

THE WATER BINDING CAPACITY OF FROZEN MANDARIN FISH WITH ITS BY-PRODUCT, HYDROLYSATES

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The enzymatic hydrolysates from the mandarin fish swim bladder, skin and bones were used for water retention on frozen mandarin fish. The degree of moisture loss slowed by the by-products hydrolysates on frozen mandarin fish was analyzed through soaking weight gain, defrosting loss rate and cooking loss rate. Using low field nuclear magnetic resonance spectrometer, texture analyzer, scanning electron microscopy (SEM), the water binding status, texture characteristics and microstructure were measured respectively, to clarify the effect of by product hydrolysates with salt on water binding capacity. The results showed that the hydrolysates of swim bladder with 2.5% salt solution was effective in alleviating the defrosting loss rate of frozen mandarin fish and the decrease of cooking loss rate. The protective effect on frozen mandarin fish texture was remarkable. The integral area of movable water (T22) in mandarin fish was significantly larger than that in the blank group ($P < 0.05$). The amount of intercept water in the muscle fiber was more than before treatment also, which meant the overall fluidity weakened. The micro structure validated

that the combined treatment of swim bladder hydrolysates with salt on frozen mandarin fish has a complete structure with strong muscle fibers and small gaps. Therefore, the quality of frozen mandarin fish could be maintained by the treatment of swim bladder hydrolysates with 2.5% salt solution, which provides a theoretical basis for the development of a new type of phosphorus free water retaining agent.

Biography

Ying Li completed her PhD in Food Science from Nanjing Agricultural University and Postdoctoral studies from North Carolina A&T State University. She worked as an Associate Professor of Agroindustry at Jiangsu Academy of Agricultural Sciences. She published more than 25 papers as the first or communication author in Chinese and international journals, such as *Food Chemistry*, *Journal of Agricultural and Food Chemistry* and *Journal of Medicinal Food*. She has been granted three invention patents as the First Inventor.

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