

Interfacial Denaturation and Thermal Gelation of Fish Muscle Proteins in the Presence of Salt

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Summary

The reinforcement of thermal gelation of black marlin and flying fish muscle proteins treated with air-blowing and electric pulses was examined in connection with their protein denaturation. It was found that interfacial denaturation of fish muscle proteins in the presence of salt occurred during air-blowing accompanying the dehydration from the surface of protein sol. Though the muscle protein sols treated with air-blowing gave an induction period on their thermal gelation curve, the induction period disappeared when the protein sols were treated with electric pulses. Black marlin myosin denaturation by air-blowing showed a decrease in solubility and helical content, and there was a marked increase in the fluorescence intensity of protein-ANS corresponding to hydrophobic surface area. For denaturation by electric pulses, the solubility and  $\alpha$ -helix content of myosin and its fragments decreased rapidly, but an increase in the fluorescence intensity was not observed. From these results, it was suggested that the hydrophobic interactions by interfacial denaturation was prerequisite for thermal gelation and the electrostatic interactions by electric pulses was effective for the interfacial denaturation by air-blowing.