

EFFECT OF LEACHING METHOD ON THE GELLING EFFECT OF
THE FISHBALL FROM FRESH WATER FISHES (*Clarias spp.*)

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Effect of leaching method on the gelling effect of the fishball
from the fresh water fish (*C. larias* spp.) / Shobana Sriitharan.

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Lihat Sebelah



**EFFECT OF LEACHING METHOD ON THE GELLING EFFECT OF THE
FISHBALL FROM THE FRESH WATER FISH (*Clarias spp.*)**

By

Shobana Sritharan

**Research Report submitted in partial fulfillment
of the requirements for the degree of
Bachelor of Food Science (Food service and Nutrition)**

Department of Food Science

FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE

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2008



**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
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**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
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Effect Of Leaching Method On The Gelling Effect Of The Fishball From The Fresh Water Fish (*Clarias spp.*) oleh Shobana Sritharan, UK 11434 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Makanan sebagai memenuhi sebahagian daripada memperoleh Ijazah Sarjana Muda Sains Makanan (Perkhidmatan Makanan dan Pemakanan), Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu.

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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.

Shobana Sritharan
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23th November 2008

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ABSTRACT

This research was conducted in order to find out the efficiency of leaching method on the gel strength of the clarias fish. Fishball is made to find out the efficiency of the leaching process towards the minced fish in surimi processing. The quality of fishball from clarias fish surimi was studied to see the effect of difference leaching method. There are three formulation of leaching method that is leaching method A (0.2 and 0.3% salt addition), B (without salt addition and 0.2% salt addition) and C (0.3 and 0.6%). Two kinds of fishes which were used marine white flesh and clarias fish. The protein concentration for the white flesh fishballs and clarias fishballs increased with the increased amount of the salt used for each leaching procedure which was from 13 to 17%. The moisture content was around 17% in white flesh fishballs and 26% in clarias fishballs. The ash content was around 0.8% in white flesh fishballs and 1.1% in clarias fishballs. The fat content in the white flesh fishballs and clarias fishballs decrease as the amount of salt increasing in each step of leaching procedure. The amount of fat content in clarias fishballs decreased from 46% to 13.1%. To determine the gel strength, fishballs from surimi was prepared. Gel strength using texture analyzer and folding test was carried out to determine the gel quality of the fishball. Gel strength of both the fishball species from formulation C of the leaching showed the highest value that is 20 kg/mm in clarias fishballs and 18.3 kg/mm. The pH value ranges from 7.15 to 7.23 in white flesh fishballs and 6.88 to 6.94 in clarias fishballs. The colour attribute was also evaluated and the results show the increases in the whiteness with the increased salt. The whiteness of the white flesh fishballs ranges from 36.6 to 28.4 while for clarias fishballs the value ranges from 25.7 to 29.9. Lastly sensory evaluation was done by 30 untrained panels. However, there was no significant different ($p>0.05$) in the juiciness, hardness, elasticity, chewiness and overall acceptance between the white flesh fishballs and clarias fishballs. There was no significant difference ($p>0.05$) in white flesh fishballs and clarias fishballs, therefore clarias fishballs can be commercialized in the future.

ABSTRAK

Kajian ini telah dilaksanakan untuk menguji kaedah luluh lesap terhadap tahap kekuatan gel yang dihasilkan oleh ikan keli (*Clarias spp.*). Bebola ikan telah dibuat untuk mengkaji keberkesanan kaedah luluh lesap terhadap ikan yang dicincang dalam pemrosesan surimi. Kualiti bebola ikan daripada ikan isi putih dan ikan keli telah dikaji untuk menentukan kesan kaedah luluh lesap dengan menggunakan formulasi yang berbeza. Terdapat tiga formulasi dalam kaedah luluh lesap iaitu formulasi A (penambahan 0.2 dan 0.3% garam) yang merupakan formulasi standard, formulasi B (tidak perlu penambahan garam dan 0.3% garam) dan diikuti pula dengan formulasi C (penambahan 0.3 dan 0.6% garam). Terdapat dua jenis ikan digunakan dalam kajian ini iaitu ikan keli dan juga ikan laut isi putih. Kandungan protein di dalam bebola ikan isi putih meningkat dengan penambahan garam dalam kaedah luluh lesap iaitu sebanyak 13 kepada 17% dalam bebola ikan isi putih manakala dalam bebola ikan keli meningkat dari 13 kepada 15%. Kelembapan adalah sekitar 17% dalam bebola ikan isi putih manakala 26% dalam bebola ikan keli. Kandungan abu pula lebih kurang 0.8% dalam bebola ikan isi putih manakala dalam bebola ikan keli pula sebanyak 1.1%. Kandungan lemak di dalam bebola ikan keli tinggi iaitu sebanyak 46% dan telah menurun kepada 13.1% dengan penambahan garam dalam kaedah luluh lesap manakala dalam bebola ikan isi putih pula lemak berkurangan dari 0.5 ke 0.1%. Untuk menentukan kekuatan gel, bebola ikan telah disediakan menggunakan penganalisis tekstur dan ujian lipatan untuk menentukan kualiti gel bebola ikan. Kekuatan gel yang paling tinggi telah dicapai melalui kaedah luluh lesap menggunakan formulasi C dalam kedua-dua jenis bebola ikan. Kekuatan gel yang paling tinggi pada nilai 20 kg/mm dalam bebola ikan isi putih manakala 18.3 kg/mm dalam bebola ikan keli. Nilai pH berada pada lingkungan 7.15 hingga 7.23 dalam bebola ikan isi putih dan 6.88 hingga 6.94 pada bebola ikan keli. Warna kedua-dua bebola ikan bertambah putih dengan peningkatan penggunaan garam. Kecerahan bebola ikan isi putih berada di antara 36.6 sehingga 28.4 dan 25.7 sehingga 29.9 dalam bebola ikan keli. Akhir sekali penilaian sensori telah dibuat oleh 30 orang panel tidak terlatih terhadap bebola ikan. Tidak terdapat perbezaan yang signifikan ($p>0.05$) dalam rasa antara kedua-dua jenis bebola ikan. Oleh sebab itu, bebola ikan keli boleh dipasarkan dan mungkin mempunyai permintaan yang tinggi pada masa akan datang.