharias etc. [6] Amongst these tribes, Oraon community are famous in preparing quality local drink or known as Chullu from rice. In fact Chullu production is a part of their culture, identity, myths, and spiritual practices. Their own traditional way of preparing the brew with medicinally important plants distinguished them from rest of the tribal communities of the region. The recipe of brew preparation is however a secret and passed on generation after generation orally. Besides, they also make a good living by selling this native drink.

So far there is no authentic documentation of Chullu preparation technology used by Oraons' of Malda district of West Bengal, India. The plants those were used in preparing Chullu, either known medicinally or have ethnic use among Oraons'. Therefore, a semi-structured questionnaire process was also intended to focus the local use of the plants, their parts involved in medicinal practices and preparation of drugs from those plant parts. Another aspect which was considered in this study was the economic significance of Chullu production and sale. Hence, it may be a pioneer study to explore the Chullu procedure technology and its economic impact among Oraon community of the district along with ethnomedicinal value of used plant species.

## MATERIALS AND METHODS

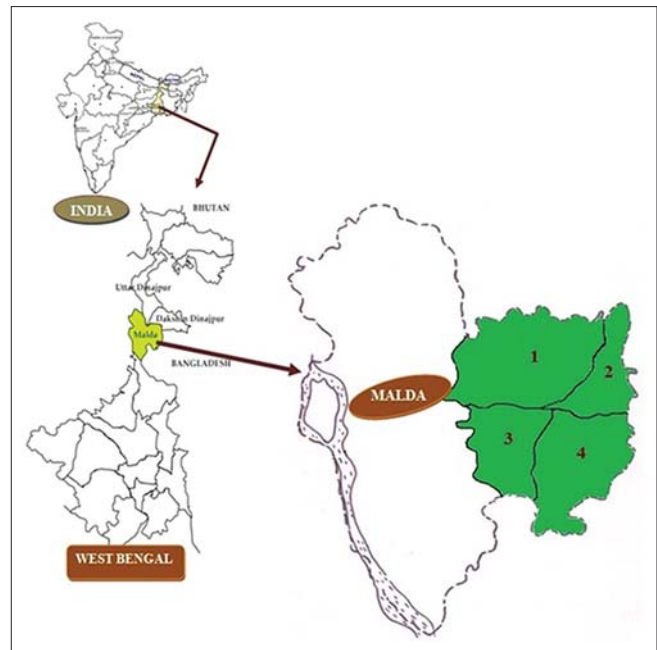
### Study Area

Malda (latitude and longitude of 24°40'20"N to 25°32'08"N and 88°28'10"E to 87°45'50"E respectively), a district of West Bengal, India with a total land area of 3455.66 km<sup>2</sup>. [6] is known as 'mango district' for its wide array of mango variety and production. It consists of two municipalities, 15 blocks or subdivisions and 3701 villages with a population of more than forty lakh. The district is also characterized by its diversified wetland and forest vegetation. The Adh soi wetland (beel), located at Harischandrapur-II block of the region, is one of the largest among the wetlands of the state comprising rich vegetation due to its macrophytic diversity [7]. Adina and Bhalluka forests are the two most important forest areas of the district. A few small forest areas are also scattered in Old Malda, Habibpur, Harishchandrapur and in Gajol blocks [8].

Most of ethnic communities live mainly in the four blocks of this province namely, Gazole, Bamongola, Habibpur and Old Malda comprising more than 85% of total tribal population. Hence we considered these four blocks as our study area [Figure 1] due to its noticeable Oraon population. The climate of this region is extreme because of its geographical position. The district has a hot summer (35-42°C) from March to September and a very cold winter (6-12°C) from November to February. The monsoon starts from June and continues to the mid-September and the average rainfall is approximately 1453.1 mm.

### Oraon Community

Oraon community is one of the largest tribal groups in India, possessing a unique tradition and culture. In Malda district, a sizeable portion of the tribal communities are the Oraons who mostly inhabits in the remote villages [9]. They have distinctive lifestyle and are fond of festivals of various kinds like Jatrapala (one kind of play portraying colorful stories), Gambhira (a kind of play portraying the social satire, political circumstances or the life story of god and goddesses), folk songs and dances, traditional musical instruments etc. Consumption of Chullu prepared mainly from rice is common for Oraons during these occasions. Besides, they regularly consume this drink during marriage ceremony, birth of a child or even in funeral. In fact,



**Figure 1:** The map of study area (Malda district) showing four main Oraon populated zones (1: Gazole block; 2: Bamongola block; 3: Old Malda block; 4: Habibpur block)

a section of the community makes a good living by preparing Chullu.

