



Traditional food processing techniques of the Mizo people of Northeast India

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Received 15 January 2015 | Revised 12 February 2015 | Accepted 7 March 2015

ABSTRACT

Documentation is the basic method of preserving indigenous traditional knowledge. Indigenous knowledge is passed down through generations and is in reality a necessary means of understanding many aspects of science. The indigenous techniques of food processing by the Mizo residing in a landlocked state - Mizoram, in northeast India has not been recorded systematically. This article describes some of the most familiar techniques of Mizo traditional food processing techniques; however, minor differences have been observed among different parts within the state. It was amazing to observe that the Mizos utilize the available resources such as fire or sun for food preservation and developed their own way of innovative scientific methods for food processing. It has been recommended that a study on the nutritive values of the Mizo traditionally processed foods would be very significant to see the impact of such processing on the health of the Mizo community.

Key words: Food processing; traditional knowledge; Mizo; Mizoram; preservation.

INTRODUCTION

The investigation and scientific documentation of indigenous knowledge of tribal communities have been given due importance in the field of research. Indigenous knowledge may refer to the unique, traditional or local knowledge that exist within a particular area among a

particular group of people or communities, whose information might be transmitted through generations only by verbal means.¹

The dietary habit of the Mizo people is wholly rice-based, i.e. rice is the staple food and any other foods such as vegetables and meats are considered as side dishes. Spices tend to be used less than in other Indian cuisines.² However during famine, edible roots and leaves were also consumed as rice or grains were harvested only very little. In the olden days, the method of food

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processing among the Mizo seemed more or less uniform throughout the state, although minor differences might appear from place to place. With the establishment of the Christianity by the **British missionaries in this state in 1890's**, the means of food preparation improved tremendously.³ Many of the foods described in this article might no longer be consumed in the city. Anyhow, these traditional foods of the Mizo and the techniques of processing are not well documented and literature is very scanty or almost totally absent. We therefore aim to collate information and make proper record of the Mizo traditional food processing techniques. Thus we suppose this is the first scientific record for these unique traditional foods of the Mizo people.

MATERIALS AND METHODS

Mizoram is one of the eight sister states of northeast India¹ and lies between 21°56'N latitude, and 92°16'E and 93°26'E longitude. The state has an area of 21,081 sq km, and shares an international boundary with Bangladesh in the west and Myanmar in the east and south. It also shares interstate boundary with Tripura in the northwest, Assam in the north and Manipur in the northeast.⁴ Majority of the native people in-



Figure 1. Saum bur made from bottle gourd (*Lagenaria siceraria*).

habiting Mizoram are previously called **“Lushai” and now “Mizo”**⁵ and they are known to have a unique tradition and ethnicity when compared with other states of India. The major tribes of Mizo are Lusei, Ralte, Hmar, Pawi, Paite and other groups.⁶ Hence, they also possess different traditional techniques of processing foods.⁷

Information on the method of traditional food processing is collected mainly by interacting with senior and prominent citizens as well as conducting a survey to collate information about the traditionally practiced food processing from different parts of Mizoram.

RESULTS

It was observed that Mizo people practice a variety of food processing that they learned from their fore fathers. There was little variation in the processing techniques from place to place apart from slight modifications from time to time for ease of preparation and for quality improvement. We selected 15 (fifteen) food items and their processing techniques. For convenient classification, we shall separately discuss foods that can be used as seasonings and food items that can be consumed directly with or without seasonings.

Foods used as seasonings

1. *Sa-um* (fermented pig fats): Fats of pigs are mainly collected from the inner abdominal portion (sometimes fats from other parts of the pig's body were also used), cooked and torn/chopped into pieces and are placed in a special container called **‘sa-um bur’ (Fig. 1) which is prepared** from the dried fruit of the plant *um* (*Lagenaria siceraria*, bottle gourd)⁸. The container is placed over the fireplace and approximately after three days or even longer, it is ready for use in the preparation of other foods such as bawl, bai, etc.

2. *Ching-al* (ash filtrate): This is an ash filtrate and is an important seasoning for food items **such as ‘bai’** which shall be discussed later. An

inverted conical shaped container with a minute opening at the tip is made from bamboo thinly splitted and woven, which was locally called 'chingal thlawrbur'. But, nowadays, chingal thlawrbur is made from tin (Fig. 2). To this, ashes are placed and clean water is poured onto it and it was then hung. The opening at the tip allows the filtrate to pass through which is then collected and stored for further use. Today, this particular seasoning has been replaced largely by cooking soda in cities and towns.



Figure 2. Chingal thlawrbur for ash-filtrate preparation.

