Traditional alcoholic beverage, Yu of Meitei communities of Manipur

P K Singh* & K I Singh
Ethnobotany and Plant Physiology Laboratory, Department of Life Sciences, Manipur University,
Canchipur, Imphal 795 003, Manipur
E-mail: potksingh@indiatimes.com
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From time immemorial the people of Manipur use Yu for medicine, relaxant and offerings. It is a distilled product of the fermented local rice. The technology of the preparation of Yu is a traditional one and the product is a source of income generation to the poorer sections of people. The technology is amenable for upgradation in a scientific way. Yu is a strong solvent for many important active constituents of medicinal plants, whose actions play a potent role in the traditional medicine. The paper deals with the uses of 12 plant species belonging to 12 families, their mode of action and applications collected from traditional healers.

Key words: Yu, Traditional beverage, Alcoholic beverage, Meitei tribe, Manipur

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Fermentation as a method of food preservation was first used in the eastern part of China in 350 BC1. The technique spread to Japan, Thailand, Indonesia and Malasian regions. Through this process man had been producing different types of foods, chemicals, and medicine for his welfare. Fermentation is the natural process in which carbohydrates are oxidized to alcohol and other compounds by anaerobic microbes. It is a biological oxidation process employed by certain microorganisms for their energy requirements.

In fermentation, breakdown of substances is never complete and hence there is always incomplete liberation of energy. It is caused by the activities of microorganisms ranging from fungi to bacteria, and with their variations the end products of the process can be either alcohol or organic acids2-9. The production of these different substances is made through the common key intermediate, the pyruvic acid, whose reactions are outlined10 (Fig. 1).

Fermentation is the only process employed for the production of alcoholic beverages. These alcoholic beverages are prepared by fermentation of substances such as cereal grains and fruits. Today, the consumption of alcohol is worldwide and it is used in medicine and for relieving physical discomforts, illness or for pleasure.

Alcoholic beverages are of two types:
(1) Fermented beverages - in which, ethyl alcohol is formed by the fermentation of sugar present either naturally in the source or produced by the transformation of starch, e.g. beer, wine and toddy.

(2) Distilled beverages – these are obtained by distilling an alcohol containing liquid that resulted from fermentation such as wine or fermented fruits juice and then further treating the distillate to obtain a beverage of specific character; also known as hard liquor, e.g. whisky, brandy, rum, gin, etc.11.

In Manipur, from time immemorial, both fermented and distilled beverages had been prepared by fermenting different varieties of rice. The local liquor is prepared in different communities of Manipur, but restricted to the scheduled tribes and scheduled castes. The raw materials for such preparations are almost the same. For quality product and more alcohol production, Hamei (a fermented product) is added generally, because of its action as a starter/catalyst. Moreover, the preparation of Hamei is a popular domestic business for the people of scheduled caste and tribes, as it is also used as an ingredient of cattle foods. The traditional practitioners believe that, the quality of Hamei fermentation will be responsible for the quality and quantity of ethyl alcohol. Therefore, it is generally said that even a drop of sweat that falls over Hamei during its preparation will spoil the whole mass.

In Manipur, traditionally it is used as a drug, which may or may not associate with variety of

*Corresponding author
plant/mineral products. It is only traditional healers (Maiba and Maibi) and village heads, who prescribe these drugs to patients. An effort has been made to prepare a preliminary report and document the preparation and uses of Yu, practiced by the traditional communities of Manipur.

**Methodology**

Field investigation was carried out following the standard and ethnobotanical methods among the traditional communities of different districts of Manipur state\textsuperscript{12,13}. The different methods of preparation of Yu from various communities of Manipur state were collected. The use of an initiator of fermentation called Hamei and its preparation was also recorded (Figs 1-3). The principal sources of information were the traditional medical practitioners, old women and men and the users of the product for different ailments, whom the Maiba treated effectively. This information was concentrated on the medicinal uses of plants, their procedures and doses, etc. The authenticity of this traditional knowledge system was verified from different individuals. The medicinal plants and related materials were collected from the natural habitat as well as from the markets, where the vegetable vendors commonly sell these plants. These plants were maintained in the herbarium. All efforts were made to identify up to species level properly with correct nomenclature\textsuperscript{14-17}.

