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PLANTS USED IN THE PREPARATION OF TRADITIONAL RICE-BEER "HANDIA" BY TRIBES OF MAYURBHANJ DISTRICT, ODISHA, INDIA

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Abstract

The locale Mayurbhanj is portrayed by a varied tribal populace with an alternate ethnic gathering and environment. The inhabitant tribals relying upon wild as well as a cultivated plant for their different nourishment and restorative reason. This investigation manages the accessible plants utilized for starter preparation for handia (Rice beer) by the tribes of Mayurbhanj. The region, offers exceptional chances to consider the indigenous information and their uses common among the nearby clans. The nearby tribals depend upon wild just as cultivated plants for their distinctive sustenance and medicinal purposes. As a piece of the socio-public activity, all tribes prepare rice refreshment using their own outstanding starter culture. In the preparation of starter they use a segment of the wild plants as antimicrobials without knowing the genuine activity of these plants in fermentation. They express that yeast is encircled from these plants, liable for yeast movement during the fermentation. In other word, also called as rice beer (Handia) and it is the fashionable drink among the tribals in all their festive occasions and celebration. It doesn't make the buyer alcoholic significantly after rehashed utilization. It also compensates the water loss of the body during overpowering physical work, particularly in summer months. This documentation will be helpful for further exploitation of handia as a wellbeing drink for tribal individuals.

Key words **:** Documentation, Fermentation, Medicinal, Nourishment, Handia, Rice beer.

Introduction

The language that we express, outfits that we attire, food that we consume, and our activities speak a lot about the culture of a particular region or community. Odisha has been home to many numerous tribal communities for centuries. Each tribal group has their own separate culture, but their food habits are almost analogous. *Handia* or rice brew is one such beverage that is common among all the tribal living in the district of Mayurbhanj (Naik, 1998). The term 'Handia' more likely than not owes its source to handi, a profound, wide-mouthed cooking vessel utilized in Indian cooking, in which rice-beer (Handia) is fermented. While some have claimed this drink to be the major causes of the backwardness of tribal; it holds deep cultural significance within the community and is consumed throughout all festivals and considered auspicious. It is accustomed to offer *handia* during certain rituals. In marriages, festivals and in the daily life of the tribes of Mayurbhanj, handia takes the interior stage, both as dietary and beverage. In the tribal heartland of eastern India women selling handia or rice beer in weekly haats by waysides is a very common sight. Rice is fermented with the aid yeast comprising a few plants, identified as bakhar, to produce handia and rasi. Handia is the denser gruel and rasi is the liquid top layer. Handia occupy an important position in the tribal village, communally, ethnically and inexpensively. Rice brew is traditional as a mainly sanctified drink in the different types of tribes like Santal, Munda, Bathudi, Kolha, Khadia, Mankidia, Bhumija and Gonda tribes who were residing the villages of Mayurbhanj district. It has spiritual uses and qualities. Rice brew or rice beer is introduced to nearby divinities, and in dead precursors' ceremonies. The utilization of handia is extremely common in the event of marriages, birth commemorations and celebrations. It is extremely hazardous to know which tribes started the utilization of Handia (Panda *et al.*, 1996).

Handia is considered as one of the alcoholic beverages consumed by tribal groups. During summer

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with the mercury contacting the 40 degree mark, residents are going to this beverage made of fermented rice and herbs because of its cooling properties. Generally devoured to unwind in the wake of a monotonous day's worth of effort, neighborhood tribes guarantee taking handia assists with holding the body cool and stay away from sunstroke. The rice beer is also supposed to have medicinal properties and help treat jaundice and indigestion. It works successfully in logical inconsistency of a sleeping disorder, body hurt, cerebral pain, irritation of body parts, looseness of the bowels and urinary issues, ousting worms and as a treatment of cholera (Deori and Begum, 2007; Deka and Sarma, 2010).

Rice beer (handia) is prepared from rice along with some traditional plants, therefore, present paper manages the documentation, depiction and utilization of plant and plant parts for the starter arrangement just as the preparation of rice brew (handia) by the ethenic people of Mayurbhanj district of Odisha.

