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# A Comparative Study of Nutritive Value In Fresh And Salt Dried Fish

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**ABSTRACT:** The present study investigates the comparion of nutritive values fresh and salt dried fishes. The two fish species selected are Rastrelliger kanagurta and Sardinella longiceps.The protein carbohydrate and lipid content were analyzed by methods Lowry method, Phenolsulphric acid method and Bligh&Dyer method respectively. The resultsshows that fresh fish has higher nutritional value when compared with salt dried fish. Rastrelliger kanagurta and Sardinella longiceps ,this is because of salt causes peroxidation reactions.

**Key words:** Fish, Nutrition, Salt dry

## I. INTRODUCTION

Fish preservation is a very important aspect of the capture and culture fisheries. If it not done properly after the capture, the very purpose of their raising is lost.normally the fish farms and other fish capturing sites are located far from the market place and transportation of the fish presents problems like the speed at which the fish decomposes and the uncertainties of their sale in the market. When at times the fishes are caught in numbers greater than the amount of consumption, their preservation becomes a necessity for their future use.drying as a means of preserving fish, has been practiced perhaps longer than any other food preservation technique.it involves dehydration so that the bacterial decomposition of enzymatic autolysis does not occur.sun drying is the most prevalent preservation method in India.

Fish is an important source of a healthy diet and is considered as the biggest source of protein. By composition fish, contain fat, free amino acids, and water.fish is a good dietary source for fat-soluble vitamins. The macro elements present in fish are calcium, phosphorus, magnesium, sodium, potassium, chlorine.from a nutritional point of view, protein is the most important constituent of fish, which determine its wholesomeness and quality. Major lipids are triacylglycerols and phospholipids.fish accumulates the highly unsaturated fatty acids, notably n-3 pufa's. Fish contain a trace amount of carbohydrate, which is insignificant from the nutritional point of view.but they are the important factor affecting the quality of fish during processing.

**THE OBJECTIVE OF THE STUDY**

Comparitive of nutritive value of fresh and salt dried fish.

## II. MATERIALS AND METHODS

For analysis two species of fishes were selected. These two species are daily used food fishes. Both fishes are collected from the local fish market of Nattikka.flesh of fish separated and then subjected to carbohydrate, protein, and lipid analysis.

Two species of fishes were selected. Rastrelliger kanagurta and Sardinella longiceps

Protein estimation by Lowry Method

The Lowry protein assay is a biochemical assay for determining the total level of protein in a solution. Principle: alkaline cuso4 catalyzes the oxidation of aromatic amino acids with subsequent reduction of sodium-potassium molybdate tungstate of Folin's reagent giving a purple color complex the intensity of the color is directly proposition to the concentration of the aromatic amino acid in the given sample solution.

Reagents required:

1. Stock solution: bovine serum albumin of 100mg is weighed accurately and dissolved in 100ml of distilled water in a standard flask (concentration 1 µg /ml).
2. Working standard: the stock solution of 10 ml is distilled to 100ml with distilled water in a standard flask (concentration 100 mg/ml).
3. Folin's phenol reagent: Folin's phenol reagent is mixed with distilled water in the ratio 1:2.

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4. Alkaline copper reagent: solution a: 2% sodium carbonate in 0.1 n sodium hydroxide. Solution b: 0.5% copper sulphate in 1% sodium potassium tartrate. Solution a, b, c is mixed in the proportion of 50:1:0.
5. Unknown preparation: the unknown protein is made up to 100 ml with distilled water.

Procedure: working standard of 0.2 -1ml is pipette out into a clean test tube and labeled as s1-s5. A test solution of 0.2ml is taken into the test tube and labeled as t1. The volume is made up to 1ml of distilled water. Distill water of 1ml serves as blank. To all the test tubes 4.5ml of alkaline cuso4 reagent is added and incubated at room temperature for 10 minutes. All the test tube 0.5ml of Folin's phenol reagent is added. The contents are mixed well and the blue color developed is read at 640 rpm after 15 minutes. From the standard graph, the amount of protein in the given unknown solution is calculated.

