

## **Evaluating the storage stability of fish silage under tropical conditions**

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### **Abstract**

Sri Lankan fisheries produce approximately 10,000 metric tons of fish by-products annually. These by-products have disposal problems and a negative impact on the environment. Fish silage is one of the best solutions to utilize fish by products. During storage degradation of protein occurs which improves the quality. Objective of this research was to evaluate the quality fish silage during storage under tropical conditions.

Fish silage was prepared by grinding and mixing tuna surplus material with formic acid and quality changes of silage were monitored for a storage period of one year. Where 50, 250ml plastic hermetically sealed containers filled with silage were stored separately at ambient temperature. During the study moisture content, pH, viscosity, degree of hydrolysis, Total Volatile Nitrogen (TVN) content and Try Methyl Amine (TMA) content of silage were analyzed at pre determined intervals. Crude protein, crude fat and ash content were analyzed at the beginning of the study. Total plate count and yeast and mold counts were determined at the beginning and end of the storage period.

Protein, fat and ash content of fish silage were 15.34%, 1.7% and 4.1% respectively. pH increasing from 2.92 to 3.42 viscosity reduced from 102.5cp to 50.2cp during the storage period. Degree of hydrolysis and TVN increased rapidly until eight weeks and then became steady at a level of around 34.81% and 61.52 mg N/100g respectively. TMA increased from 8.86 mg N/100 g to 15.2 mg N/100g during storage. There were no counts Total Plate Count (TPC) and yeast and mold were absent at the start and <10 yeast and mold were present after one year.

Feeding animals with silage having a storage time greater than two months can contribute maximum benefits as an animal feed ingredient, as the proteins are percent in a parsley hydrolyzed free amino acid form which are easily digested and absorbed.

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