Materials and Methods

Uncleansed rice (of a somewhat rosy shading) and the tablet "bakhar" are utilized to prepare Handia. Bakhar has different local names, for example Mullica/Mulikia and Ranu. A portion of the tribes revealed to us that they didn't already utilize this tablet, yet these days they use it for business reason to make the Handia additionally inebriating. A portion of the tribes additionally educated us that the tablet has consistently been utilized in handia creation on the grounds that without it the readied will break down. All the ingredients utilized in arrangement of handia were referenced in result and discussion part.

Field survey for documenting plants used for handia preparation

A field study was driven in ten picked areas viz. Purunapani, Bhundapal, Pithabata, Lulung, Laxmiposi, Baripada Hat, Udula, Karanjia, Bisoi, Bangriposi and Thakurmunda in the district of Mayurbhanj where arranging and immense degree selling of handia is an ordinary reiteration. Data was archived on the methodologies of planning, crude materials utilized and recurrence and timing of utilization through casual individual interview among different tribals and ethenic people. Precision of the information was ensured through cross check.

About the place

Lulung, Pithabata, Bhundapal and Purunapani are the remote villages present in the similipal biosphere reserve. Folks of this village have their unique recipe for preparing of handia. The villagers depend upon the forests of the Similipal biosphere reserve for collection of those plants and plant parts. Different types of tribes like Santal, Munda, Bathudi, Kolh, Khadia, Mankidia, Bhumija and Gonda are residing in these villages of Similipal Biosphere Reserve. Karanjia, Bisoi, Bangriposi and Thakurmunda are known as large markets of Mayurbhanj district. The samples of rice beer were collected from the main haat of these places, the data about the preparation method and ingredients they use for the preparation was ensured through cross verification among the seller and the consumer.

Climate of study location

The Mayurbhanj district encounters extraordinary sort of atmosphere with sweltering and dry summer followed by damp storm and chilling winter. The temperature fluctuates between 10°C to 46°C (Fig. 1). The winter season endures between Novembers to February. The hot season follows from that point on and continues till the second multi day stretch of June. The South-West storm season is from mid-June as far as possible of September. The normal yearly precipitation in the District is 1,8000 mm (Tudu, 2017)

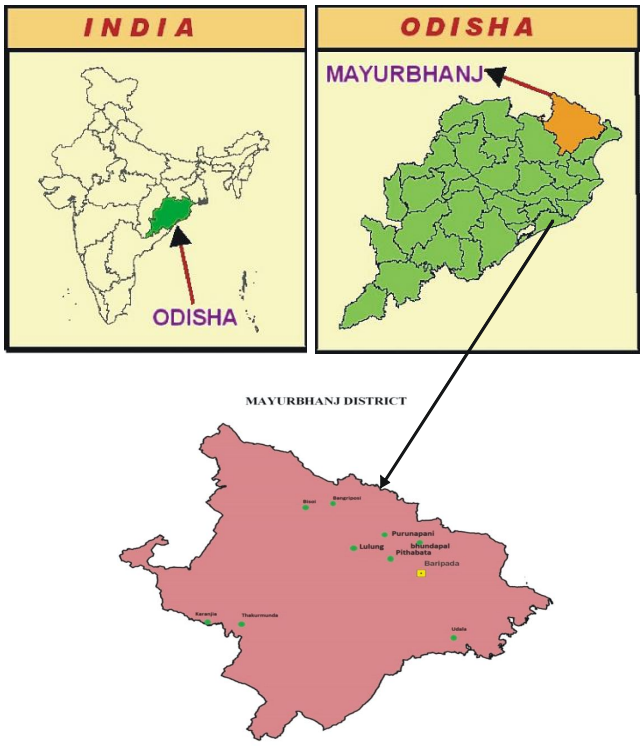

Fig. 1: Map of Mayurbhanj district with sampling site (●).

