

MAM : TRADITIONAL THAI FERMENTED BEEF

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INTRODUCTION

Mam is a traditional Thai fermented beef, well known only in the Northeast of the country. There is no evidence when it was first made, but it has been passed down from generation. The method of preparation hardly varies but its composition varies a little according to local consumer preferences. The main ingredient is ground lean beef, and normally liver is also added. Salt is used for preserving the beef, and ground roasted rice is used as a source of carbohydrate for microorganism growth. Minced garlic is used for flavouring and a small amount of monosodium glutamate is also used to enhance the flavour. The mixture is packed tightly in ox intestine or stomach which has been cleaned with salts.

The product is left hanging in a shady but airy place for 3-4 days for fermentation, after which it is a dark brown colour. It is mostly eaten raw with fresh garlic, chili pepper and some vegetables. It can be kept for a month by hanging, but the product will be drier and not as tasty. Consumers prefer to eat it after 4-5 days of fermentation, depending on salt content.

MATERIALS AND METHOD

Ingredients

1. Beef; fat and cartilage removed (15 parts)
2. Liver; (approx. 3 parts)
3. Salt (1.5 parts)
4. Minced garlic (1.5 parts)
5. Ground roasted rice (small amount)
6. Cooked rice (small amount)
7. Ox intestine or stomach.

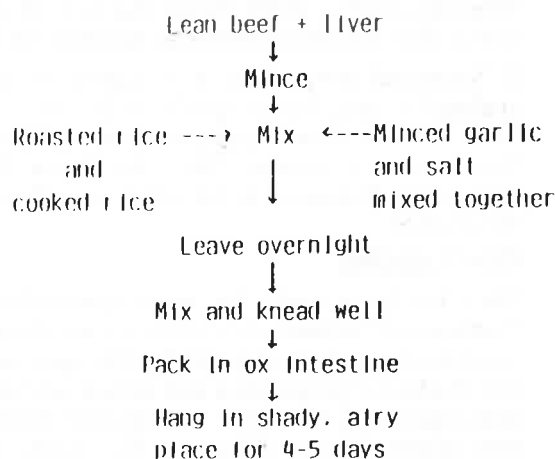
Method of making

1. Beef and liver are ground together, then mixed well with salt, garlic and ground roasted rice. Cooked rice is cooled and added to the meat, and the mixture left overnight in a pot or large bowl covered with banana leaf or thin cloth to ferment.
2. Ox intestine or stomach is cleaned with granular salt then washed with solution. The cleaned intestine or stomach is soaked in water until used for packing.
3. The mixture is again mixed well in the next morning then tightly packed in the cleaned intestine or stomach and tied at both ends with string.

Period of fermentation and shelf-life

The Mam is hung in the shade or light in an airy place. The intestine or stomach allows moisture to evaporate from the product during the fermentation period of about 4-5 days. This can be noticed from the dried surface. After fermentation the product can be kept for about one month by hanging in an airy place.

Flow chart for Mam



Properties

1. Appearance: The Mam looks dark brown from the outside of the packing which makes it look like a big sausage, although it is not actually a sausage (one type of Thai sausage is also made from fermented beef, but it needs to be cooked before eating). The product itself is reddish brown inside and becomes darker with time.

2. Odour: Mam has a specific flavour at the time of ripening. A slight smell of garlic plus a salty and sour odour can be detected. This specific odour disappears when the product is kept for a longer period of time, but it is still good.

3. Taste: It is very hard to describe the taste. It is mainly consumed without cooking. Most people prefer to eat it when it is fully mature which is after about 4-5 days of fermentation but some people prefer to keep it longer, until it is rather dried. The taste is then slightly salty and a little sour.

4. Chemical properties: IFRPD analysed samples of Mam from several parts of Northeast Thailand (Damcharee et al. 1984). The ranges of the properties found are shown in Table 1.

Table 1. Chemical properties of Mam

Property	%
Moisture	33.8-74.7
Protein	11.4-39.3
Fat	1.4-4.5
Fibre	0.1-1.4
Ash	3.3-9.7
NaCl	3.0-7.1
Total invert sugar	not found-11.7
Lactic acid	1.1-4.3
pH	4.0-4.5

Chemical analysis shows that Mam has a high protein content, although the actual content varies greatly between samples, which means that it is an important source of protein for people in the Northeast of Thailand.

5. Microbial properties: Watanaputi et al. (1983) analysed the microbial properties of the same samples of Mam and found only *Staphylococcus epidermidis* and *Micrococcus* sp. present. There has, so far, been little other research done on its microbiology, so knowledge is very limited.

CONCLUSIONS

Mam has been made for many generations in the Northeast of Thailand where it is both eaten for its flavour and is used as a means of storing beef for up to one month. The method of preparation and storage are very simple and require only the simplest equipment, which make it very suitable for the villagers in the region. The high

protein content resulting from beef being the main ingredient, makes it an important protein source in what is the poorest part of Thailand and where malnutrition is still a problem. From the chemical analysis, the composition varies greatly, possibly due to the age of the samples, but more research needs to be done, especially on the microbiology of the fermentation process.

REFERENCES

Damcharee, Boonthom, Bulan Phithakpol, Suparat Reungmanee-paitoon and Warunee Varayanond. (1984). Chemical Composition of Fermented Foods in Thailand. 22 nd Annual Scientific Conference, Kasetsart University.

Watanaputi, Sumana, et al. (1983). *Journal of the Graduate School of Chulalongkorn University*, 4, September 1983.