

# The Gel Characteristics and its Improvement of Water-soluble Protein from Fish -The mechanism for formation of fatty acid salts-induced gel of mixed protein-

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## Summary

Although water-soluble protein from fish is abundant as a co-product in fish processing, the utilization is still low because of the low molecular weight and its very dilute protein solution. In this study, our purpose is to characterize and improve the gel of water-soluble protein concentrated with hydrophilic polymer. And furthermore, we tried to make a mixed protein gel of water soluble protein concentrate (WSPC) and ovalbmin (OVA), and investigated the effects of fatty acid salts (FAS) which is useful to improve water holding ability of many protein gels on the gel properties of WSPC.

When we used 10% protein solution from Sea Bream, it formed a turbid and low water-holding gel by heat treatment. By the addition of OVA, the water-holding ability was a little improved. In the presence of both OVA and FAS, the WSPC formed a gel at room temperature. We found that  $\beta$ -lactoglobulin ( $\beta$ -LG) also accelerated increasing of dynamic storage modulus at ambient temperature similarly to OVA.

We analyzed the changes of secondary structure of the protein during the gelation using FTIR, the spectra suggested that the absorbance around  $1620\text{cm}^{-1}$  corresponding to  $\beta$ -sheet structure of the mixed protein clearly increased by heat treatment.