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Effect of Shrimp Chitin and Shrimp Chitin Hydrolysate on the State of Water and Dehydration-induced Denaturation of Lizard Fish Myofibrillar Protein

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To assess the potential utilization of shrimp waste, shrimp chitin (SC) and shrimp chitin hydrolysate (SCH) were prepared from black tiger (*Penaeus monodon*), endeavour (*Metapenaeus endeavouri*) and giant freshwater (*Macrobrachium rosenbergii*) prawns. Effect of SC and SCH on the state of water and denaturation of lizard fish (*Saurida wanieso*) myofibrillar protein (Mf) at concentrations of 5% (dry weight/wet weight) were assessed based on water activity (Aw) and changes in Mf Ca-ATPase activity during dehydration. The effect was compared with untreated Mf (control) and Mf containing glucose. The Aw of Mf for each SCH was remarkably lower than the Mf with SC and control. The Mf with SCH showed a remarkably high level of inactivated Ca-ATPase activity, followed by Mf with SC and the control. Mf with glucose showed slightly higher inactivated Ca-ATPase activity than SCH, reaching Aw levels of 0.65, before rapidly decreasing. These findings revealed that SCH contributed to the retardation effect on dehydration-induced denaturation of Mf by stabilizing hydrated water molecules surrounding the Mf.

Keywords: [chitin](#), [hydrolysis](#), [fish myofibrils](#), [water activity](#), [Ca-ATPase activity](#)

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