Study and documentation of plants in Bakhar readiness

A survey was led in different tribal pockets of Mayurbhanj district of Odisha and gathered information through questionnaires and individual collaboration with

tribal concerning the usage of plants and plant parts in the availability of starter culture and its detail technique for planning is recorded. As most of the clans achieve the principle constituents in type of the powder plant parts from the market, so an investigation was led by showing the plant parts nearby their dried structure. Precision of the data was ensured through cross check. The plant specimens utilized in Bakhar arrangement were reported, gathered, distinguished and stored as a voucher specimen in Department of Botany, School of Applied Sciences, Centurion University of Technology, Odisha, India (Fig. 2).

Fig. 2: Plant material used for Bakhar preparation.

Collection and processing of plants and plant parts

Roots, rhizome, bark, leaves, flowers and youthful shoot of plants have autonomously been accumulated during field survey to different zones of Mayurbhanj. The roots are burrowed from the soil and the accompanying soils were ousted by shaking and washing. The leaves were winnowed from the trees, washed fittingly and tainted leaves were discarded. After assortment, the sound leaves were dried at room temperature to keep up their green concealing and volatile oils, if present. The material is completely shed dried for so long it doesn't take into account the growth of any sort of molds and microorganisms. The dried plant parts are powdered freely by using mortar and pestle.

Results and Discussion

During the survey the following information was documented. A portion of the vernacular names of the plants and different materials utilized in rice brew (handia) arrangement have also been referenced. (Table 1) showed the different plants and their parts used in the course of action of the starter culture. All the species were accumulated from near to fields and forests as wild plants which are used by these tribes.

Preparation of Ranu or Bakhar tablets

Ranu or bakhar tablets go about as essential way for fermentation. Ranu tablets are mixes of various plant parts (50%) and powdered ungurgled rice (50%). The plant species and parts thereof utilized for the reason alongside alloc names, family, parts utilized are recorded in Table 1 alongside its therapeutic properties all through India. Field study was done and plants are collected in the wake of recording its ethnomedicinal utilizes are recorded in (Table 1). Some species *viz*. *Asparagus racemosus* (Willd.), *Cissampelos pareira* L. *var*. *hirsute* (DC) Forman, *Cleroden drumserratum* (L.) Moon, *Coccinia grandis* (L.) Voigt, *Holarrhena antidysenterica* Wall ex. A. DC., *Woodfordia fruticosa* (L.) Kurz. and Benth. Are regularly utilized by the tribes of all localities while plants, for example, *Madhuca longifolia* (Koenig), *Smilax macrophylla* (Roxb.), *Rauwolfia serpentine* (L.), *Elephantopus scaber* L., *Gardenia gummifera* L.f. also, *Dioscorea* sp. are once in a while use. Contingent upon the season and accessibility in a specific territory, plant parts of at least one or more species are utilized. The exact extent of different plants used for ranu planning couldn't be discovered as the data was reluctant to unveil the equivalent. In any case, *C. pareira* structures the huge part in a huge bit of the readiness (70%) trailed by various plants in mix (1-30%). *R. serpentine* and *G. gummifera* are utilized in little extent. As indicated by one source (Kisansi, Male, Age-62) the proportion of the plant (root) is 6:2:1:1 (*C. pareira: W. fruticosa: A. racemosus: H. antidysenterica*). Supported parts and plants moved at better places. Dried root, stem and different parts utilized for the reason, both in that capacity and powdered, are plentifully and transparently sold in the neighborhood markets. Powdered plant fixings are mixed in with equal proportion of rice (*Oryza sativa* L.) powder. A reasonable measure of water is added to make batter. Ranu is set up as adjusted tablets and spread over straw beds in layer after layer with a last slender layer of straw spread. Following three days, the ranu tablets are gotten from straw beds and dried under the sun for around two days and put away for use in the aging of rice drinks. These tablets are utilized for maturing rice refreshment as well as utilized for treatment of different illnesses.