3. *Chhi-um* (fermented sesame): There are two known varieties of sesame *Sesamum indicum*⁸ (locally called chhawhchhi) in Mizoram viz. 'chhibung' and 'chhipui'. These are mostly used as food additive. Chhibung is whitish in color. It is soaked in water for a few minutes and placed in a pouch designed for squeezing the oil. This oil is stored and may later be used for frying other food items. Sometimes it is heated in a pan and crushed with wooden mortar and wooden pestle, which is then stored in a closed container and placed on top of the fireplace for fermentation. After three days it can be used as taste enhancer for other food items. Chhipui is mostly consumed as a side dish. The method of preparation involves heating in a pan and pounding with mortar and pestle after the addi-

tion of required amount of salt till it becomes oily and sticky. This is often consumed without any further processing.

4. *Bekang um* (fermented soyabean): Soya-bean (*Glycine max*)⁸ seeds are commonly used as a side dish and most often as a seasoning. The seeds are first cleaned, boiled and are spread evenly on the leaves of 'hnahkiah' (*Callicarpa arborea* Roxb.)⁸ placed over the sieve locally known as 'chhihri'. Ashes from the fireplace/mantelpiece are spread evenly and then covered with the leaves of 'hnahkiah'. They are kept unopened for three days over the fireplace and sometimes outside in the sun after which it is ready for consumption (Fig. 3). They can be consumed directly and can also be dried in the sun and stored for further use. The seeds are also fried, grounded and added to the tea which is considered as a special tea in some places.



Figure 3. Fermented soybean locally known as bekang wrapped with the leaf of *Callicarpa arborea* Roxb.

5. *Anthur rep* (dried/smoked roselle): There are two known varieties of anthur (*Hibiscus* sp.) in Mizoram viz. anthur (*Hibiscus sabdariffa* Linn.) and Lakher anthur/vai anthur (*Hibiscus sabdariffa* Linn var.)⁸. The fully matured leaves are dried under the sun, a completely dried leaves are stored and is used for seasoning vegetables and meat such as fish, chicken, beef, pork etc. The sun-dried *Hibiscus* is locally known as "anthur rep"(Fig.4).



Figure 4. Packages of *anthur rep*.

Foods consumed directly with or without seasonings

1. *Tam-um* (fermented mustard): It is one of the most popular foods of the Mizo. For this, a variety of mustard locally known as ‘*tampui*’ (*Brassica rapa/B. juncea*)⁸ is used. ‘*tampui*’ taken from the field is washed meticulously and is pounded with a wooden mortar. **The pounded ‘*tampui*’ is wrapped with the leaf of *Phrynium capitatum*⁸ locally known as ‘*changel*’ and put at the fireplace for two or three days. After this the water is squeezed, and this water known locally as ‘*tam-er*’ can also be**



Figure 5. *Tam-um* or fermented mustard.

taken as food. The pounded mustard is either sun or fire dried and is fried and grinded with salt and chilly, which is then ready for serving (Fig. 5).

2. *Ai-um* (fermented crabs): Crabs mainly about the size of a thumb, captured from the rivers and streams are killed with hot water and grinded. The grinded crab is thoroughly mixed with ‘*chhawhchhi*’ (sesame), stored in a closed container and placed above the fireplace. After about three days, it is opened, then dried either by the sun or on a fire and served as a side dish.

3. *Dawltawm* (dried leaves of taro): ‘*Dawltawm*’ is the dry leaves that covers the bulbous root of taro (*Colocasia esculenta*)⁸. The dry leaves are collected and made into bundle and stored properly for consumption in the dry season. The dried bundle is cooked appropriately and the water content after cooking is squeezed well. A small amount of warm water is added with the addition of ‘*chingal*’ (ash filtrate) and ‘*sa-um*’ and it can be served as a side dish.

4. *Dawlrep* (dried taro): The green leaves of taro (*Colocasia esculenta*)⁸ are either air dried (Fig. 6) or under the Sun or by fire by making bundles from it. The mode of preparation is similar to the processing of ‘*Dawltawm*’.

5. *Behlawi rep* (dried/smoked cow pea): The leaves of cow pea (*Vigna unguiculata*)⁸ collected are heated over the fire in a pot without any water. Any remaining water in the leaves is dried by squeezing which is then further dried either by fire or the sun. These dried leaves are then stored in a closed container for further use. It is prepared for food either by itself or as porridge. The properly washed leaves are cooked in a pre-boiled water mixed with ‘*chingal*’. To enhance the taste, eggplant can also be added.

