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A SMALL-SCALE UNIT TO PROCESS SAND-FISH *HOLOTHURIA (METRIATYLA) SCABRA*

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ABSTRACT

This paper deals with the design, details of a small-scale unit to process *Holothuria (Metriatyla) scabra* in a fishing village to improve the quality and storage life of the product.

INTRODUCTION

Sand-fish *Holothuria (Metriatyla) scabra* is one of the most abundantly exploited holothurian in the Indo-Pacific region. Most countries export processed sand-fish to Singapore and Hong Kong. Processing of the sand-fish is carried out in stages to preserve as much of the muscular body wall as possible. Because of the rural backdrop of the processing area, the method of processing is simple and is accessible to fishermen. The final product is generally clean and wholesome. Processing of this species is dealt in detail by Hornell (1917), Sachithananthan (1986) and James (1989).

Sand-fish like many other holothurians have a simple anatomy with a muscular body enclosing a viscera consisting of alimentary canal, the respiratory trees and the gonads. Sometimes a symbiotic crab occupies the wider portion of the respiratory trees. Because of its habitat - the sea bottom, the body wall is usually covered with a scum of sediments. The upper side is black with yellow cross bands and the lower side is milky white. The body wall of holothurians tend to disintegrate when exposed to unusual conditions.

PROCESSING

Processing involves the removal of the viscera, arresting of the degenerative process of the body wall, removal of the outer scum and the pigmentation and the preservation of the body wall musculature. A slit of 20 mm is made with the knife at the anal region followed by squeezing from the oral to anal region facilitates complete evisceration. Introducting the sand-fish into boiling sea water initially provokes quick and simultaneous contraction of the longitudinal and circular muscles of the body wall. The animal is also killed with all its body wall as it is without further post-harvest degeneration. Exposure to limited decomposition of the external layer of the body wall helps in the rubbing off of the scum-ladden outer upper layer and the white pigmented outer lower layer. Thus the sand-fish becomes clean. Introducing again into boiling water arrests any further bacterial encroachment into the body wall. Sun drying removes the water in the product and the moisture stabilises around 15-18% for a longer storage life.

TECHNOLOGICAL IMPROVEMENTS

Traditional fishermen use the open beach with available tools for the major steps in processing *viz.* evisceration, first boiling descumming, second boiling and sun drying.

Any vessel that is large enough to hold the day's catch is used in boiling. To makeshift fire place provides little for the optimal use of firewood. Hygenic conditions may not prevail in the burial pit area where the sand-fish is to be buried. The material is covered with wet gunny bags for bringing about the partial decomposition of the outer layer by bacterial action. The sand-fish is spread in the sandy beach for drying

resulting in the adherance of sand to the final product.

A circular bowl - shaped boiling pan made of cast iron set in a covered fire place built with mud-clay provides the best alternative to the many types of vessels that are now in use.

Rectangular pits built with brick and cement with a firm cemented base provides a hygenical burial pit, to replace the present method of burying sea-cucumbers in unhygenic areas. The rubbing off the outer-layer facilitates by placing the material from the pits into a cane and trampling over them in knee deep sea water.

Drying *beche-de-mer* on racks made of wire-mesh with wooden frames facilitates better quality of the end product. Alternatively a raised platform in concrete may form the drying yard.

Small Scale Unit for Processing *Beche-de-mer*

The unit needs a land area of 30 m x 30 m in which an open shed with firm base 6 m x 4 m in size is built. Inside the shed, at one end will be fire place or two with the boiling pan; a set of wooden stirrers and a net mesh ended collecter are kept for use during boiling and at the other end will be burial pits. Adjacent shed will be a 10 m x 10 m drying yard on raised platform. In one corner of the land area will be a weather proof store room for storing the product.

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