The tablet "Bakhar"

The tablet "Bakhar"

The tablet "Bakhar" is unpleasant in taste. It is made out of sun-dried rice, roots and barks (Fig. 3) of the accompanying trees such as *Asparagus racemosus* (root), *Cissampelos pareira* (root), *Clerodendrum serratum* (root), *Caccinia grandis* (rhizome), *Homalium nepalenses* (bark), *Holarrhena pubescens* (bark), *Ipomoea mauritiana* (tuber), *Polygala crotalariodes* (stem), *Rauwolfia serpentine* (root), *Smilax macrophylla* (Both root and stem), *Woodfordia*

Fig. 3: Powdered form of root and stem.

fruticosa (root).

All the above roots and barks are common ingredients used in preparation of bakhar and are bitter in taste. These are accessible in the forest just in the blustery season. So the tribal ladies save these roots and barks in stock for the entire year. A portion of the tribes gather them from the forest and prepare Ranu at home. Others buy them at the market. They are additionally accessible in little, set sums, for example one bunch of the blend. The plant species and parts utilized for the object are additionally recorded in table 1.

Processing of Bakhar

Rice was sun dried and the combination of roots and barks are used to prepare Ranu. To begin with, the bark and roots are dried in the sun and ground together into a powder. At that point the sun dried rice is soaked and changed over into flour. Blend the rice flour and powder into mixture. From that point forward, roll the batter into little balls. At that point spread out the straw in four layers, between which the little balls are dissipated. Leave the balls to dry for 2 days. The clans accept that, in the event that the Ranu takes 2 days to dry, and afterward it will likewise take 2 days to process the Handia (Fig. 4).

While getting ready Ranu, some Munda ladies watch the customary framework that before planning Ranu, they place rice powder on a leaf before the "Pitrupurusa" (progenitor). At that point they add water to this powder and make mixture. They overlay the leaf around the mixture and prepare it in the fire. Thereafter, the Ranu are served by relatives to other people. Relatives themselves can't every it. By offering the Ranu blend to God, they accept that, from that Ranu, they can deliver and sell more Handia. The Munda ladies who are engaged with Ranu creation set it up two times every week.. The Munda ladies set up an extraordinary Handia for strict capacities. Before setting up the Handia, they scrub themselves by washing, put on clean garments and furthermore wash the 'Dekchi' (large silver pot) clean. While getting ready handia they eat no nourishment. This handia is first offered to God and at exactly that point may the family unit individuals devour it. Others are not permitted to expend this handia. Munda ladies get ready handia a few times each week. In any case, in the late spring season the vast majority of them set it up more regularly.

Testing of Ranu

After the Ranu has been prepared, it tends to be tried by tossing it into the fire. On the off chance that it bursts up, at that point it is viewed as usable and in the event that not, at that point it is futile.

Processing of Handia

As per indigenous originations, Handia is prepared by ladies. Processing takes three days. Uncleansed (bagada) rice and the tablet, Ranu, are utilized to set it up. In the first place, the rice is boiled with water so that de-husked rice is doused and boiled in water. The cooked rice is dried on a bamboo tangle under the sun. In the wake of drying, the rice is blended in with required measure of powdered ranu tablets (around 10 tablet for each kg rice), kept in a huge earthen pot or handi (henceforth the name of the item) trailed by expansion of required measure of water. The blend is kept immaculate for 3-4 days for fermentation. After proper fermentation a white supernatant was available in the upper layer containing 8-10% alcohol called Rashi, which gets more significant expenses. Following 2-3 days the fermented fluid is permitted to stream down through a bamboo sieve, gathered in earthen pots and is prepared

Table 1: Phytotherapeutic uses of plants that are used in preparation of ranu tablets throughout India.

