


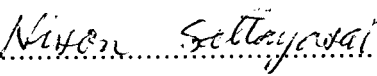
THESIS TITLE : STUDY ON OPTIMUM TIME AND TEMPERATURE FOR GELATION
AND QUALITY OF SURIMI FROM NILE TILAPIA, *Oreochromis
niloticus* (Linn.)

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ABSTRACT

Setting and thermal treatment effects on texture of tilapia surimi gels were evaluated using force, deformation and gel strength. Tilapia surimi gels were randomly assigned to one of the following four water bath thermal treatments : (1) 25°C / 60 min followed by 90°C / 20 min, (2) 45°C / 60 min followed by 90°C / 20 min, (3) 60°C / 60 min followed by 90°C / 20 min, (4) 90°C / 20 min. The optimum heat treatment for tilapia surimi appeared to be a 45°C set for 60 min followed by 90°C cook for 20 min (thermal treatment 2) ($p \leq 0.05$).

The most optimum time and temperature of tilapia surimi gel were investigated by two independent variable parameters : namely, temperature (X_1) at 35, 45 and 55°C and time (X_2) 30, 60 and 90 min that all conditions followed by 90°C for 20 min. The 3^2 Full Factorial in CRD design was used. The response was to show interrelationships among temperature, time and textural properties : force, deformation and gel strength. The relationships of all were expressed on the basis of a full quadratic effect ($p \leq 0.05$). The results showed that the optimum time and temperature of tilapia surimi gel were at 42 - 46°C and 34 - 88 min.

The study on gelation with SDS-PAGE method and total sulfhydryl content analysis showed that surimi gel prepared with 45°C setting for 60 min followed by 90°C cooking for 20 min has clearly protein band and began smear band protein at 45°C setting for 90 min followed by 90°C cooking for 20 min through the most smear band protein at 55°C setting for 90 min followed by 90°C cooking for 20 min. The relationship among temperature, time and total sulfhydryl content has equation with basis of quadratic effect ($p \leq 0.05$).