

Author:  [ADVANCED](#) | Volume  Page   
 Keyword:   |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-3984

PRINT ISSN : 1344-6606

## Food Science and Technology Research

Vol. 11 (2005) , No. 3 pp.261-268

[\[PDF \(766K\)\]](#) [\[References\]](#)

### Concentration-Dependent Effect of Shrimp Head Protein Hydrolysate on Freeze-Induced Denaturation of Lizardfish Myofibrillar Protein during Frozen Storage

[Yaowalux RUTTANAPORNVAREESAKUL<sup>1\)</sup>](#), [Kenji HARA<sup>2\)</sup>](#), [Kiyoshi OSATOMI<sup>2\)</sup>](#), [Kazufumi OSAKO<sup>3\)</sup>](#), [Orawan KONGPUN<sup>4\)</sup>](#) and [Yukinori NOZAKI<sup>2\)</sup>](#)

1) Graduate School of Science and Technology Nagasaki University

2) Faculty of Fisheries, Nagasaki University

3) Nagasaki Prefectural Institute of Fisheries

4) Fishery Technological Development Division, Department of Fisheries, Ministry of Agriculture and cooperatives

(Received: October 27, 2004)

(Accepted: July 21, 2005)

With the aim of finding an effective way of utilizing shrimp waste, the suppression of freeze-induced denaturation of lizardfish myofibril by proteolytic shrimp head protein hydrolysates (SHPH) during frozen storage at  $-25^{\circ}\text{C}$  was investigated by determining the amount of unfrozen water and Ca-ATPase activity in myofibrillar samples containing SHPH from three different species of shrimp at various concentrations (2.5-10% dried matter). The amount of unfrozen water increased markedly after freezing and decreased gradually during frozen storage in the samples containing SHPH, regardless of shrimp species. Over 120 days of storage, the Ca-ATPase activity of myofibril containing SHPH slowly decreased, whereas that of the control fell drastically after the initial freezing. These results suggest that the interactions between myofibrillar protein and the active components of SHPH, such as hydrophilic amino acids and peptides, may retard freeze-induced denaturation in fish myofibril during frozen storage. SHPH exhibited optimum suppression of freeze-induced denaturation at concentrations of 5-7.5%, regardless of species differences.

**Keywords:** [shrimp head protein hydrolysate](#), [frozen storage](#), [lizardfish](#), [myofibril](#), [Ca-ATPase activity](#), [unfrozen water](#), [freeze-induced denaturation](#)

To cite this article:

**Concentration-Dependent Effect of Shrimp Head Protein Hydrolysate on Freeze-Induced Denaturation of Lizardfish Myofibrillar Protein during Frozen Storage**

Yaowalux RUTTANAPORNVAREESAKUL, Kenji HARA, Kiyoshi OSATOMI, Kazufumi OSAKO, Orawan KONGPUN and Yukinori NOZAKI, *FSTR*. Vol. **11**, 261-268. (2005) .

---

doi:10.3136/fstr.11.261

JOI JST.JSTAGE/fstr/11.261

*Copyright (c) 2006 by Japanese Society for Food Science and Technology*

---