6. *Telhawng* (voodoo lily): Even though this is a tasty food, many people cannot enjoy it since it can cause mild itchiness in the throat. The root of voodoo lily (*Amorphophallus nepalensis*)⁹ is dug and put under the Sun for several days. It is cut into smaller pieces and smashed with a mortar and pestle. **It is then cooked with ‘*chingal*’ and when it is cooked, the ‘*chingal*’ is removed, and now it is ready for consumption. It is mixed**



Figure 6. Dried leaves of taro locally called *Dawlrep*.

with ‘sa-um’ and ‘chingal’, chilly is also added as per one’s wish.

7. *Sawhchiar* (pork/chicken porridge): This is an important food item in any Mizo feast and it might be safe to say that feasts are incomplete without it. Generally pork or chicken are used for this. The appropriately cut pieces of meat of either pork or chicken is cooked in a vessel. To this a suitable amount of rice was added so that the entire food becomes semi-solid. ‘Chingal’ may be added to enhance the taste and color.

8. *Bai*: This is a mixed vegetable and the Mizos have a number of ‘bai’ and the method of preparation might be different at different places. The following are the two most common ‘bai’ of the Mizo.

9. *Behlawi bai*: Fresh leaves of cowpea are added to a pre-boiled water. An appropriate amount of ‘chingal’ and ‘sa-um’ is added. To this eggplant is added and the entire mixture is stir-up thoroughly until it is ready for serving.

10. *Maian bai*: The fresh leaves of pumpkin plant (*Cucurbita pepo*) is washed and added to pre-boiled water. Mostly a little quantity of water is used for this. Some often add chilly, snake gourd (*Trichosanthes anguina* L.) and lady’s finger (*Abelmoschus esculentus* L.) to enhance the taste.⁷

11. *Chhangban*: A number of rice (*Oryza sativa* L.)⁸ varieties known locally as kawnglawng,

buhtawi, ɬai buhban, i-daw, buhban sen, zakeuva and fazu are used for making sticky bread or sticky rice cake. The rice is ground to unhusk in a wooden mortar. Then the clean rice is soaked in clean water for an hour to even a whole night, depending on one’s wish. Then the rice is kept under the sun for some time to dry. It is again ground to get a fine powdered grain. For better result the powdered grain is sieved. The finer the grain, the stickier it becomes. The final super fine powdered grain is then processed. To the powdered grain, water is added and is made into sticky balls which are wrapped with the leaves of locally called hnahthial (*Phrynium capitatum*).⁸ This wrapped rice is cooked in a large pot and served as lunch (Fig. 7).

12. *Sarep* (smoked meat): This category is broad as it includes any type of consumable wild or domesticated meat. The most common might perhaps be smoked pork. Wild animals such as barking deer, (*Muntiacus vaginalis*), sambar deer (*Rusa unicolor*), wild boar (*Sus scrofa*),⁸ macaque (*Macaca* sp.) and many types of birds, squirrels and rodents etc., were processed by this method. The fresh meat in consideration was cut into appropriate size. Thick bamboos made into sticks pointed at one end were then employed to skewer the cut meat. The skewered meat were



Figure 7. Grinding of rice (left), and prepared chhang-ban or sticky rice cake (above).

then placed over a fire in such a manner that the flame does not reach the meat and only the smoke and heat from the fire directly affect the meat. The duration of the smoking depends on the type of meat and the time when the meat will be consumed for future consumption. However, except in rare circumstances the meat is not barbequed at all.

DISCUSSION

The traditional soybean food of Manipur '**Hawaijar**' has been found to be very similar to '**Bekang-um**' of the Mizo.^{9,10} A tribe settling in North Cachar Hills district of Assam, the Vaiphei, who also seem to settle in other parts of the northeast and even in Mizoram, has a record of soybean fermentation which they called '**Bekanthu**'. The Vaiphei has also been known to ferment fats of pork similar to the fermentation of '**Sa-um**' in Mizoram. But, they called it *Sathu*.¹¹ A soybean based fermented food item

called '**Kinema**' has also been consumed by the indigenous people of the eastern Himalayan hills of Darjeeling and Sikkim. Similarly, the drying of *Colocasia esculenta* and *Vigna* sp. leaves for future consumption has also been recorded in the state of Manipur among the Ao Naga tribes. *Amorphophallus* sp. is also consumed as vegetable and food in Manipur but record on the means of processing has not been found.^{12,13}

An intriguingly similar procedure for ash filtrate formation is used by the Assamese. This ash filtrate is known to the Assamese as '**Kolakhar**' and is prepared from the ashes of *Musa balbisiana*, a species of banana. Meanwhile, no specific plant was selected for ash filtrate preparation by the Mizo people. '**Kolakhar**' has been used by the Assamese for treating stomach and respiratory disorders. It is also used as an antiseptic agent and also for pest controlling. Similar to that of the Mizo, it is also used as a food additive.¹⁴

