

**UNIVERSITI TEKNOLOGI MARA**

**DEVELOPMENT OF FISH-YAM BISCUIT**

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for the degree of

**Master of Science**


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## ABSTRACT

Preliminary study was carried out to determine the suitable fish variety to be added in the biscuit formulations, Sciaenidae (*Sin croaker*) and Carangidae (*Shortfin scad*). Based on physicochemical analysis and sensory evaluation, *Sin croaker* was chosen for the study because of the mild flavor of fish. Basic formulation of biscuit was developed by addition of *Sin croaker* powder and yam powder. A biscuit with proportion of 9% fish powder and 7% yam powder were found to be the best formulation of fish-yam biscuit through a sensory evaluation. Evaluation of small deformation of biscuit dough revealed that, the storage modulus and loss modulus increased with increase in frequency. The gradients  $n$  of the plot of  $\log G'$  versus  $\log$  frequency showed that the dough with 9% fish and 7% yam were the highest indicating that the interactions between fish and yam with other ingredients in biscuit dough were the lowest. Determination of texture indicated that there were textural changes in dough and biscuit baked with addition of fish and yam powder in formulation. The results showed that the hardness of dough decreased as the proportion of fish powder in formulations was increased. On the contrary, other parameters of dough increased when the addition of fish powder in dough increased. Meanwhile, hardness, fracturability and breaking point of baked biscuit decreased as the proportion of fish powder in formulation increased. Similarly, the addition of yam powder in dough formulation results increases in hardness, adhesiveness, springiness and cohesiveness of dough. Furthermore, increasing the amount of yam powder in the formulations will increase the hardness, fracturability and breaking point of the biscuits. Evaluation of correlation between dough and biscuit with different proportion of fish powder showed hardness of the dough highly positively correlated with hardness, breaking point and fracturability of final baked biscuit. However, evaluation of correlation between dough and biscuit with addition of different amount of yam powder showed that hardness of dough positively correlated with hardness and breaking point of final baked biscuit. The findings in this study revealed that, biscuit with addition of fish and yam was acceptable. Biscuit developed in this study will increase the usage of fish and yam and also could provide biscuit with high nutritional value.

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