



STUDY ON DETERMINING THE FREEZING MODE OF FROZEN FILLET BIGEYE TUNA (*THUNNUS OBESUS*)

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ABSTRACT

Bigeye tuna (*Thunnus obesus*), a kind of delicious seafood, can be processed to be several valuable products. To maintain the product quality, harvested tunas had been strictly persevered, transported and frozen at low temperature. This study was carried out to determine the technological mode of the freezing process of the fillet tuna to find the optimum temperature and freezing time to reduce mass loss and keep its quality. The combining two-level orthogonal arrays was used to build the relationship between objective functions and income variables. The results found the optimized freezing mode of the fillet tuna: the freezing environment temperature was -42.5°C and the freezing time was 2.12h. Carrying out the experiment with optimized freezing mode, showed that the temperature at the end of the fillet tuna freezing process was reached at -22.5°C and the yield of weight loss was 3.1%. That meant all internal water of the product was completely crystallized and the loss of quality was negligible. The freezing mode can be applied in industrial scale for the frozen fillet tuna manufacturing process.