Separation of Meat from Small Crabs and its Storage

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The major portion of small crabs caught in shrimp trawl at Kakinada are at present discarded. It is known that meat can be separated from small crabs by dense media separation technique. Lowering of water activity by adding common salt, glycerol etc. and retarding microbial growth by antimycotic agents such as propylene glycol and/or sorbic acid are essential steps to preserve food with intermediate moisture. This paper reports the attempt made to prepare crab meat flakes having intermediate moisture from small crabs using dense media separation technique. Storage characteristics of the product are also discussed.

Materials and Methods

Small size crabs *(Portunus sanguinolentus)* weighing 40-50 pieces per kg were collected from trawlers. The crabs were dressed and the carcasses were cooked in boiling water for 10 min and then cooled to ambient temperature. The meat was separated from shell using dense media prepared by slowly mixing 45 ml of 34% (w/v) sodium chloride in water with a solution of 0.3 g potassium sorbate in 5 ml water and 50 ml glycerol. In one batch the meat was separated from media immediately after separation of shell using filter cloth (control; sample A). In other batches meat suspensions in media after separation of shells were kept for 24 h (sample B) and 48 h (sample C) and the meat separated using filter cloth. Excess liquid was removed from meat by pressing. The crab meat flakes were packed in polythene bags (200 gauge) and kept at ambient temperature for storage.

Water activity (a_w) of the meat was measured by preparing isotherms in constant humidity atmosphere. Oraganoleptic characteristic was rated in terms of overall acceptability. Moisture, total nitrogen, fat, sodium chloride and ash were determined according to the methods of AOAC (1975). Glycogen was determined by the method of Roe & Dailey (1966). Total volatile base nitrogen (TVBN) was measured by conway microdiffusion method (1947).

The filtrate after separation of meat was re-filtered through Watman No.1 filter paper. It was then re-used after adjusting specific gravity to the original level i.e. 1.22, by addition of proporationate constituents.

Results and Discussion

Fig. 1 shows the typical isotherms for water in separated meat samlpes. By keeping meat suspension in media, after separation

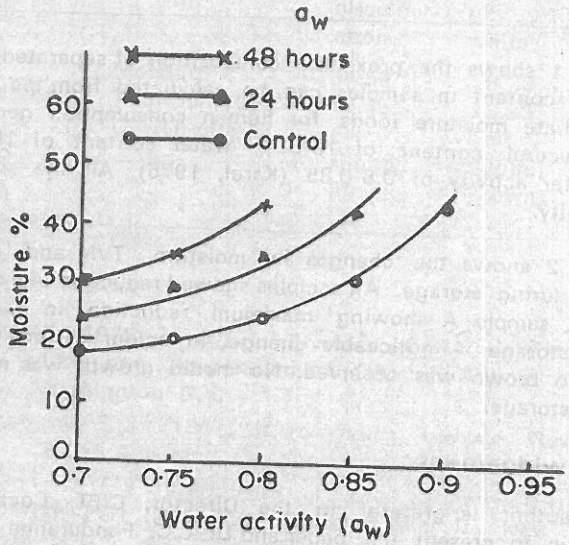

Fig. 1. Change in a_w with moisture content

of shell, water activity could be reduced considerably even at higher moisture content.

Table 1 Proximate composition of crab meat

Composition	Sample A	B	C
Moisture %	42.50	43.00	44.00
Water activity	0.90	0.85	0.80
Protein %	31.20	30.40	29.50
Glycogen %	3.20	3.00	3.00
Ash %	10.70	10.15	9.70
Acid insoluble ash %	0.17	0.18	0.17
Fat %	0.86	0.85	0.90
Salt %	7.00	6.50	5.80

Table 1 shows the proximate composition of separated meat. Glycerol content in samples can be calculated from the Table. Intermediate moisture foods for human consumption generally have glycerol content of 10-50%, water content of 15-40% and water activity of 0.8-0.85 (Karel, 1975). All the samples were salty.

Table 2 shows the changes in moisture, TVN and overall quality during storage. All samples showed reduction in moisture content, sample A showing maximum reduction in moisture during storage. A noticeable change in colour of meat from white to brown was observed. No mould growth was noticed during storage.

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Table 2 Changes in crab meat during storage

Storage period months	Characteristics	Sample A	B	C
Initial	Moisture %	42.50	43.00	44.00
	TVBN mg/100g	11.40	11.20	10.80
	Overall quality	Good	Good	Good
One	Moisture %	38.50	40.20	41.50
	TVBN mg/100g	13.80	12.50	12.30
	Overall quality	Good	Good	Good
Two	Moisture %	36.50	39.10	40.80
	TVBN mg/100g	14.70	13.10	12.90
	Overall quality	Good, slight discolour-ation	Good, modera-tely white	Good, modera-tely white
Three	Moisture %	34.50	38.20	40.10
	TVBN mg/100g	16.45	13.80	13.40
	Overall quality	Fair, slightly brown	Fair, slightly brown	Fair, slightly brown

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