DEVELOPMENT OF TILAPIA (*Oreochromis niloticus*) STRAINS

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Development of tilapia (Oreochromis niloticus) otak-otak / Norsuhaida Abd. Halim.

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DEVELOPMENT OF TILAPIA (*Oreochromis niloticus*) OTAK-OTAK

NORSUHAIDA ABD. HALIM

RESEARCH PROJECT submitted in partial fulfillment of the requirements for the Degree of Bachelor of Food Science (Food Service and Nutrition)

FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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DECLARATION

I hereby declare that this research project is based on my original work except for quotations and summaries which have been duly acknowledge.

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ABSTRACT

The study was conducted to develop tilapia otak-otak, to study its physico-chemical characteristic and also to determine its nutritional value and sensory attribute with four different formulations included the formulation for tenggiri otak-otak which was used as controls. The analysis that was done include proximate analysis to determine fat, protein, carbohydrate, moisture and ash content, physical analysis and sensory evaluation to compare with the commercial otak-otak that were used tenggiri fillet. Four different formulation were done with different content of fish fillet. Texture analysis was done by used TAXTi Texture Analyzer (Stable Micro System, Survey, England) with prob Warner – Bratzler Blade (HDP/BS) as byte simulation. The platform that was used is heavy duty platform (HDP/90). Fat analysis was used Soxhlet Extractor and protein analysis was used Foss Tecator, Kjeltec System. Control formulation that was used 50% of tenggiri fillet and 30% of coconut milk shows the highest gell strength, which was 760.41g.cm. For fat, protein and carbohydrate analysis not have significant difference ($p>0.05$) between each sample while for moisture and ash analysis, there have significantly difference ($p<0.05$). Control formulation shows the highest protein content which was 24.05% while formulation C shows the lowest protein content which was 15.82%. For fat analysis, Control formulation have the highest amount compare to other formulation. Sensory evaluation was done on attribute colour, odour, texture, fishy taste, spicy taste, foreign taste and overall acceptance. For attribute odour and fishy taste, there have not significantly difference ($p>0.05$) between sample while for attribute colour, texture, spicy taste, foreign taste and overall acceptance shows significant difference among sample. Formulation C was prefered by panels because of its high fish content which was 50% tilapia fillet with 30% coconut milk.

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ABSTRAK

Kajian ini dilakukan untuk menghasilkan otak-otak tilapia. Objektif bagi kajian ini adalah untuk mengkaji penghasilan otak-otak dengan menggunakan empat jenis formulasi yang berbeza termasuk formulasi otak-otak yang menggunakan isi ikan tenggiri sebagai formulasi kawalan, dan analisis kimia fizikal serta ujian sensori untuk otak-otak tilapia bagi membandingkan dengan otak-otak komersial yang menggunakan ikan tenggiri. Empat jenis formulasi berbeza dihasilakan dengan kandungan ikan yang berbeza. Analisis tekstur dijalankan dengan menggunakan 'TAXTi Texture Analyzer (Stable Micro System, Survey, England) with prob Warner – Bratzler Blade (HDP/BS) as byte simulatin'. Platform yang digunakan ialah 'heavy duty platform (HDP/90)'. Analisis kandungan lemak menggunakan "Soxhlet Extractor" manakala analisis protein menggunakan "Foss Tecator, Kjeltec System". Formulasi kawalan yang menggunakan 50% kandungan isi ikan tenggiri dan 30 % santan kelapa menunjukkan "gell strength" yang paling tinggi, iaitu 760.41g.cm manakala otak-otak tilapia bagi formulasi A menunjukkan "gell strength" yang paling rendah iaitu 598.63g.cm. Bagi analisis lemak, protein dan karbohidrat keputusan tidak menunjukkan perbezaan yang signifikan ($p>0.05$) di antara setiap sample manakala bagi analisis kelembapan dan abu menunjukkan perbezaan yang signifikan ($p<0.05$). Formulasi kawalan menujukkan kandungan protein yang paling tinggi iaitu 24.05% manakala formulasi C menunjukkan kandungan protein yang paling rendah iaitu 15.82%. Bagi analisis lemak formulasi kawalan kandungan lemak yang paling tinggi mengatasi formulasi lain. Ujian sensori dilakukan ke atas atribut warna, bau, tekstur, rasa ikan, rasa rempah, rasa asing dan penerimaan keseluruhan. Bagi atribut bau dan rasa ikan, tidak terdapat perbezaan signifikan ($p>0.05$) di antara sampel manakala bagi atribut warna, tekstur, rasa rempah, rasa asing dan penerimaan keseluruhan menunjukkan perbezaan bererti di antara sample. Formulasi C adalah paling disukai kerana kandungan ikan yang tinggi iaitu 50% isi ikan dengan 30% santan kelapa.