

COMMON FERMENTED FOOD PRODUCTS OF MANIPUR

R.K.P. Singh, K.K. Satapathy and K.S. Singh

ICAR Research Complex for NEH Region, UMIAM-793103, Meghalaya

Agricultural crops are processed for many different reasons. These range from value addition, removal of anti-nutritional components and increasing the storage life of the product to increase employment and income generating opportunities. Fermentation is one of the most ancient and common food processing techniques being followed at household level throughout the world. It is the process of "slow decomposition of organic substances with the help of micro-organism, or complex nitrogenous substances (enzymes) of plant or animal origin" (Walker, 1988). A survey was conducted in selected districts of Manipur to study the indigenous methods of fermentation of various food grains and horticultural crops. It was observed that large-scale fermentation technique of various food items is mostly being followed in the Bishnupur and Churachandpur districts of the state, therefore these two districts were identified for this study.

Fermented food products of Manipur

Manipur has a rich tradition of fermentation of various food products. Unfortunately the processes and methodology of this ancient techniques have neither been studied scientifically nor documented. Some of the common fermented food items being used in the Manipur state are Hawaii achar, ngaari, soiboom, soidon, zoudui and zouzu. The fermentation of bamboo shoots is extensively carried out in the Bishnupur district of the state mostly by the rural women in different villages. There are about 60-70 households in the Langmeidon and Kodompokpi villages where the fermentation process are carried out in a crude traditional way but at commercial level. They use to sell various fermented products at local markets of Imphal (East and West) and Thoubal for additional source of income. The process involved in the preparation of various fermented products are explained below.

Fermented soybean (Hawaai achar)

Hawaai achar is a popular local fermented soybean product of Manipur, which is widely consumed in the entire state as a side dish. It is more or less a winter food. The hawaai achar is either used as chutney to enhance the overall flavour of the main meal or mixed with chagam pomba, an indigenous dish prepared from the broken grains of rice and seasonal vegetables specially mustard leaves, or other curries, as tastemakers especially during the ceremonial feasts. Various steps involved in preparation of hawaai achar include cleaning, washing and boiling of soybean, packing and fermentation. First of all healthy whole soybean grains are selected and washed with cold water. The washed soybean is then boiled for about 6-7 hours over a low flame and once it gets softened, the grains are again washed with cold water to remove the seed coats and starchy substance developed during the boiling process. It is then again washed with warm water (about 35-40°C), to ensure an optimum temperature of about 37°C for ideal fermentation.

The cooked soybean splits are then packed in banana leaves or heimaang leaves, which is regarded as the best medium for the purpose of fermentation.

There are two different procedures adopted for fermentation processes. Either, the soybean packets are sun dried during the daytime and kept near the fireplace at nights for a period of 6-7 days for proper fermentation, or the wrapped packets are embedded inside paddy in a barn. Care is taken that the packet is kept at least 20-25 cms below the surface level. After a period of nearly three to four weeks, the hawaai achaar is ready for eating. It is generally sold at the rate of Rs. 15/- per packet of nearly 100g.

Fermented fish (Ngaari)

The intestinal portion of the phabou fishes are removed. Then it is washed and dried in the shade for 1-2 days. After proper drying, it is packed tightly inside a special elongated neck earthen pot, called kharung, for fermentation. Mouths of the containers are sealed properly with clay. While filling the fishes inside the earthen pots, care is taken that there is minimum air space or gaps in between the fishes inside the container. After about three to four days, when the clay layer starts cracking, some quantity of dung paste is applied over it to prevent entry of atmospheric air. Fermentation process takes about 15 months. Ngaari is eaten after either steaming or roasting. Ngaari is available in the local market at the rate of Rs. 70/- per kg.

Fermented bamboo shoots (Soiboom)

Soiboom is the traditional fermented bamboo shoot product of Manipur which has a typical sour-acidic flavour and taste. It is mostly used for cooking with mustard oil, potatoes and spices for making curry. Generally the local bamboo varieties namely maribob (*Dendrocalamus giganteus*), san-neibi (*Bamboosa tulda*) and maobi (*Melocanna baccifer*) are used for fermentation and the microorganism responsible for fermentation is *Streptococcus faecalis*.

Preparation of fermented bamboo shoot consists of various steps viz. selection and cutting of tender shoots from the grooves, removal of the outer skin, washing, cutting/slicing, fermentation inside the earthen pots and cooking. Initially, when the bamboo shoots are about 40-50cm long, they are chopped off from the main stem. Properly cleaned bamboo shoots are cut or sliced into slices and then packed in banana leaves. The packets containing cut/sliced bamboo shoots are filled tightly inside the earthen pots, which are then closed and kept in a corner of the house, for fermentation, which takes about 12-14 months. The soiboom is available in the local market at a price of Rs. 100/- per kg.

Partially fermented bamboo shoot (Soidon)

Soidon is a partially fermented bamboo shoot preparation which is being consumed throughout the state. It is light greenish in colour and in the form of circular coils. Preparation of soidon is similar to that of preparation of soiboom, as explained above. The only difference is that instead of thin slices as used for soiboom, in this case the shoots are cut or sliced into thin coils. The bacterium responsible for the fermentation of soidon is *Cephalostachyum capitatum*.

Rice beer (Zoudui)

Zoudui, which is a fermented rice product, is generally prepared by the Naga and Kuki tribes of Manipur. A special variety, of rice, locally known as the Chamaang variety, is used for this product. For preparation of zoudui, rice saplings, which are about 10-12 days old are picked up from the fields and sun dried for 6-7 days. After drying, it is crushed into powder form and mixed with leaves of

Khaipuiroi plant (*Cekharolostachyium zanupatum*), along with little amount of water. The paste is again sun-baked for 3-4 days to get the local yeast called Haamei cake. Usually, 2 kg. of rice saplings is crushed with 15-20 leaves of khaipuiroi, to get about 50 cakes of haamei. Each haamei cake is about 5 cm in diameter and weighs approximately 75g. About 15 cakes of haamei are then broken into small pieces and mixed with about 10 kg of chamaang rice, while being billed for the preparation of zoudui. This mixture is then kept for fermentation for about 4-5 days and on the last day about 15 liters of cold water is added into the container and left for incubation for another 3-4 hours. The liquid obtained, is decanted or filtered through cloth to obtain Zoudui. One litre bottle of the Zoudui costs about Rs. 15/-

Rice wine (Zouzu)

Preparation of Zouzu is similar to that of zoudui, except that, in this case, instead of decantation or filtration, distillation of fermented product is done to get the wine. From 10kg of rice, about 6 litres of zouzu is obtained. The by-product obtained from this process is used as animal feed. Zouzu is sold by the producer @ of about Rs. 25/- per litre.

Fermented foods contribute significantly to the diets of rural populations in most of the northeastern states. Most of the information presented above is based on the opinion and facts received from the rural people and persons involved in this business.