Lipid estimation- Bligh/Dyer extraction of total lipids:

Reagents
1.Chloroform-methanol reagent
2.0.05n potassium chloride diluted to 100ML
Procedure: 1g of clean tissue was taken in a homogenizer contain a few ml of chloroform-methanol reagent and the homogenate was then centrifuged at 3000rpm for 10 minutes. Then contents were transferred into test tubes and a few ml of 0.5N KCl added to the filtrate. The face of KCl was then removed and the lower phase is transferred to the pre-weighed watch glass. Then dried for two days. After the content was weighed and the percentage of lipid present tissue was calculated.

Percentage of lipid=weigh of lipid/weight of tissue*100

Carbohydrate estimation – Phenol Sulphuric acid method

Standards: sugar of 1 mg/ml stock solution prepared and submitted a carbohydrate standard curve from the following dilution series, used 400,800, 1600, and 2000µl of the stock and made up each sample with $dh_2o$ to a final volume of 2000µl to make 0.2µg/µl, 0.4ug/µl, 0.6µg/µl 0.8ug/µl, 1ug/µl concentrations, respectively. The blank of (0µg/µl) was prepared as well by just pipetting 2000ul $dH_2o$.

To each standard, blank and the sample, added 50 µl of 80% (w/v) phenol solution, then vortexed thereby added 2.0 ml concentrated sulphuric acid in a stream then stood for 10 minutes at room temperature. Red absorbance at 490nm, therefore, determined the sugar content of the unknown samples.

## III. RESULTS AND DISCUSSION

**Table 1** shows the nutritive analysis of Rastrelliger kanagurta and Sardinella longiceps

| Sample | Protein estimation results(mean ± sd) | | | Carbohydrate estimation results (mean ± sd) | | | Lipid estimation results Mean ± sd) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Fresh fish | Salt dried | P< | Fresh Fish | Salt dried | P< | Fresh | Salt dried | P< |
| Rastrelliger kanagurta | 1.241±0.895 | 0.792±0.088 | 0.05 | 0.1395±0.033 | 0.084±0.0085 | 0.101 | 1.111±0.188 | 0.903 | 0.001 |
| Sardinella longiceps | 1.994±0.086 | 0.846±0.687 | 0.01 | 0.47±0.043 | 0.38±0.02 | 0.05 | 1.74±0.341 | 0.981±0.213 | 0.001 |

The present investigation showed that there is a decrease in the amount of protein in the flesh of salt-dried fish when compared with the flesh of fresh fish. Mahbuba Aktar et.al .,(2011) studied there marine dry fishes (Harpoodon nehereus,johnius dussumieri, and lepturacanthus suvala) and observed that the protein level varied from 58.33%-51.98%,64.39%-56.46%, and 71.90%-67.22% respectively during the storage period. Martin et.al.,(2000)suggested that a decreased quantity of protein is caused by the salt used for drying.salt affects protein concentration. Lipids are biochemically very important, on account of their role as a chief storage form of energy and also structural molecules of the cell. The present investigation revealed that there is a decrease amount of lipid in the flesh of salt-dried fish when compared with fresh fish.rubbi et al (1987) reported that the lipid content from 0.45%-15.51% in marine fishes is very close to the present investigation. Muhuba, et.al., (2100)observed the mean percentage of lipid in dried fish samples were

varied from 77.78%-6.86%,5.54%-4.87%and 7.79%-6.66% during drying.surono et al (2002) showed that the lipid oxidation in codfish correlated with a decrease in available protein, the greatest reaction occurs in the sample with high salt content. The oxidation of lipids results in alternations in flavor, color, and nutrition. The salt alters the structural integrity of membranes living lipid molecules more accessible to react with ros or with other pro-oxidants.fish has an only a small amount of carbohydrates, which insignificant from a nutritional point of view. The present study also shows a decrease in carbohydrate content in salt dried fishes when compared with fresh fish.

## IV. CONCLUSION

The present investigation revealed that there was a decrease in the amount of protein, lipid, and carbohydrate content in salt dried fish when compared to fresh fish. This is because the salt used for drying affects protein, lipid, and carbohydrate present in the tissue. Salt oxidize the protein and lipid. Fish consumption in the fresh condition is more preferable than salt dried fish because of their high nutritive value.

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