### Data Collection

Prior to survey, several meetings were held with the community members to explain the purposes of the study being conducted and to obtain their prior informed consent (PIC). The survey was carried out among the 19 villages (Chaknagar, Haspukur, Rishipur, Bhabuk, Parameshpur, Dhumpur, Nityanandapur, Aktail, Dangapara, Lakhitur, Habibpur, Jhinjhinipur, Pakuahut, Jagdala, Kanturka, Kenpukur, Salaidanga, Majhra, Baidyapur) of above mentioned four blocks (Gazole, Bamongola, Habibpur and Old Malda) during last year (April 2012 to June 2013). Hundreds of informants were interviewed to get the information regarding the Chullu preparation and plants and plant-parts involved therein. The sociocultural and marketing value of this drink has also been considered. The whole survey procedure involved several levels of interviewing such as semi-structured individual interviews, informal interviews, open-ended questionnaires, and group discussion with the local informants.

### Total Key Informants

Hundreds of villagers of the study area were interviewed, but the information given by professional Chullu producers and persons with proven knowledge on plants involved in Chullu production were only recorded. After cross verification, the information obtained only from 201 Chullu producers based on their experiences (174 female, 27 male) of 19 villages were recorded. Among the ethnomedicinal practitioners, we found 27 healers who were involved in traditional healing practices,

gave information regarding the ethnic use of the same plants involved in Chullu production for treating ailments. To survey the economic aspect of the Chullu production, authors also interviewed 56 vendors of 19 villages.

## Data Analysis

In order to evaluate the importance of the medicinal plants as per the local informants of the villages, the value of importance (IVs) index was determined [10]. IVs index measures the importance of a plant species based on how many informants cite one species as the most important one among the total number of informants (Value varies from 0 to 1).  $IVs = nis/n$ ; where,  $nis$  = number of informants who consider the species to be the most important, and  $n$  = total number of informants.

## RESULTS

After interviewing with 201 Chullu producers, the local beverage procedure technology by Oraon people was summarized under two main sub-legends: preparation of Chullu -starter and preparation of Chullu. It was observed that Chullu production which has great impact on Oraon people, indirectly help to uplift the village economy. Virtually, commercialization of Chullu is an alternative way of their daily livelihood. A total of four medicinal plants including *Holarrhena pubescens*, *Wattakaka volubilis*, *Ichnocarpus frutescens* and *Clerodendrum viscosum* along with rice (*Oryza sativa*) which were used in the preparation of this drink had great ethnomedicinal value in the locality.

## Chullu Procedure Technology

### Preparation of Chullu-starter

To prepare Chullu-starter (locally known as *modguli*), rice grains and 4 different plant parts are mixed together in a 2:1 ratios and dusted. Briefly, rice grains are taken in earthen pot and cleaned in water, followed by drying under sunlight for 1-2 days. Different plant parts like bark and leaves of *H. pubescens*, fruit and bark of *W. volubilis*, leaves of *I. frutescens* and *C. viscosum* are also cleaned well to remove dust particles and dried. Then, the plant parts along with rice grains are powdered by *dheki* (a wooden mortar with a large wooden handle). The powdered material is then sieved. The sieved material is locally known as *modgura*. Water (1/3<sup>rd</sup> of the total powder) is added to *modgura* to make dough and thick tablet like structures of 5-8 cm. in diameter are prepared [Figure 2]. These tablets are called *modguli*. The *modgulis* are kept in between two layers of straw for 4-5 days or until the pungent smell comes (the process is known as *jag-dewa*). Now, the starters are prepared for sundry. These *modgulis* are kept on clean cloth under sunlight for another 7-10 days. Finally, the sundried Chullu-starters are packaged depending upon their sizes for marketing [Figure 2].

