



RESEARCH ARTICLE

MEDICINAL PLANTS USED TRADITIONALLY FOR THE PREPARATION OF RICE BEER BY THE TIWA TRIBE OF MORIGAON DISTRICT OF ASSAM, INDIA

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ABSTRACT

The rice-beer is extremely popular among the tribal people and is probably therefore the most ancient method for brewing alcoholic beverage from cereals by herbal formulation of yeast culture. The rice beer is an integral part of several tribal communities of Assam and is known as *jumai* by the *Bodos*, *suze* by the *Deoris*, *morpo* by *Mikirs*, *chu* by *Garos*, *jou* by *Meches* and *Dimasas*, *zu* by *Tiwas*, *apong* by *Mishings*, *laopani* and *mod* by some other tribal communities. The survey was done during August to December, 2015 in the villages *Borchila*, *Ga-khjuwa*, *Kahua-ati*, *Gokhai-khonda* and *Dalang-ghat* of *Morigaon* district bordering the district of *Nagaon* in Assam. *Tiwas* believe that the rice-beer have curative properties against some ailments of human beings as well as cattle. The *Tiwa* people consumed the rice-beer in many common ailments such as fever and various enteric diseases and also got cured. About 19 plant species has been identified which is used to prepare the rice cake or the bakhor. Each of the plant species has medicinal values. Rice-beer is therefore efficient in relieving headache, body ache, inflammation of body parts, throat infection and tonsillitis, gastroenteritis and urinary problems. The rice-beer is highly effective in expelling worms from the alimentary canal and also cures cholera.

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INTRODUCTION

Rice beer is a famous Asian country's drink. The ability of yeast to make alcohol-beer was known to the *Summerians* and the *Babylonians* before 6000 B.C. References has also been made to wine as "Soma" in Indian mythology as the liquid frequently drunk on several occasions. Religious Indian scripts like "Ramayana" also indicates that alcohol was consumed by "Asuras" millions of years ago. By the 14th century A.D. the distillation of alcoholic spirits from fermented grain, a practice thought to have originated in China or the Middle East, was common in many parts of the world (Ramawat and Goyal, 2009). The rice-beer is extremely popular also among the tribal people and is probably therefore, the most ancient method for brewing alcoholic beverage from cereals by herbal formulation of yeast culture (Hill, 1937). Rice-beer, an integral part of the life of several aboriginal communities is known in different names in different places. It is known as *saki* in Japan, *lao-chao* in China, *tape ketan* in Indonesia, *khao-mak* in Thailand, *daru*, *kali*, *pachwai* and *haria* in India (Roy *et al.*, 2004; Basnet, 2003). The rice-beer starter cake has also several names like *chu* in China, *nuruk* in Korea, *koji* in Japan, *ragi* in South east Asian countries like Indonesia, Malaysia, etc.,

bubod in Phillipines, *loogpang* in Thailand, *pekka* in Taiwan, *pab* (*Phap*) in Tibet, *levian* in Sikkim, *banhmen* in Vietnam and *bakhor*, *ramur* or *marchaar* (*murcha*) in India (Hesseltine, 1988; Brain, 1997). Rice-beer is prepared in the household of almost all aboriginal communities of Northeast India (Saklani and Jain, 1994). It is almost impossible to determine when and how these tribal people started preparing rice beer but certainly it is a good improvisation of natural and direct fermentation of boiled rice when kept for a few hours soaked in water. The main point of modification is the addition of the specially formulated starter mixture in the boiled rice (Ghosh and Das, 2010). The rice beer is an integral part of several tribal communities of Assam and is known as *jumai* by the *Bodos*, *suze* by the *Deoris*, *morpo* by *Mikirs*, *chu* by *Garos*, *jou* by *Meches* and *Dimasas*, *zu* by *Tiwas*, *apong* by *Mishings*, *laopani* and *mod* by some other tribal communities (Bordoloi, 1991). Evidences state that *Ahoms* entered Assam in 1228 A.D. and according to the literary evidence the *Lalungs* or the *Tiwas* inhabited Assam much before the advent of the *Ahoms*. The Assam census of 1881, reported that the *Lalungs* got mixed up with the *Garos* and *Mikirs* and they have numerous exogamous clans (Deuri, 2008). The process of the rice-beer preparation is supposed to be as old as the other social customaries of the *Tiwas* and this knowledge is being transmitted from one generation to the next. The majority of the *Tiwa* people in the villages of the area of study are still dependent on the