Sl.No.	Plant Name	Local Name	Family	Plant parts use	Medicinal uses	References
1.	*Asparagus recemosus* Willd.	Gaisiro, Satabari	Liliaceae	Root	Nutritive tonic and demulcent, fixes fever, sexual related diseases, physical weakness, bronchitis and hack.	Thatoi *et al.*,2008
2.	*Cissampelos pareira* L.var. *hirsuta* (Buch.-Ham. ex DC.)	Andiakidula	Menisperma-ceae	Root, Leaf	Leaves used forcough, urinarytroubles, diarrhea, inflammation andcolic pain.	Rout &Panda,2010; Thatoi*et al.*, 2008
3.	*Clerodendrum serratum* (L.) Moon	Samarkand	Verbenaceae	Root,Leaf	Roots used in fever, snakebite, asthmaand cough.	Kirtikar *et al.*, 2005
4.	*Coccinia grandis* (L.) Voigt	Banokunduri	Cucurbitaceae	Roottuber	Ear pain, jaundice,blood dysentery anddiabetes.	Panda *et al.*, 2011
5.	*Dioscorea* spp.	Sanga	Dioscoreaceae	Roottuber	Not known.	Panda *et al.*, 2011;
6.	*Dipteracanthus suffruticosus* (Roxb.) Voigt	Chaulia	Acanthaceae	Root	Renal problems.	Nayar *et al.*,1956
7.	*Elephantopus scaber*L.	Tatmuli	Asteraceae	Root	Diarrhea, dysentery, colic, vomiting, headache and tooth ache.	Panda *et al.*,2011
8.	*Gardenia gummifera*L.f.	Bhurudu	Rubiaceae	Youngshoot	Utilized as a stomach related tonic and disinfectant	Kirtikar *etal.*, 2006
9.	*Holarrhena pubescens* (Buch.-Ham.) Wall.ex G.Don	Kuruchi	Apocyana ceae	Seeds, Bark	Bark isantihelminthic, Antipyretic and utilized in loose bowels. Seeds are astringent, utilized in cough, cold, fever, scabies, infection and jungle fever *i.e.* malaria.	Kirtikar *etal.*,2006; Panda *et al.*, 2011; Thatoi*et al.*, 2008
10.	*Homalium nepalense* (Wall.) Benth	Danmari	Flacourtiaceae	Bark	Stomach disorder.	Nayar *et al.*,1956
11.	*Lygodiumflex uosum* (L.) Sw	Mahajal	Lygodiaceae	Root	Fresh roots used as expectorants and healing wounds.	Panda *et al.*, 2011
12.	*Madhuca indica* Gmel.	Matkam	Sapotaceae	Leaf, Bark and Seed	Seed oil utilized in Joint pain; Leaf and bark utilized for diabetes.	Kirtikar *etal.*, 2006 Nayar *et al.*,1956
13.	*Ochna obtusata* DC.var. *obtusata*	Otchampa	Ochnaceae	Root	Utilized as antitoxin for snake bite, menstrual grumblings and asthma.	Kirtikar *etal.*, 2005
14.	*Orthosiphonr ubicundus*(D. Don) Benth.	huimenclar	Lamiaceae	Tuber, Root	Used to cure different stomach problem.	Nayar *et al.*,1965
15.	*Polygala Crotalarioids* Buch.-Ham. ex.DC	Gaighura	Polygalaceae	Bark	Decoction of bark is used to cure common cold and cough. Bark is also used as antidote against snake bite.	Nayar *et al.*,1956

Table 1 contd....

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Sl.No.	Plant Name	Local Name	Family	Plant parts use	Medicinal uses	References
16.	*Phoenix acaulis*Roxb. ex. Buch.-Ham.	Khajuri	Arecaceae	Root	Root Used as laxative.	Kirtikar *etal.*, 2005
17.	*Rauwol fiaserpentine* (L.)Benth.	Kedabah	Apocynaceae	Root	Used against malaria and antidote for snake bite	Nayar *et al.*,1956
18.	*Smilax macrophylla* Roxb	Ramadantani	Smilaceae	Root,Stem	Roots used forurinary complaintsand dysentery. Stemused in tooth ache	Nayar *et al.*,1956 Rout &Panda, 2010
19.	*Woodfordia fruticosa*(L.) Kurz	Icha-baa	Lythraceae	Flower	Dried flowers used to cure skin diseases and liver disorders.	Panda *et al.*,2011; Thatoi*et al.*, 2008
20.	*Xantolis tomentosa* (Roxb.) Raf.	asyasta madhura	Sapotaceae	Fruit	Utilized as a disinfectant and stomach related tonic	Rout &Panda, 2010