**Results and discussion**

(i) Preparation of Hamei (a fermented product)

The different types of Hamei, viz. Andro, Sekmai, Phayeng, Jiribam, Bishenpur, and Tengnoupal are prepared using similar ingredients and methods except with the slight differences in shape, size and coverings during the process of fermentation. White rice of about 3 kg was pre-soaked for about half an hour and dried for 15 min to remove excess water. The white rice is prepared traditionally by pounding
in a wooden mortar (Shumban) with a wooden mallet (Shuk) and the powder mass thus obtained is called Yam. Finely chopped or powdered about 250 – 300 gm dried bark of Yanglee (Albizia myriophylla Benth.) plant (Fig. 4) is mixed with required amount of water and filtered. The filtrate obtained appears brownish in colour. A homogenous mixture paste is prepared by mixing Yam and Yanglee filtrate. From this paste mass, a cake like structure in the form of elliptical or rounded flattened mass is prepared known as Hamei. Pressing a small portion of paste mass in between the palms does the preparation of Hamei cake in the form of a flattened mass (Fig. 5). The shape, sizes and forms are changed according to the convenience of the practitioner.

The prepared Hamei is stored for 4 - 5 days over a hearth for future use. For storage, the Hamei is kept over a mass of paddy husk or paddy straw and covered with straw and finally by cloths, for keeping the mass warm and free from extreme heat or cold. In winter, more layers of cloths are used. After 4-5 days of storage (fermentation), after fine water drop/droplets appear over its surface, it is taken out and air dried. The whole process is done under diffused or dim light. The Hamei is ready for use only when the alcoholic smell comes from it. The flavouring agents that developed during storage are – diacetyl, volatile phenols and esters.

(ii) Preparation of Yu

Traditionally, both the fermented and distilled beverages are produced under different stages. These are known as Atingba Yu or simply Atingba and Yu or Puk-Yu. In successive stages of their preparation, Atingba is obtained first as fermented product, whereas Yu is the distillate of Atingba (Fig. 3).
An earthen pot of 15–20 L capacity is required for this preparation. Now-a-days aluminum pots are substituted in place of mud pot. Properly washed 5–6 kg of Manipuri rice variety (Moirang-phou, Kumbiphou, K D-phou, etc.) is taken and cooked in the pot. The cooked rice is spread over a Phoura or Yangkok and kept in dim light for suitable cooling; the rice is then mixed up with Hamei (40-50 gm/1 kg of rice).

After thoroughly mixing the two components, it is kept for fermentation (Fig. 6). In villages like Sekmai and Phayeng, the cooked rice is properly washed with water and mixing of Hamei is done. The mixture is then fitted inside the pot, which is previously cleaned and dried over fire. The mouth of the pot is covered with a clean cloth and kept in sunlight for 3-4 days during summer. During winter, the mixture is fitted in a bamboo basket internally wrapped with the leaves of Teak (Tectona grandis L. f.), Ficus hispida Linn., Banana (Musa paradisiaca Linn.), Giant taro (Alocasia indica Schoot.), etc. and baked in direct sunlight after covering the open mouth of the basket by coarse cloth for 5-6 days for fermentation.

During fermentation, three taste stages, alkaline taste-sweet- bitter taste takes about two days, inclusive of the total fermentation period. The sweet and bitter ones are filtered, and the filtrate obtained is called Atingba-Yu. The latter is subjected to distillation (Fig. 7) and the distillate thus collected is called Yu. During the process of fermentation if more time is taken, the product becomes poor in quality and in quantity. Under prolonged fermentation a sour taste is produced following the bitter taste. Under such circumstances, distillation fails, leading to spoilage. Therefore, for distillation, the bitter taste is the right one for getting good quality and quantity of Yu.

