

1. BASICS OF SAMPLING TECHNIQUES IN SEAFOOD PATHOGENS

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INTRODUCTION

Sample received for microbiological examination are prime importance for obtaining proper result. If samples are improperly collected, mishandled or not representative of original lot, leads to meaningless laboratory results. Because, interpretations are about large quality consignment based on a relatively small sample. Hence, established sampling procedures must be applied uniformly. The number of units that comprise a representative sample from a designated lot of a food product must be statistically significant.

Packed samples should be sent in unopened condition to the laboratory. In-case, if the packaging materials are larger, representative sample has to be transferred aseptically from package into a small sterile container and sent for the laboratory for microbiological evaluation. Refrigerated sample should be analyzed within 36 hrs and it should not be frozen before analysis.

Sterile spoon, forceps, spatula and scissors are required for sampling techniques. Hence, all the materials used for sampling must be in sterile condition. The above said materials can be easily sterilized by dry heat method. Alcohol dipping along with flaming will not be sufficient to kill all pathogens unless otherwise specified,

Sampling scale for organoleptic checks:

Organoleptic checks of raw material, process and product samples shall be analysed by the approved technologist / qualified personnel to ascertain the freshness and other organoleptic qualities of the product. To carry out the work, a sample of one Kg subject to a minimum of 10 pieces shall be tested from every 500 kg of the raw material received, variety wise and source wise for conducting the organoleptic evaluation *as per HACCP* plan. Organoleptic checks shall also be conducted during processing and after freezing / packing. For the analysis of finished products, type wise and variety wise samples shall be drawn from the days' production at random as per the sampling scale.

1 to 12	2
13 to 24	3
25 to 40	4
41 to 80	5
81 to 120	6
121 to 180	7
181 to 250	8
251 to 350	10
351 to 500	12
501 to 750	14
751 to 1000	18
1001 to 1300	22
1301 to 1600	25
1601 to 2000	30
2001 and above	40

Sampling scale for Microbiological analysis:

Product samples shall also be drawn for testing the above microbiological parameters from a particular production code selected. For this purpose, each variety of fishery product (shrimps, cuttle fish, squid etc.,) of the selected code shall be treated as a separate lot and variety wise composite samples of 150 gms each shall be drawn aseptically for testing at EIA lab. 5 samples of 150 gms each shall be drawn aseptically from a selected code, covering maximum grades possible.

Sampling scale for residues:

Residues such as antibiotics, pesticides and heavy metals can be taken based on the formula:

$$X = (\sqrt{n+1})/2$$

X is number of sample to be taken for the residue analysis

n: Number of carton/box

Sampling scale for histamine estimation:

For testing the histamine 9 sample has to be drawn from the different sites. In the result the mean value of the 9 samples must not exceed 100 ppm. Two values can exceed 100 ppm; but less than 200ppm. No single vales goes beyond the 200 ppm.