### Preparation of Chullu

To prepare Chullu, cooked rice is the main ingredient. Briefly, starters (four to five pieces for 1 kg of cooked rice) are dusted



Figure 2: Preparation of Chullu-starter

and mixed properly with cooked rice and taken in an earthen pot (*handi*). Water (400-500 ml) is added into the pot covering the mouth with a banana leaf, followed by an earthen lid and left for fermentation. A yellowish watery juice with a strong alcoholic pungent smell comes out after 3-4 days, which is filtered with a clean cloth into another pot. This first fermented yellowish beverage is known as *hanria*. Fresh water (2-2.5 lit) is added in the same earthen pot containing fermented rice and *hanria* and left for 12-18 h [Figure 3].

Now to prepare typical Chullu, Oraon follow their unique distillation process. In this preparation, three pots are piled one above the other. The lowest pot containing the fermented rice with *hanria*, the middle one being an empty earthen pot with several pores (known as *jhanjhi*) at the bottom and the topmost aluminum pot filled with cold water. The air gaps between each pot are sealed with mud. A pipe is inserted and sealed with mud at the side bottom of the middle earthen pot. The entire preparatory set is then placed over earthen oven starting the heating process [Figure 3]. After heating, the vapor goes up from the lower-most pot passes through the pores of the middle pot and comes in contact with upper-most pot containing cold water. Due to cooling, the vapor condenses into water which comes down and is collected in the bottle through the pipe of the middle pot. Thus, the prepared beverage is watery in color possessing alcoholic odor and is known as Chullu or mod. Finally, this alcoholic beverage is packaged in glass-bottle for selling in the market.

## Ethnomedicinal Uses of Plants Involved in Chullu

During survey, we found that the plants used in Chullu preparation had great local medicinal values. Therefore, a semi-structured questionnaire and individual interview [Figure 4] among the healers had been carried out among 19

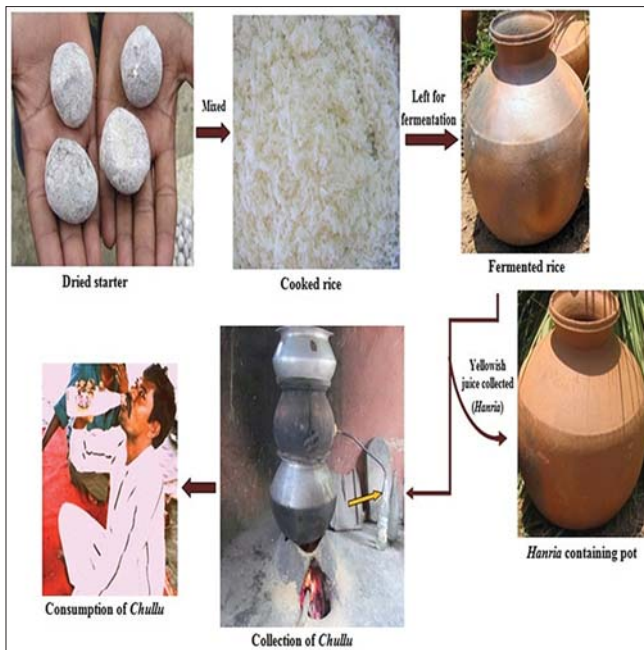


Figure 3: Preparation of Chullu

Survey Datasheet	
Locality: Vill- Lakhitur, Dist- MALDA	Date: 28/11/15
1. Name of the Healer/Informant/Practitioner: Vabesh Mandal	
a) Sex/Age: Male; 57 Yrs.	
b) Ethnic group: Oraon	
c) Year of Experience: 12 Yrs.	
d) Source of Income: Agriculture & ethnomedicine practice	
2. Name of the Patient: Sankar Handa	
a) Sex/Age: Male; 30 yrs.	
b) Occupation: Agriculture	
c) Symptoms: Skin irritation; Abdominal Pain	
3. Disease(s) Treated: Tape worm / Guinea worm, Skin disease, Lice problem.	
4. Plant Sources: Wild/Cultivated/Protected	
a) Name of the plant(s): <i>Cleistanthus viscosum</i>	
b) Local Name: Titral / Gheta	
c) Plant parts used: Leaf	
d) How many Healer(s)/Practitioner(s) prescribed: 23 persons.	
5. Local uses/Ayurvedic Use:	
Leaf paste: Skin problem, applied externally.	
Leaf juice: Applied externally on head lice problem.	
Apical bud: Crushed with salt & taken orally against tape worm	
6. Treatment Procedure: Oral/External/Others	
7. Posology/Application: Dosage depends on patient condition as per healer.	
8. Any other information: NIL	
Collected by: Manas Ranjan Saha (MANAS RANJAN SAHA)	

Figure 4: Questionnaire datasheet of ethnomedicinal use of plants in studied region

villages to obtain the information. After interviewing with some experienced traditional healers authors found a massive ethnomedicinal value in the region. However, as per our title concerned, we focused only on the above mentioned five plant species [Table 1] as those are used in Chullu preparation. A total of 27 traditional experienced healers were chosen after cross verification for obtaining the information regarding ethnic use of those species only.