In the preparation of local liquor the quality and quantity are the major factors. It is controlled by the use of tasty rice, which produces good quality Yu. Moreover, it provides better substratum for microbial action to ensure fermentation easily. In winter, fermentation is perfectly maintained by wrapping the mixed up mass preferably with the leaves of Teak (Tectona grandis L. f.), and Ashi-Heibong (Ficus hispida Linn.). This may be due to the microflora present on these leaves. The fungi Alternaria, Cladosporium, Curvularia, etc. (on phyllosphere) and Alternaria, Aspergillus, Cladosporium, etc. (on phylloplane) are found to be present on the F. hispida leaves, Bacillus sp. and Xanthomonas sp. are also found to be responsible for fermentation. The experience has proved that use of these leaves gives better results. Traditionally, the heat from the fire is increased so as to boil the fermented mass initially. Once boiling occurs, it is maintained to an optimum; otherwise poor quality alcohol is produced.

The amount of alcohol produced increases with the increase in the quality of Hamei upto a certain limit. With the use of 5-30 gm Hamei, the alcohol (Yu) production increases from 90-125 ml (Table 1). When Hamei is not used, the production of Yu reaches upto an optimum of 48 ml. However, with Hamei (Rice with Hamei-RH), the alcohol production reaches upto 81 ml (Table 2). The catalytic role of Hamei in traditional alcohol production may be due to the microorganisms present. Bacteria (Bacillus sp.), fungi (Aspergillus niger van Tiegh.) and the yeast (Saccharomyces cerevisae) are the important microorganisms isolated from Hamei.

(iii) Medicinal uses of Yu

The poor health condition of women due to irregular menstrual flow, infertility factors, obesity, loss of appetite, low nourishment of foods, etc. are regulated through alcohol with plant drugs. The following are some of the important methods used.

Ash of the whole plant of Tekta (Pogostemon purpurascens Dalz) / Phadigom (Coriandrum sativum L.) is filled into a bamboo pipe whose end wall/node has a small hole. A few twigs of Cynodon dactylon Pers., block this hole so as to save the leach out of the alcohol when poured. First class Yu or alcohol (called Machin) is poured inside the bamboo pipe and the filtrate obtained is collected into an empty Tumba (Lagenaria siceraria Standl.). When the Tumba fills up, it is fitted with an airtight lid. The Tumba is placed in a water bath in a liquid called Utti (filtrate of burnt ash of Oryza sativa L.) or the Tumba is directly buried underneath the soil surface for 7 days. After these, the filtrate alcohol is ready for massage. Massage starts from fingers/toes towards the joints and finally to the navel and for face also towards the navel.

Equal numbers of fresh leaves of Heibi (Vangueria spinosa Roxb.), Hanurei (Mussaenda frondosa L.), and Kharam-leishok (Holmskioldia sanguinea Retz.) the above plants are boiled with appropriate volume of water. The pot has a small hole near the neck through which a side tube connects. This side tube is for collection of the condensed steam on cooling. This condensed liquid when mixed up with the appropriate volume of first class Yu or alcohol made ready for massage. The conditions and nature of massage are the same as above method.
Resinous wood of about 20-30 gm of pine tree (Pinus khasya Royle. ex Parl.) is made into fine pieces with the help of a sharp knife. Seven each of clove (Syzygium aromaticum (L.) Merr. & Perry.) buds and black pepper (Piper nigrum L.) spikes are dropped along with the pieces into a pot containing about 250 ml first class Yu (Machin). About 5-10 gm of Jaiphor (a prepared product available in market) is also added into the above pot and closed airtight. When the colour of the wine changes to yellow, it is ready for oral consumption and massage. For massage, few drops of the yellow wine are used whereas, for oral consumption the dose is about 5 ml twice daily for 30 days for adults (half dose for children). This prescription is used for individuals who have accumulated large amount of fat in their body.

