



MUMU

A TRADITIONAL METHOD OF COOKING FOODS IN PAPUA NEW GUINEA

Mumu is an earth oven that operates by heating stones which are subsequently put into or arranged around and on the food. The heat in the stones is transferred to the food and cooks it. In this article, Dr P A Sopade describes the different types of mumu found in Papua New Guinea.

The need to convert varied and diverse food materials into palatable forms for maximum nutrient assimilation has led to the development of various cooking techniques. These techniques can be traditional or conventional. In Papua New Guinea, one of the traditional techniques is mumu. The earth oven is known by various names amongst the South Pacific Islanders:

- in Samoa, Tonga and Cook Islands, it is mumu
- in Tahiti, it is ahimaa
- in Fiji, it is lovo
- in Solomon Islands, it is mota
- in New Zealand, it is hangi

Generally, black river stones are used and should be heated by hard firewood for the best results. Any type of food can be cooked in the mumu and foods can be combined (root crops, vegetables, meat etc.) with the sweeter and more delicate ones being placed on top. Depending on the quantity of food, the duration of 'mumurisation' can be for one, two or several hours and, in some cases it can be carried out overnight. Mumu is often used during ceremonies and despite the advent of modern ovens in Papua New Guinea, it is still popular at the household level.

Types of Mumu

Papua New Guinea is a land of great physical variation from vast swampy plains on the coast to high alpine mountains and broad upland valleys. There are 20 provinces in the country but not all of them use the mumu. It appears to be more common in the highlands where pottery is very limited. The way in which the stones are arranged and the mumu is made vary from one part of Papua New Guinea to another.

Rabaul

Rabaul is the provincial headquarters of the East New Britain Province. A pit is dug and then black river stones are heated in it. The size of the pit and the amount of stones and firewood used depend on the quantity of food to be 'mumurised'. This is true of all types of mumu. While the stones are being heated,

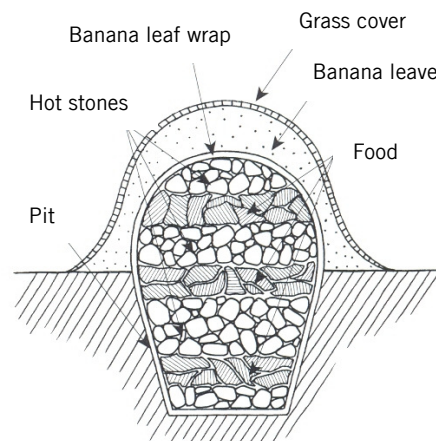


Figure 1: Rabaul

the food is prepared with coconut cream and wrapped in banana leaves. The banana leaves are usually conditioned over the fire that heats the stones. The charcoal is removed from the heated stones and the wrapped food is placed on some of the hot stones. The remaining stones are then placed onto the wrapped food before being covered with more banana leaves and jute bags (sand and earth are not used as a covering for the mumu). The mumu is usually left for about four hours with the temperature around the food as high as 250°C. All the foods are cooked together with baking being the predominant method of cooking because steaming is limited to the moisture in the leaves and foods.

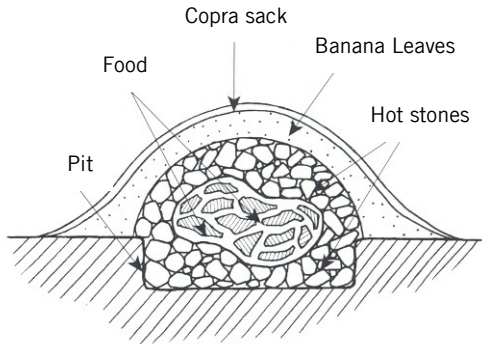


Figure 2: Alotau

A similar type of mumu was observed in the Western Province (Daru) but no pit was dug and tree barks were used to cover the mu mu instead of banana leaves.

Alotau

The provincial headquarters of Milne Bay Province is located in Alotau. The mumu found here is called dry mumu because even though the foods are wrapped and cooked together, coconut cream is not normally used. A pit is dug and when the stones are heated, the charcoal is left amongst them. The food is wrapped in the same way as the Rabaul type of mumu and put onto the hot stones. More hot stones are placed on the food and more leaves are used to cover it. The dug earth is then used to complete the covering and retain the heat within the mumu. Smouldering fire-wood is placed on the earth cover to keep the top layer hot.

The additional heat transfer from the top ensures that a high temperature (more than 200°C) is maintained in the mumu throughout the duration of cooking. This relatively constant high temperature is needed to ensure that the food is properly cooked in view of the limited moisture content because of the lack of coconut cream. As with the Rabaul type of mumu, baking is the predominant process used.

Mount Hagen

In Mount Hagen, in the Western Highlands Province, a typical mumu is made from a relatively deep pit which is conical in shape and has its bottom and sides lined with banana leaves. The stones are heated on the ground away from the pit before they are put into it. Foods are transferred separately into the pit and the hot stones are put directly in with the food. In this type of mumu, no coconut cream is used, no water is poured onto the hot stones and food segments are not wrapped in banana leaves. Instead, when all the foods have been put into the pit, the protruding leaves from the sides of it are used in the final food wrapping. Grasses and additional

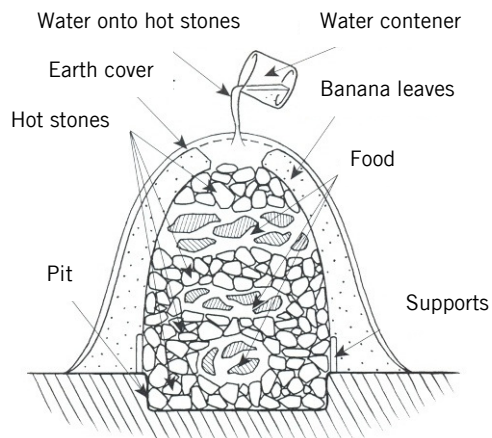


Figure 3: Mount Hagen

technical brief

banana leaves are used for the final covering to retain the heat. Baking is the more predominant cooking process.

The temperature in the mumu can be as high as 250°C and because of the stone-food contact the food also approaches this temperature. The high food temperature demands that the mumu is uncovered within a short time to prevent over-cooking. It is unusual to leave the Mount Hagen mu mu cooking overnight. A similar type of mumu was observed in Western Samoa where coconut cream was used but no pit was dug.

Concerns

Mumu is part of the culture in PNG and the field study revealed that mumu is cherished by the people. 'Mumurised' foods are reportedly rich in flavour and this makes them preferable to foods from conventional ovens. Cooking foods in mumu seems convenient to the practitioners but it is labour intensive. Concerns have been raised as to the fire hazard and environmental implications of the mumu materials, such as banana leaves and firewood. However, the major concern is in the likelihood of over or under cooking foods and post cooking contamination, as well as the migration of materials from the stones to the foods.

Acknowledgement

The financial assistance of the International Foundation for Sciences is gratefully acknowledged. Dr Sopade can be contacted at the Food Technology Section of the Department of Applied Sciences at the University of Technology in Lae, Papua New Guinea. Demonstrations of the types of mumu are documented in a video and the author's laboratory is studying the temperature distributions in these types of mumu and associated microbiological issues.

Similar cooking where the oven is closed with earth is practiced in Peru and is called a pachamanka.

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