Fig. 4: Bakhar tablets.

for utilization. The flavor of handia relies upon the plants utilized for ranu/bakhar proportionate concentrate juice from the blend, one can crush the blend through a strainer (chaluni) for filtration. For one mana or 1/2 kg rice one can utilize 4 tablets (or 3, on the off chance that it is enormous), About 8-10 bakhar tablets are utilized for 1 kg of rice which together produce around 10 L of handia. The handia can be hard, medium and delicate; contingent upon how the ranu is utilized quality gets brought down on weakening. On a normal the entire procedure is performed by ladies. This is on the grounds that ladies are consistently accountable for the kitchen and handia-production is completely kitchen work.

On a normal, a quantity of 30% of families prepare handia for their own utilization. Per capita utilization adds up to be around 1 L/day. Utilization is a lot higher during summer and henceforth, it is basically a late spring drink. It keeps the stomach cool, shields from outrageous warmth and is additionally inebriating. Handia arrangement and selling is an optional wellspring of employment for tribes and some acknowledge it as an essential occupation. It is utilized in all social, social and strict purposes and no social event is viewed as complete without it. The santals trust it to have medicinal value, for example use it in the fix of jaundice, colic issue and looseness of the bowels.

Composition of Handia

Uncleanness rice (of a somewhat rosy shading) and the tablet "Ranu" are utilized to get ready Handia. Ranu has different local names, for example Mullica/Mulikia and Bakhar. A portion of the tribes revealed to us that they didn't beforehand utilize this tablet, yet these days they use it for business reason to make the handia all the more inebriating. A portion of the tribes likewise educated us that the tablet has consistently been utilized in handia creation in light of the fact that without it the readied Handia will break down. The tribal women set up an uncommon handia for religious fuctions. Before setting up the Handia, they purge themselves by washing, put on clean cloths and furthermore wash the 'Dekchi' (huge silver pot) clean. While getting ready handia they eat no food. This Handia is first offered to God and at exactly that point may the family unit individuals devour it. Others are not permitted to devour this Handia. Munda ladies get prepare Handia a few times each week. Yet, in the mid year season the greater part of them set it up more frequently.

The tribal people prepared handia in their homes and sell in the different places and occasion of Mayurbhanj district *viz*. Selling at daily markets near the roadside, Selling at the Saptahik Hat (weekly market), at various locations, Selling at Jatra or festivals (*i.e*. Raja: 3 days, Makara: 9 days, Rathayatra: 10 days, Dolayatra: 13 days) (Fig. 5). The gathering of handia-sellers is an additional attraction at all the festivals) etc. Most Munda ladies sell Handia at their homes. Individuals of various castes, from the equivalent and close by village, come to consume

Fig. 5: Selling of handia at daily market in different location of Mayurbhanj.

Handia. A family unit will sell more on the off chance that they keep up great associations with their clients.

Conclusion

Rice beer (Handia) is a traditional alcoholic beverage prepared and consumed by almost at the ethnic tribes of Mayurbhanj district of Odisha. The rice brew (handia) prepared and consumed is advanced with proteins, nutrients, amino acids and a few nutritional components. Ethnobotany of rice brew uncovers that the plant parts used to set up the handia have a few therapeutic qualities and are additionally answered to be utilized in traditional healing and in cures against different diseases by various tribes of Mayurbhanj. It is conceivable that traditional information on rice beer arrangement alongside various plant parts utilized will be valuable for researchers for further study. Documentation, identification and preservaion of indigenous data on various plant species, parts, tribes and their formula of arrangement of rice brew (handia) needs scientific commitment in extending its time period of practical ease of use and worth extension for its promoting and commercialization with extended sufficiency by the common people. These may prompt a legitimate way to protect rich ancient heritage of traditional rice beer preparation and its preservation for the future generation and the world.

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