It was observed that the herbal formulation from the bark of *H. pubescens* was prescribed by 22 healers out of 27 to treat chronic diarrhoea, chronic dysentery, urinary troubles, bleeding of piles etc. whereas *C. viscosum* was prescribed by 21 healers to treat several disorders. Similarly, *W. volubilis*, *I. frutescens*, *O. sativa* were also used in various purposes as shown in Table 1. The IVs result exhibited high IV for all the species [Table 1] establishing greater ethnic knowledge regarding plant resources in the studied area. However, the IVs value of *O. sativa* is low (0.49) in comparison to others and prescribed only by only 13 healers. The study attempts to highlight that the above mentioned five plants are most valued species in the studied region and if sustainably harvested, they could be used as an alternative livelihood strategy for poor people.

## DISCUSSION

### Chullu and Village Economy

The local traditional liquor, Chullu occupies a sizable portion of village economy, especially the economy of poor tribal people. The Oraon community is actively involved in production and marketing of Chullu. Though the Oraons are involved in Chullu production, sometimes non-tribal agents provide funds to the tribals to produce liquor in a large scale and collect from them to be sold in the urban areas. The starters are processed into two different packets depending upon their sizes and sold at market. Similarly, traditional Chullu is packaged in bottles to sell at beer-shop. It was found that the large packets (5-7 cm diameter each) of starter are sold @ 15 or USD 0.24 of per packet containing 8 pieces whereas small packets (2-3 cm diameter each) are sold @ 8 or USD 0.13 of per packet with 8 pieces. Hanria, the first alcoholic product during preparation of Chullu is also sold @ 5-7 or USD 0.08 to 0.11 per glass of 100 ml whereas the typical Chullu is sold @ 30 or USD 0.48 per bottle of 550 ml.

During survey, we found that though the tribals consume Chullu throughout the year, production of this drink usually at its peak in dry season like summer mainly because drying of starter is relatively easy in dry season. It was also observed that commercialization of Chullu occurred when a groups of villagers from different parts gathered in local fairs, ritual ceremonies, Jatrapalas, folk songs or dance programs or in other social activities. The other means of selling occurred when someone or a group of villagers go to the urban areas due to their personal purposes carry the native drink and sell those during their stay in urban areas. Sales also occur through the agents who directly purchase the indigenous brew. As evident from Table 2, inhabitants of Haspukur, Baidyapur, Kanturka, Dhumpur, Lakhitur, Pakuahat, Bhabuk and Habibpur villages amongst 19 are more interested than others in preparing the local brew which indirectly helps to boost up their economic condition. However, the frequency of alcohol preparation in the villages was more than 65 percent suggesting high concern to prepare the traditional liquor. Excess amount of local brew are

**Table 1: List of medicinal plants investigated for Chullu preparation and their respective ethnic uses**

Plant species/family/Vn	Used parts	Ethnomedicinal use	Formulation prescribed by no. of healers	IVs
<i>H. pubescens</i> (Buch.-Ham.) Wall. ex DC. (Apocynaceae)/ Vn Koriya/Indrajab	Bark	The bark is grinded to make powder and taken orally with milk to cure from chronic diarrhea, chronic dysentery, urinary troubles and bleeding of piles. The seeds are used as anthelmintic	22	0.81
<i>W. volubilis</i> (Linn.f.) Stapf. (Asclepiadaceae)/Vn Muniraj/ Barka Dabai	Leaves and roots	i) Leaves are crushed to make paste and used externally on eczema, boils and abscesses ii) Leaves are grinded to make powder and taken orally along with cow's milk in body weakness iii) Leaves are used as sex stimulant along with the healers' own ingredients iv) Roots are utilized in case of fever and jaundice	18	0.66
<i>O. sativa</i> L. (Poaceae)/Vn Dhan	Grain	The grains ( <i>chal</i> ) are soaked in water for whole night and next morning the decoction is taken orally to treat gastric problems	13	0.49
<i>I. frutescens</i> (L.) W.T. Aiton. (Apocynaceae)/Vn Kathmol	Root	i) Roots are used in leucorrhoea, skin diseases ii) Root decoction is used in fever and cough	19	0.70
<i>C. viscosum</i> Vent. (Verbenaceae)/Vn Titvat	Leaf	i) The apical bud are crushed with salt and take to prevent worm (tapeworm or guinea worm) infection and also used in liver disorders ii) Leaf paste is applied externally to prevent skin problems The leaf juice is applied on head to prevent lice	21	0.78

