

Evaluation of shelf life of hot smoked herrings (*Amblygaster sirm*) under different packaging and storage conditions

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Herring (*Amblygaster sirm*) is one of the most popular and abundant fish variety in the local market in Sri Lanka. It is a rich source of omega 3 fatty acids and vitamin D in addition to protein. Smoke is used to preserve and enhance the flavor of fish products. The objective of the study was to find out the shelf life of the product under different packaging and storage conditions. Fresh herrings purchased from the Negombo fish market, were cleaned, split and marinated for 30 minutes using a salt solution. Smoke was generated using cinnamon wood and the temperature was controlled between 70 °C to 80 °C for 2 hours. During the study, the quality of non packed hot smoked herrings were compared with the polythene packed and vacuumed packed smoked fish which were stored at room temperature (33 ± 2 °C) and the refrigerator (4 ± 1 °C). The effect of hot smoking on the proximate composition of herrings and the effect of packing and storage temperatures on the shelf life of smoked herrings were evaluated. Samples stored under different conditions were analyzed daily for the TVB-N value, pH, moisture, water activity, peroxide value and the aerobic plate count. It was observed that smoking has increased the protein, fat and salt in the product while the amount of water has decreased significantly ($p < 0.05$). There was no significant effect ($p > 0.05$) of smoking on the water activity value, the peroxide value and the bacterial count. The shelf life of non packed smoked herrings were limited to a period of one day in room temperature and two days in the refrigerator, whereas the shelf life of the product packed in polythene were 6 and 10 days in room temperature and refrigerator respectively. Vacuumed packing has increased the shelf life of the product up to 14 days in room temperature and 30 days in the refrigerator. It was observed that storage in low temperature and vacuum packing can be used to increase the shelf life of smoked herrings.

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