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traditional medicine for their primary health care and treatment of various ailments. They have gathered excellent knowledge through experience and prefer natural methods of treating diseases with various plant resources. Several plants having immense medicinal values are used by the *Tiwas* in the preparation of the rice-beer. *Tiwas* believe that the rice-beer have curative properties against some ailments of human beings as well as cattle. In recent years, information on the use of plants by different communities of the Northeast India has been compiled (Dam and Hajra, 1981; Jain and Borthakur, 1980; Mahanta and Gogoi, 1988; Majumdar *et al.*, 1978). This area has been inhabited by several tribal communities from times immemorial. Taking this into consideration, a massive survey work has been conducted in some of the native *Tiwa* villages of the *Morigaon* district of Assam to prepare a written documentation on the process of rice-beer preparation and the plants used in the process. It was found that many *Tiwa* men and women were consuming this alcoholic drink generation after generation not only as a drink but also as a medicine and are consequently maintaining good physique and life expectancy.

MATERIALS AND METHODS

The survey was done during August to December, 2015 in the villages, *Borchila*, *Ga-khujuw*, *Kahua-ati*, *Gokhai-khonda* and *Dalang-ghat* of *Morigaon* district of Assam bordering *Nagaon*. Information was collected from aged and experienced people living in these villages by arranging interviews with them.

The entire process of study was divided into three parts:

(i) collection of plant materials, (ii) the mixture of plant material with the rice cake in the preparation of *bakhor* and (iii) filling of the fermenter and diluting the fermented product. Herbarium specimens were prepared from the collected plant samples for proper identification (Kanjilal, 1997; Kirtikar and Basu, 1935; Jain and De Filippis, 1991; Pandey, 1999). Extensive survey was carried out in these villages to record the plant species used in the preparation of the rice beer cake and rice beer. All these plant parts used are reported to have a wide range of medicinal properties.

RESULTS AND DISCUSSION

Rice is the main component of both rice-beer cake and rice-beer. Nineteen (19) different plant species were found to be traditionally used by the *Tiwas* in the area of study in the preparation of rice-beer cake (Table-1; Fig. 1-4). The *Tiwas* of these areas chiefly belong to *Koch* and *Hukai* sub-tribes. The scientific name, family, vernacular names in *Tiwa* language, parts used and their medicinal values are enumerated (Table-1). The plant parts used and their medicinal values were tabulated as reported by the village elders and healers of the *Tiwa* community. The benefit of having rice-beer is that it gives a glowing skin and even health wise good. However, the preparation must be aseptic and intake or consumption must be controlled. It was found that the rice-beer has a significant role in the traditional healthcare system.

Table 1. List of plants used in the preparation of the rice-beer by the Tiwa tribe of Morigaon district of Assam, India

