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Effect of washing cycles and salt addition on the properties of gel from javanese carp (*Barbonymus gonionotus*) surimi / Low Kim Yin.

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Lihat Sebeah

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PUSAT PEMBELAJARAN DIGITAL SULTANAH NUR ZAHIRAH

EFFECT OF WASHING CYCLES AND SALT ADDITION ON THE PROPERTIES OF
GEL FROM JAVANESE CARP (*Barbonymus gonionotus*) SURIMI

By
Low Kim Yin

Research report submitted in partial fulfillment of the requirement for the degree of
Bachelor of Food Science (Food Technology)

DEPARTMENT OF FOOD SCIENCE
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITY MALAYSIA TERENGGANU

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ENDORSEMENT

The project report entitled **effect of washing and salt addition on gel forming ability of Javanese Carp (*Barbonymus Gonionotus*) surimi** by **Low Kim Yin**, Matric No. **UK17268** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Food Science in partial fulfillment of the requirement of the degree of food science (food technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.



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Main Supervisor

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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

Signature : 

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ABSTRACT

The properties of surimi gel from Javanese carp (*Barbonymus gonionotus*) added with various salt treatment (0% SP, 0.05% SP, 0.1% SP with and without 50mmol/kg CaCl₂ respectively) at different washing cycle levels (1, 2, 3 and 4) were studied. The gel made from Javanese carp surimi at washing cycle 4 showed better water holding capacity, breaking force and deformation, gel strength, water holding capacity and microstructure study than other levels of washing cycles. Surimi gel from Javanese carp surimi added with 0.05% SP at washing cycle 4 had the increase in gel strength by 14.86% compared with the control gel (without presence of SP at washing cycle 4). At the same levels, it also exhibited highest water holding capacity. The addition of 50 mmol/kg CaCl₂ (without the presence of SP) and 0.05% SP alone had shown highest deformation and highest gel strength among all treatments, suggesting that sufficient CaCl₂ could enhance the gel properties. Microstructure study revealed that a gel with fine network was formed with the addition of 0.05%SP at washing cycle 4. However, this study showed that there is no synergistic effect between SP and CaCl₂. Therefore, the addition of SP at appropriate concentration could increase the breaking force as well as water holding capacity of surimi gel.

ABSTRAK

Gel surimi lampam jawa (*Barbonymus Gonionotus*) yang ditambah dengan pelbagai rawatan garam (0% SP, 0.05% SP, 0.1% SP sahaja dan juga dengan kombinasi 50mmol/kg CaCl_2) di pelbagai peringkat kitaran basuhan (1, 2, 3, dan 4) telah dikaji. Objektif kajian ini adalah untuk menentukan kesan rawatan garam dan tahap kitaran basuhan yang berbeza ke atas sifat-sifat gel lampam jawa. Gel yang dibuat daripada lampam jawa telah menunjukkan mempunyai keupayaan pegangan air, kekuatan gel, dan mikrostruktur yang lebih baik daripada tahap kitaran basuhan yang lain. Surimi gel dibuat daripada surimi lampam jawa yang ditambah dengan 0.05% SP pada peringkat kitaran basuhan keempat telah menunjukkan peningkatan kekuatan gel sebanyak 14.86% berbanding dengan kawalan (gel tanpa tambahan SP di kitaran basuhan 4). Pada tahap yang sama, gel ini juga menunjukkan keupayaan pegangan air tertinggi. Penambahan 50mmol/kg CaCl_2 (tanpa kehadiran SP) atau 0.05% SP dalam gel masing-masing menunjukkan deformasi dan kekuatan gel tertinggi. Ini menunjukkan pertambahan CaCl_2 yang bersesuaian dapat meningkatkan sifat-sifat gel. Kajian mikrostruktur telah mendedahkan gel yang ditambah dengan 0.05%SP pada kitaran basuhan 4 bahawa permukaan gel mempunyai rangkaian yang halus dan licin. Walau bagaimanapun, kajian ini menunjukkan tiada kesan sinergi antara SP dan CaCl_2 . Oleh itu, penambahan SP dengan kepekatan yang sesuai dapat meningkatkan daya putusan dan keupayaan pegangan air yang sesuai dalam gel surimi.