

Nuchanarth Prerdpornpan 2007: Physicochemical Property of Protein from Small Scale Mud Carp (*Cirrhina microlepis*). Master of Science (Fishery Products), Major Field: Fishery Products, Department of Fishery Products. Thesis Advisor: Assistant Professor Jiraporn Runglerdkriangkrai, Ph.D. 94 pages.

Utilization of small scale mud carp (*Cirrhina microlepis*) for producing fish jelly fish products has been increased, therefore, effects of freshness, washing and heating conditions on the gelling properties were studied. It was found that dark muscle contained higher amount of sarcoplasmic, stroma and alkali soluble proteins while white muscle contained higher amount of myofibrilla protein and non-protein nitrogenous compounds. The contents of sarcoplasmic, myofibrilla, alkali soluble, stroma proteins and non-protein nitrogenous compounds in dark muscle were  $8.42 \pm 0.32$ ,  $13.42 \pm 0.32$ ,  $1.48 \pm 0.02$ ,  $1.39 \pm 0.02$  and  $2.32 \pm 0.16$  mgN/g, respectively. For white muscle, they were  $6.42 \pm 0.17$ ,  $15.60 \pm 0.14$ ,  $0.28 \pm 0.04$ ,  $0.40 \pm 0.02$  and  $4.78 \pm 0.13$  mgN/g, respectively. During storage of whole fish in ice at 4°C, it was found that gel strength and water holding capacity of fish meat were significantly decreased ( $P \leq 0.01$ ) while K-value and pH were significantly increased ( $P \leq 0.01$ ). Washing of fish meat decreased gel strength and springiness significantly but significantly increased whiteness. Two-step heating at 30-60 °C for 20 minutes increased gel strength while heating at temperature higher than 60 °C for 20 minutes and at 90 °C for 20 minutes decreased gel strength. Unwashed meat, heating by 2-step at 40 °C for 20 minutes and 90 °C for 20 minutes has the highest gel strength of 500.66 g.cm. Sensory evaluation of fish ball made from unwashed meat of small scale mud carp, heated by the most appropriate conditions, were like moderately for appearance, color, flavor, texture and overall acceptability while scores for odor were like slightly. Gel strength, springiness, whiteness and water holding capacity of small scale mud carp fish ball were  $629 \pm 2.87$  g.cm,  $0.79 \pm 0.02$ ,  $65.85 \pm 0.36$  % and  $77.78 \pm 4.81$  %, respectively. Proximate compositions of fish ball were  $76.24 \pm 0.78$  % moisture,  $13.87 \pm 0.16$  % protein,  $0.72 \pm 0.03$  % fat,  $7.81 \pm 0.90$  % carbohydrate and  $1.40 \pm 0.03$  % ash.

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Student's signature

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Thesis Advisor's signature