Preparation of Mussel Meat by Drying

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The paper describes a simple and cheap process for the preservation of mussel meat by drying. The method involves blanching the mussel meat shucked from purified live mussels in 5% boiling brine for 5 min followed by drying to a moisture of 10 to 15%. The product stored in glass bottles or polythene bags suitably sealed, has a storage life of about six months after which the organoleptic qualities begin to deteriorate. No preservative is used at any stage of processing and the yield of the product is approximately 20%. The major type of spoilage during storage is brown discoloration. Spoilage due to insect infestation is also common unless packed properly.

Large quantities of green mussels *(Perna viridis)* are present in the rocky structures of the sea coasts of Kerala particularly from Calicut towards north. Sizeable quantity of them are collected from the rock surfaces and consumed by the people along the coastal villages and towns of this region.

Recently there have been successful attempts in different parts of the world for the artificial culture of mussels. In our country also it has already been demonstrated that mussels could be cultured on a large scale (Kuriakose, 1980). When the production of mussel meat is increased considerably, problems of its preservation and processing, as well as for transportation to distant places without the risk of spoilage are bound to develop. Processes have been developed by the Central Institute of Fisheries Technology for the production of canned mussel meat in oil (Balachandran & Nair, 1975), lightly smoked and dried mussel meat (Muraleedharan *et al.,* 1979) and ready-to-serve pickles incorporating mussel meat (Muraleedharan *et al.,* 1982). The present paper deals with a very simple and cheap method of preservation of mussel meat by drying.

Materials and Methods

Fresh green mussels were collected from Elathur village, Calicut, transported to the laboratory, thoroughly washed and allowed to remain in sand-free sea water for 24 h. After draining out the water they were again kept in sand-free sea water chlorinated at the level of 5 p.p.m. available chlorine for 2h, then taken out and thoroughly washed and meat shucked. The meat was washed in potable water. The washed and drained mussel meat was blanched in 5% boiling brine for 5 min (750 ml of brine was used for every kg of meat). The blanched meat was later dried in an artificial drier so as to bring down the moisture content of the finished product within the range of 10–15%. No preservatives were used at any stage of processing or storage. The products were packed in glass bottles as well as in polythene bags. The shelf-life of the product was studied.

Moisture, total nitrogen, fat and acid insolubles were determined according to methods of AOAC (1960). Glycogen was estimated according to the method of Van de Kleiy (1951).

Table 1. *Proximate composition of mussel meat*

	Fresh	Dried
Moisture %	85.00	11.50
Protein %	8.40	52.50
Fat %	1.20	8.00
Glycogen %	3.50	21.60
Ash %	1.40	
Acid insolubles %	0.16	0.80

Total viable count (TPC) was determined using Tryptone Glucose Agar (TGA). The

Table 2. *Changes in bacteriological and organoleptic characteristics of dried mussel meat during storage*

Period of storage months	TPC/g	Organoleptic quality
0	4.991 x 10^3	Good attractive colour, tough texture, good flavour
1	1.446 x 10^3	–do–
2	1.555 x 10^3	–do–
3	Not analysed	–do–
4	1.110 x 10^3	–do–
5	2.231 x 10^3	–do–
6	Not analysed	Colour slightly brownish. texture tough, more rancid odour
7	Not analysed	Colour more brownish, texture tough, more rancid odour
8	Not analysed	Dull brown colour, texture tough, rancid odour

E. coli, faecal streptococci, coagulase positive staphylococci, and coliforms were absent

duplicate plates were incubated at room temperature for 48 h and counts taken. *E. coli* was determined using Tergitol-7 agar (T–7), coliforms using desoxycholate agar, faecal streptococci using KF agar and coagulase positive staphylococci using Baird-Parker agar (FDA, 1973; Difco, 1971).

Results and Discussion

By a day of starvation in sand free sea water followed by keeping in chlorinated water for a couple of hours, the gut contents of the live mussels were cleared almost perfectly and the sand particles embedded in the stomach got excreted.

Table 1 gives the proximate composition of fresh mussel meat before processing and that of a typical finished product.

Table 2 presents the details of storage studies which shows that after about 6 months the product became slightly brown in colour and began to lose its characteristic flavour. In some samples which were not kept in air-tight containers, infestation with insects was also noticed. *E. coli.* faecal streptococci coagulase positive staphylococci and coliforms were not encountered. Total viable count remained at a practically low level throughout the period of storage. The shelf-life of 6 months is quite sufficient, as there is no need to keep it for longer than this, and it can very well cover the off-season.

The yield of the product was found to be approximately 20% of the weight of the meat used and the rehydration ratio after 30 minutes' soaking in water was about 60%. The organoleptic qualities of the rehydrated product were found to by good.

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