About 250 ml of first class alcohol (Machin) is mixed with 3-5 powdered naphthalene balls. To this, crushed juice of 60-100 gm fresh ginger (Zingiber officinale Rosc.) rhizome is added along with pieces of 5-10 leaves of Tezpat (Cinnamomum tamala (Buch-Ham.) T. Nees & Eberm.), and tightly closed kept undisturbed for one week in dim sunlight. Traditional healers for oral consumption prescribe this drug for adults 5-20 ml twice daily before meal for 30 days. Menstruation may sometimes be associated with pain in the lower abdomen. Under such conditions, traditionally the alcohol (Yu) is consumed. This reduces the pain and resumes the normal condition,
thereby increasing the menstrual flow. The alcohol also increases the post partum bleeding and is thus considered good for women.

About 10-20 gm Yai-Thamna-Manbi (Kaemferia rotunda L.) fresh rhizome is crushed and mixed with 30-40 ml of first class Yu (Machin) and stored for a while. The preparation is prescribed to women on the first day of menstruation for five days at the dose of 30-40 ml twice daily before meals. The same preparation is also recommended for post-partum women at the same dose for 3 months. The application is after 5 days from the delivery date.

Discussion

The use of plants in the preparation of local drink differs from one community to the other. In the preparation of Rokshi (a local drink) in Sikkim Canna edulis Ker. Gawl. and Zea mays Linn. are used23. While in the preparation of Choarak, a local wine of Tripura state, the mature leaves of Allophylus cobbe Bl., Antidesma roxburghii Wall. and tender leaves of Artocarpus heterophyllus Lamk. in equal proportions together with a few chillies are used24. In the present investigation of Yu, four plants, Albizia myriophylla Benth., Tectona grandis L.f., Ficus hispida L. and Alocasia indica (Roxb.) Schott are used.

Yu is used as a strong solvent for many important active constituents of medicinal plants. Twelve plants discussed in the paper play an important role in the traditional medicine used by the Meitei communities of Manipur. In recent years, people took interest on traditional medicine based on plants16. Moreover, the Yu (local alcohol) alone is also used for treating fever, bodyache, common cold and strains. A few spoons of liquor are given to children in cold and cough23. The residue after extraction of Yu is given for fast and healthy growth of pigs. Similar observations have also been reported regarding the local liquor called Rokshi of Sikkim23. In Sekmai and Phayeng villages, the alcohol is smereed over the face and body parts as a beauty care product. It is hope that the medicinal knowledge of Yu along with the 12 plant species will be a useful lead for phytochemists and pharmacologists for further study. Once the efficacy of these prepared drugs is scientifically established, the popularization of these remedies can be recommended in conventional healthcare systems for wider applications.

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| Table 2—Alcohol production by different treatments of Hamei per 100 gm of rice |
|---|---|---|
| S No | Treatment | Distillation (hrs) | Alcohol production (ml) |
| 1 | 1 | 30 |
| 2 | 2 | 55 |
| 3 | With 10 gm. Hamei (RH) | 3 | 60 |
| 4 | 4 | 73 |
| 5 | 5 | 81 |
| 6 | 1 | 15 |
| 7 | 2 | 35 |
| 8 | Without Hamei (PR) | 3 | 40 |
| 9 | 4 | 46 |
| 10 | 5 | 48 |

RH = Rice with Hamei; PR = Plain Rice (without Hamei)

| Table 1—Alcohol production with the treatment of Hamei per 100 gm of rice |
|---|---|---|
| S No | Quality of Hamei taken (gm) | Alcohol production (ml) |
| 1. | 5 | 90 |
| 2. | 15 | 93 |
| 3. | 15 | 95 |
| 4. | 20 | 99 |
| 6. | 25 | 125 |
| 7. | 30 | 125 |


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