Vn: Vernacular name, *C. viscosum*: *Clerodendrum viscosum*, *I. frutescens*: *Ichnocarpus frutescens*, *O. sativa*: *Oryza sativa*, *W. volubilis*: *Wattakaka volubilis*, IV: Importance value

**Table 2: Frequency of Chullu preparation in studied villages**

Name of studied villages	Total no. of population studied <sup>#</sup>	Total number of persons preparing alcohol in village	Frequency of Chullu preparation by local people (%)
Chaknagar	345	269	77.97
Haspukur	460	375	81.52
Parameshpur	439	349	79.49
Baidyapur	521	439	84.26
Jhinjhinipukur	296	203	68.58
Aktail	345	268	77.68
Nityanandapur	211	153	72.51
Kanturka	362	301	83.14
Rishipur	209	164	78.46
Srirampur	358	277	77.37
Dhumpur	421	355	84.32
Lakhitur	379	330	87.07
Jagdala	265	211	79.62
Dangapara	119	86	72.26
Pakuahat	451	368	81.59
Salaidanga	223	162	72.64
Majhra	195	142	72.82
Bhabuk	385	324	84.15
Habibpur	535	450	84.11

<sup>#</sup>Total population studied=(Number of Chullu producing person+ No. of non-Chullu producing person)

also produced in those areas as per the demand of agents. Hence, commercialization of local drink would be a good alternative way to the ethnic people if properly manufactured.

In selling local traditional brew, the most critical factors are the lack of proper infrastructure, proper management, communication, transportation, local market or beer-shops etc. It has been observed that some of the villages are in such remote areas that the transportation facilities are inaccessible. Therefore it becomes difficult to reach to the desired places or sometimes become detached due to some natural calamities. As a result the transportation charges become more than the production cost of Chullu. Seasonality, especially rainy season is

also a great factor. Due to the presence of heavy moisture in the environment and/or inadequate sunlight, the starters don't get dried up well leading to fungal contamination. As a result, the drink prepared with those half-dried starters becomes toxicated or sometimes fatal.

### Transmission of Knowledge

The knowledge of the wild medicinal plants used in various purposes are based on regular practices, oral transmission and are also influenced by several factors such as age, gender, relationship and other sociocultural factors generating variability in a particular zone [11]. The privacy of traditional medical practices in the indigenous people is a common phenomenon [12]. The use of selected plant species in Chullu preparation distinguishes the Oraon people from other communities in the studied region and it confirms that the knowledge is confined within this community. The informants reported that they always keep their medicinal plant knowledge secret. The open transfer of indigenous knowledge could only take place verbally along the family line, usually from older knowledgeable person to younger ones. The transfer of knowledge takes place hardly to the people outside the family and passed only on substantial cash payment.

### CONCLUSION

Through the present survey we intended to have a detailed account of local drink production in selected regions of rural Bengal. Rural Malda district to be precise, we have also given special emphasis to the tribal community and their way of preparing local drink, Chullu. Oraon economy involved typical method of Chullu production which is indigenous to their community. We found that Chullu production, trade and marketing are a popular occupation among Oraon communities.

Any kind of traditional alcoholic drink is popular among the tribal communities and the non-tribals because of its cheap cost and high alcohol content. The tribal communities use native brew virtually in every occasion, from birth to funeral. They used several herbs and shrubs for the preparation of local drink. Some of which are ethno-botanically important. Oraons have a popular belief that the plant parts used in Chullu actually help them in combating against various ailments such as headache, insomnia etc.

Overall, it is apparent that the present survey is some of the most comprehensive one on Chullu production and marketing in Bengal and certainly the most exhaustive for rural Malda district of West Bengal.

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