

OBSERVATIONS ON THE INHIBITORY EFFECT OF SODIUM CHLORIDE ON MOLDS MET WITH IN SMOKED FISHERY PRODUCTS

Even though smoke curing is a very elegant method of preserving fish, the resultant products have only a very restricted shelf-life, unless stored under refrigerated conditions. The main source of spoilage is the early setting in of a vigorous growth of molds. This problem is of a serious nature even in temperate climatic conditions. In full and universal recognition of the gravity of the problem, the F. A. O. conference on Herring technology held in September 1950 at Bergen in Norway has recommended the problem of "means of prevention of mold growth in smoked products" for future research study.

This note records an interesting observation made at this Laboratory on the inhibitory action of sodium chloride on the development of molds in smoked fishery products.

Oil sardine (*Sardinella Longiceps*), one of the major fishery of this area was used for this experiment. Fresh sardine was eviscerated, washed and then soaked in saturated brine for 15 minutes. The fish was then drained and was straightaway smoked at a temperature of 60-90°C for a period of 4-6 hours. The smoked samples used for this experiment had a moisture content of 25-40%, salt content of 3.5-4% and fat content of 14-18%. A portion of

this sample was sprinkled with finely powdered pure sodium chloride in the proportion of 1:8 (Salt : Fish) and was neatly packed in alkathene bags and also in glass stoppered jars. Side by side the same sample was packed in identical containers without any sprinkling of sodium chloride (control). It may specially be mentioned that these containers were stored just at the normal atmospheric conditions (28-30°C and 75-85% RH), without any refrigeration.

It was noted that the control sample without any salt sprinkling was affected by a vigorous growth of molds within the short period of 3-5 days. Side by side the product developed an unpleasant off flavour and also took up a dirty brown colour. The product was completely unfit for consumption within the course of the first week itself. Remarkably enough, the experimental sample with the sprinkling of sodium chloride was unaffected by molds and the above described general deteriorations, even after an extended storage period of 2 months. Only the rancidity of the sample had considerably increased during this period.

Generally smoked fishery products have only a very low salt content. This study indicates that molds which usually

affect the smoked products are not the halophilic or halotolerant types. This probably explains for the general inhibition of mold growth when smoked products are sprinkled with sodium chloride.

This observation holds great practical trade potentialities in smoke curing of fish. Primarily the method indicated is quite simple. Since no other chemical preservatives are used, the process is likely to be quite cheap and safe to practise. The

V. E. Appuraj.
A. P. Valsan.
Central Institute of Fisheries Technology
Unit, Calicut-5.

method also obviates the essentiality of costly refrigerated storage for smoked products. These factors are likely to make smoke curing more economical and practical under Indian conditions. More intense study on the application of the sodium chloride sprinkling method of different types of smoked products and the optimum sodium chloride required etc., are being made and the results will be presented in due course.

REFERENCE

The technology of Herring utilisation. Report of the F. A. O. Meeting on Herring Technology, Sept. 1950, Bergen, Norway. P. 299.