S. No.	Plant name/family/local name	Uses
1	<i>Clerodendron serratum</i> (L.) Verbenaceae/ <i>Nangol bhanga</i>	Leaves are antimalarial
2	<i>Melia azadirach</i> (L.) Meliaceae/ <i>Ghora-neem</i>	Used to cure wounds and various pain related problems
3	<i>Streblus asper</i> (Lour) Moraceae/ <i>Kharua</i>	Shoots and are cure tooth infection and urinary problems
4	<i>Curcuma longa</i> (L.) Zingiberaceae/ <i>Halodhi</i>	Antioxidant, anti-carcinogenic
5	<i>Phlogocanthus thysiflorus</i> (Roxb.) Acanthaceae/ <i>Bor Bahaka</i>	Leaves are excellent in throat infection, tonsillitis and chest cough
6	<i>Adhatoda vasica</i> (Nees.) Acanthaceae/ <i>Boga Bahaka</i>	Excellent in throat infection, tonsillitis and chest cough
7	<i>Solanum indicum</i> (L.) Solanaceae/ <i>Tita vekhuri</i>	Leaf extracts are used in gastroenteritis and high fever
8	<i>Leucus aspera</i> (Spreng.) Lamiaceae/ <i>Durun</i>	Excellent in general pain, nose-bleeding and sinusitis
9	<i>Tabernaemontana coronaria</i> (R.Br.) Apocynaceae/ <i>Kothona</i>	Flower extracts can cure eye infection and leaf extracts are used in jaundice
10	<i>Clerodendron infortunatum</i> (Gaertn.) Verbenaceae/ <i>Bhatai</i>	Flowers are used in stomachache and gastric problems
11	<i>Artocarpus integrifolia</i> (L.) Moraceae/ <i>Kathal</i>	It imparts color to the drink prepared
12	<i>Saccharum officinarum</i> (L.) Poaceae/ <i>Kuhiar</i>	Leaves are used in constipation and in profuse bleeding during menstruation
13	<i>Musa velutina</i> (Wendl.) Musaceae/ <i>Malbhog kol</i>	Leaves are antiallergic and anthelmintic
14	<i>Ananas comosus</i> Bromeliaceae/ <i>Anaras</i>	Tender leaves are anthelmintic and abortifacient
15	<i>Coptis teeta</i> (Wall.) Ranunculaceae/ <i>Missimi teeta</i>	Tender leaves are anthelmintic and also cures gastroenteritis problem
16	<i>Scoparia dulcis</i> (L.) Scopholariaceae/ <i>Chenehi</i>	Used in infant vomiting and diarrhoeal diseases
17	<i>Polipodium sp</i> Polipodiaceae/ <i>Bih Dhekia</i>	Used as a pain killer in rheumatoid arthritis
18	<i>Momordica sp.</i> Cucurbitaceae/ <i>Parala lata</i>	Tender leaves are used in gastro enteritis and other related problems
19	<i>Justicia betonica</i> (Brum) Acanthaceae/ <i>Horu bahaka</i>	Used over wounds for its antiseptic property and also used to heal pain

Fig. 1. *Momordica* spFig. 2. *Leucus aspera*Fig. 3. *Solanum indicum*Fig. 4. *Streblus asper*

Fig. 1- 4. Some of the plant species used traditionally by the Tiwa tribe in the preparation of rice beer

The *Tiwa* people consumed the rice-beer in many common ailments such as, fever and various enteric diseases and also got cured. But due to migration of the present generation to the cities in search of knowledge and livelihood, this valuable traditional knowledge remained confined only to the few aged villagers. The paper therefore throws light on the traditional knowledge of the different plants used by the *Tiwas* in the preparation rice-beer.

Ethnomedicinal value

The *Tiwas* believe that the rice-beer work as medicine for many diseases. The *juguli* is believed to work as tonic; promotes sleeping tendency and also has a purgative effect. The rice-beer is thought to be efficient in relieving headache, body ache, inflammation of body parts, throat infection and tonsillitis, gastroenteritis and urinary problems. The rice-beer is highly effective in expelling worms from the alimentary canal and also cures cholera. The rice-beer cake not only possesses curative properties for human but also for cattle. The *juguli* is given to eat to the bulls as a tonic to promote body strength and also cures swelling legs of cattle.

Conclusion

Thus the rice-beer prepared by the *Tiwas* has got medicinal properties in curing many diseases. The curative property is due to the presence of various medicinal plants used in the preparation of the rice-beer. In the present scenario the consumption of the rice-beer is gradually coming down because of many factors such as enforcement of the excise law and economic pressure. Nowadays, rice-beer is brewed in a rather restricted manner and that too is connected with festivals and ceremonies. Further, with the advent of the *Vaishnava* religion there has been a gradual decline in the preparation and consumption of traditional rice-beer. With more and more *Tiwa* people being inculcated in the *Mahapurukhiya* groups of the *Vaishnava* religion there has been a sharp decline in this traditional practice.

This knowledge of preparation of the rice-beer is supposed to have practical importance in ethnobotanical research in future. With the knowledge of the preparation procedure of the drink being restricted only among certain aged and experienced persons of the area of study a documentation of the process was thought necessary. Otherwise in the absence of those elderly experienced persons this indigenous traditional knowledge might be lost for ever. This knowledge might prove important for the future generation. The knowledge related to indigenous culture, traditional faith and healthcare system cannot be allowed to get lost because of the absence of a written documentation or scientific study. Therefore, in the present research work the survey was done to study the process of preparation of the rice beer with the plant species used. In future, medicinal values of the plant species will be studied at the molecular level so that the efficacy of this indigenous knowledge and social practice may be established more fruitfully.

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