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Concentration Dependent Effect of Enzymatic Fish Protein Hydrolysate on the State of Water and Denaturation of Lizard Fish (*Saurida wanieso*) Myofibrils during Dehydration

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To utilize fishery waste products as functional food material, the fish protein hydrolysate (FPH) was prepared from fish scraps of three marine species by protease treatment. The added-concentration dependent effects of FPH (2.5-12.5%, dry weight/wet weight) on the state of water and denaturation of lizard fish myofibrils were evaluated by desorption isotherm curves, myofibrillar Ca-ATPase activity, and unfrozen water which was determined by differential scanning calorimetry during dehydration. The water activity (A_w) in myofibrils was distinctly decreased with the increasing concentration of FPH from 2.5% up to 10.0%, although the A_w added with 12.5% of FPH was almost equal to that with 10.0% of FPH. The amount of unfrozen water in myofibrils during dehydration was increased by the addition of FPH, and the greatest increase was found at 5.0-10.0%. The FPH suppressed the inactivation of myofibrillar Ca-ATPase activity during dehydration, and a larger effect of suppression was observed at 7.5% addition of FPH. These findings suggest that peptides produced in FPH functioned to stabilize the hydrate water surrounding the myofibrils and suppressed their dehydration-induced denaturation.

Keywords: [fish protein hydrolysate](#), [water activity](#), [Ca-ATPase activity](#), [unfrozen water](#), [lizard fish myofibrils](#), [dehydration](#)

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