Biltong and Charqui

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The spoilage of meat is caused by micro-organisms, bacteria, moulds and yeasts. By removing the conditions under which they thrive—moisture and high temperature—preservation can be achieved.

These days there are two ways commonly used to preserve meat: cold—refrigeration, and heat—canning. We tend to forget that other methods were used long before cooling, freezing and canning were technical possibilities. These other methods can still be used. Two methods of drying meat are given in this article.

There is an increasing amount of beef and pork being produced in Papua New Guinea but all of it is sold and eaten soon after slaughtering. As the total meat production of the country increases and new slaughterhouses are constructed, however, a simple method of meat preservation may be useful.

Perhaps, in the not-too-distant future, some indigenous entrepreneur will start to preserve meat by drying it. There should be a ready sale amongst villagers for such a product, if the taste is acceptable.

A carcass slaughtered at a registered slaughterhouse and found fit by a Meat Inspector must be hygienically treated, not only during dressing procedures but also during the entire subsequent operations from the slaughterhouse to the consumer, particularly in the area of processing (if any), transport, storage, sale and kitchen preparation.

It cannot be over-emphasized that flesh from an animal that has been seriously sick, or died before it could be slaughtered, should not be eaten in any form. Consumption of such meat results in illness or death.

The four general processes widely used in the preservation of meat are: drying (including smoking); curing; refrigeration; and heat sterilization (canning). Drying and curing, often combined, have been used since early times; freezing and canning have been developed on large industrial scales during the last 100 years. More recently, much attention has been given to the use of various radiations and to some microbial inhibitors, such as ozone, carbon dioxide and antibiotics, usually combined with ice-cooling or refrigeration of the meat.

BILTONG

Biltong is meat which has been preserved by drying. It is used extensively in Africa. Because of the simplicity of its preparation, it is found to be very convenient in countries where fresh meat is not always available or where there is a lack of keeping facilities.

How is it made?

The carcass should be hung and cooled before being cut up. In cutting up the carcass, the aim should be to produce long strips of muscle of equal thickness. Care should be taken to cut the muscles lengthwise. The best dried meat is produced by tearing the muscles into pieces so that a group of muscle fibres can be dried as a unit. Normally, the thickness of the muscle strips should not be more than 1 to 2 in in cross-section. When the climate is very hot and dry, thicker strips may be used. Weather conditions are important; meat can be properly dried only in hot, dry weather. When attempts are made to dry pieces of meat which are too large, or when the weather is unsuitable, bacterial decomposition begins inside the meat strips or else they become infested by fungus. Offal (heart, liver, etc.) should not be dried.

Meat for drying is salted, using clean, preferably coarse salt, which may be rubbed into the strips before they are hung, or they may be covered with a layer of salt and left overnight. When the strips are covered with salt, considerable amounts of serum ooze into the brine.

Spices such as pepper or ground chillies are sometimes added; and saltpetre (potassium nitrate) may also be used. It acts as a mild preservative and imparts a bright red colour to the meat. Some people marinate the meat in vinegar for a day before salting and hanging it out to dry. This gives it a delicate, mouth-watering flavour.

Drying

Drying is carried out by hanging the salted meat strips on strands of galvanized wire, the longer pieces being hung over the wire and the shorter pieces hooked into the barbs. When only a small amount of meat is to be dried, wire "S" hooks about 2 to 3 in long may be used, one hooked into each strip of meat and hung over a wire or rope. It is important that one strip does not touch another; the air must be able to circulate freely around the strips. After one day's drying, the strips should be taken off the wire, straightened out and hung with the other end uppermost. The time required for drying depends entirely on the weather. The biltong is ready when a piece, broken or cut off, shows a uniform structure. The meat should be hung under cover where there is wind access but where flies and rain cannot touch it. A gauze cage hung under a roof would do the trick for the meat cut from the saddle or back of a carcass.

Dried meat is subject to attack by insects from 4 to 6 weeks after drying. To prevent this, small amounts may be stored in plastic bags or in sacks hanging on a wire. For large amounts, other forms of protection are necessary (smoking, or suitable chemicals).

If properly protected from insects and moisture, dried meat can be kept for more than a year. It may be consumed in different ways; after soaking in water, it resembles and can be treated as fresh meat. It is palatable when eaten dry and raw. There is no loss of mineral matter and most of the vitamins are retained, unchanged.

On the other hand, all types of dried meat are subject to spoilage through exposure to air and light which cause rancidity of the fat; through wetting and coming into contact with moisture which leads to decomposition and growth of moulds; and through unprotected handling which leads to infestation by insects.

CHARQUI

Meat preserved by another method is called charqui. The nutritional value of biltong is slightly superior to that of charqui because it contains more protein and has more of the vitamin B group. On the other hand, charqui contains more fat and moisture than biltong, its salt content is higher and thus it has good keeping qualities and is resistant to insects and fungi.

The method of charqui preparation, briefly, is to cut fresh raw meat into slabs 2 to 6 lb in weight and not more than ½ to 1 in thick. The slabs are hung in the shade for about one hour to cool. The pieces are then submerged in a saturated salt solution for about an hour. After removal from the salt, the meat is allowed to drain, and for curing, the meat is built into a heap or pile on a sloping concrete slab, under a roof. Next day the pile is turned over so that the top pieces go to the bottom of the new pile. Fresh salt is used in making the new pile. This process is repeated for five consecutive days. The salted meat is now prepared for drying. It should first be passed through a kind of mangle, consisting of two rollers with an opening between them of about 1 in. This squeezing may also be done by a press. The operation is not necessary in dry climates. Drying must be very carefully carried out to avoid the possibility of the meat becoming hot enough to melt the fat. The meat should be spread on drying racks under cover. The meat should be turned every two hours during the first day and later, as drying proceeds, every four and then every six hours. It may be necessary to protect the meat from insects. The salt on the surface of the dried meat must be fine and perfectly white, free from any reddish colour to avoid "red heat" spoilage due to microbial infection.