

STUDY TO DETERMINE THE MODE OF FREEZING PROCESS OF TUNA (*THUNNUS OBESUS*) FILLET

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Summary

The aim of the study was to determine the technology mode of freezing process of Tuna (*Thunnus obesus*) fillet, after-freezing products are the best quality and last longer for commercial use and export (*the weight loss of the after-melting of freezing product is at the minimum level, and the frozen product temperature reaches to optimal temperature while the inside product water will be completely crystallized*). The experiments were carried out to establish the relationship between the temperature of Tuna (*Thunnus obesus*) fillet of final freezing process Y_1 ($^{\circ}\text{C}$), the loss of mass of frozen Tuna (*Thunnus obesus*) fillet after melting Y_2 (%) with temperature of freezing chamber of Z_1 ($^{\circ}\text{C}$), freezing time of Z_2 (h) and the size of Tuna (*Thunnus obesus*) fillet based on the standard (150x300x20 mm). On this basis, the optimal problem to describe the freezing process of Tuna (*Thunnus obesus*) fillet was also built. While solving the optimal problem, the technology mode of freezing process of Tuna (*Thunnus obesus*) fillet was found out, as follows: The temperature of freezing chamber $Z_1 = -42,5^{\circ}\text{C}$, the freezing time $Z_2 = 2.12$ h. When the freezing process of Tuna (*Thunnus obesus*) fillet was carried out following this technology mode, then temperature of Tuna (*Thunnus obesus*) fillet at final freezing process was $Y_1 = -22.5^{\circ}\text{C}$ and the loss of mass of frozen Tuna (*Thunnus obesus*) fillet after melting was $Y_2 = 3.1\%$. Therefore, Tuna (*Thunnus obesus*) fillet at final freezing process have good quality.

Keywords: Freezing, Tuna (Thunnus obesus), the optimal freezing process, freezing Tuna (Thunnus obesus) fillet, the optimal freezing process of Tuna (Thunnus obesus) fillet.