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The effect of the pre cooking treatment to the stability of the stored cod liver prior to canning

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Background

Canning is one of the oldest method known in preserving food especially in marine products like cod liver. The quality of the raw materials is very important to canning and it is the big challenge to the industry on how to keep the quality intact prior to canning. Even at frozen storage of cod liver there are studies shows that lipid hydrolysis and lipid oxidation continues to occur . Many studies pointed out that lipid degradation in marine products are due to internal and external factors which includes level of highly unsaturated lipid contents, enzymes, heme proteins, temperature, oxygen, water activity, time storage, processes and more. The adverse effects of lipid deteriorations contributed rancid odours and off flavours, decrease nutritional quality and safety (toxic).

Aim

The aim of this project is to increase the shelf life value of the stored cod livers prior to canning by evaluating the effect of the pre cooking treatment process and other internal and external factors known contributing to the lipid degradation through experiments.

Methods

1.The experiments are made by cooking the (A)fresh raw livers then stored in frozen (0,2,4,6 months) and (B)raw storage then cooked (4,6,9 months) in water bath at 90°C in 10 minutes. These livers are (i) April and July caught , (ii) bleeded and poor bleeded , (iii)stored in vacuum and non-vacuum at -25°C. The lipid hydrolysis and oxidation are evaluated by measuring the free fatty acid level and p-anisidine value.

2.FFA contents was determined on the total lipid extracts according to Lowry & Tinseley (1976) with Bernardez et al (2005) . The FFA concentration was calculated as µmolar quantities of oleic acid based on a standard curve. Anisidine value is from the value of oils extracted from B&D fat extraction (1959) . Anisidine value of oils was determined by the reaction of aldehydic compounds in oil and absorbance measured at 350 nm, according to standard methods (IUPAC 1987).

Preliminary results

1.Based from the results, cooking prevents the formation of FFA but higher value in p-anisidine.

2.packaging condition and time storage proved to be the very important factors in oxidation.