As mentioned earlier, minor variation in the processing techniques arises from place to place, among tribes and subclans. The major sub-clans occupied particular areas; they passed on their indigenous traditional knowledge to the next generation. For instance the Hmar sub-clan was mainly concentrated in the northeastern part of Mizoram, bordering Manipur state. They usually applied more chilly to their '**bai**', thus gener-

ally hotter than the 'bai' of other subclans. The southern part of Mizoram is occupied by the lai, mara and also the chakmas in the south west and the bru people in the west. But the chakma and bru food processing is not included in this paper. These tribes were supposed to have their own traditional practice of food processing. Some other dried or smoked foods like Mautuai rep (smoked bamboo shoot), etc. were commonly prepared and consumed all over the state.

Since many of the Mizo tribes and subclans still settle in many parts of Manipur and other north eastern states, Bangladesh and Myanmar, it is uncertain whether these methods of food processing were developed independently or the knowledge was shared between these regions sometime in the past.

CONCLUSION

Many of the Mizo traditional food processing techniques, when analyzed to its deepest root, are for preservation. The foods or vegetables are mostly seasonal and hence are not available all the year round, and when the season changed, various food items besides rice, were absent/unavailable. Even meat was not always available, so, when these seasonal food items were available some means of storage for consumption in the future is in high demand. The means of food storage was poor back then. Refrigeration was completely absent but it is amazing to learn that the Mizo somehow utilized the available resources such as fire and the sun to devise their own way of food preservation. A study on the nutritive values of the Mizo traditionally processed foods would be very significant to see the impact of such processing on health.

ACKNOWLEDGEMENT

The knowledge shared by the senior and prominent citizens and those people whom we interviewed at villages, towns and cities is highly acknowledged. We express our sincere gratitude to Dr. Lalbiaksangi Chongthu, Head, Depart-

ment of English, Pachhunga University College for her comments and thorough checking of the manuscript.

REFERENCES

1. Ripunjoy S & Indira B (2012). Indigenous knowledge and bioresource utilization among the Tai-Khamyangs of Assam, North East India. *I Res J Biological Sci* 1, 38–43.
2. http://en.m.wikipedia.org/wiki/Indian_cuisine Indian cuisine (3rd December 2014).
3. <http://www.mizoram.nic.in/about/history.htm> About Mizoram->history (3rd December 2014).
4. Lalthanzara H & Lalthanpuii PB (2009). Traditional fishing methods in rivers and streams of Mizoram, north-east India. *Sci Vis* 9, 18–194.
5. <http://en.m.wikipedia.org/wiki/Mizoram> accessed Mizoram (3rd December 2014).
6. Liangkhaia (1976). *Mizo Chanchin* (in Mizo). Mizo Academy of Letters, 4th Edition, Aizawl, Mizoram.
7. Phukan RK, Narain K, Zomawia E, Hazarika NC and Mahanta J (2006). Dietary habits and stomach cancer in Mizoram, India. *J Gastroenterol* 41, 418-424.
8. Sawmliana M (2013). *The Book of Mizoram Plants (Includes Wild Animals, Birds, etc.)*, Second Edition, Published by P. Zakhuma, Chanmari West, Aizawl, Mizoram 796007, pp. 1-526.
9. Jeyaram K, Singh TA, Romi W, Devi AR, Singh WM, Dayanidhi H, Singh NR & Tamang JP (2009). Traditional fermented foods of Manipur. *Indian J Tradit Knowl* 8(1), 115-121.
10. Devi P & Kumar PS (2012). Traditional, ethnic and fermented foods of different tribes of Manipur. *Indian J Tradit Knowl* 11, 70–77.
11. Chakrabarty J, Sharma GD & Tamang JP (2009). Substrate utilization in traditional fermentation technology practiced by tribes of North Cachar hills district of Assam. *Assam University J Sci Tech: Biol Sci* 4, 66–72.
12. Gangte HE, Thoudam NS & Zomi GT (2013). Wild edible plants used by the Zou tribe in Manipur, India. *Int J Sci Res Publ* 3, 1–8.
13. Nehal N (2013). Knowledge of traditional fermented food products harbored by the tribal folks of Indian Himalayan belt. *Int J Agri Food Sci Tech* 4, 401–414.
14. Kalita P & Kandar CC (2014). Kolakhar - a traditional herbal soda of Assam. *J Adv Pharm Res Biosci* 2, 122–123.