

The Effects of Minerals Contained in Salt on the Taste and Elasticity of Kamaboko

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Summary

The manufacture of kamaboko requires salt, which is widely used in kamaboko because minerals such as calcium (Ca) and magnesium (Mg) make the salty taste mild and accelerate the setting (suwari). Last year, we conducted a research with kamaboko made from frozen surimi of Alaska Pollock, Threadfin-bream, and White croaker to elucidate the threshold concentrations of Ca and Mg, which give unliking tastes to kamaboko, and the effect of them on the setting ability. This year, to clarify the effects of such minerals on leached meat of these kinds of fishes, we prepared kamaboko by adding the salt containing Ca and Mg, which were blended in view of the results for the last year, into leached meat (raw surimi) obtained from raw fresh meat, and assessed the effects of the salt on the taste and elasticity.

<1> When the efficiency of leaching for leached meat was compared with that for commercially available frozen surimi, the residual extract volume was approximately 1.5 times higher in leached meat than in frozen surimi for all of three types of fishes, suggesting that the efficiency of leaching for leached meat was about half of that for commercially available frozen surimi. <2> In a test to assess the degree of setting based on the water-holding capacity of meat, all the three fishes showed a tendency similar to that for frozen surimi. When the concentrations of sulfates and chlorides of Ca and Mg elevated, the water-holding capacity of meat decreased; this suggested that the setting was facilitated with increasing mineral concentrations. <3> To conduct a test on the elasticity and taste of kamaboko, we made kamaboko using additive-free salt and prepared salt into which we added 10% KCl as well as sulfates and chlorides of Ca and Mg with concentrations adjusted at 1% to 5%. The results of the taste test were same as those for frozen surimi. Bitter taste became stronger with increasing Mg concentrations for sulfates at 1% or higher concentrations and for chlorides at 5% or higher concentrations of Ca and Mg. Comparison among the fish types also demonstrated the same results as those for commercially-available frozen surimi; bitter taste became stronger in the order of Alaska Pollock \leq White croaker < Threadfin-bream. The elasticity of kamaboko made from leached meat of Alaska Pollock had no changes after addition of minerals, showing a small effect on the setting, whereas kamabokos made from leached meat of Threadfin-bream and White croaker became more elastic as mineral concentrations became higher, similarly to the case of frozen surimi, showing the effect of mineral salt to facilitate the setting. The elasticity became stronger in the order of Alaska Pollock < Threadfin-bream < White croaker. <4> In the sensory evaluation by panelists for better and salty tastes of kamabokos made from leached meat of Alaska Pollock and Threadfin-bream, evaluations on salty taste varied more vastly than on bitter taste. Salty taste was weakened and sweetness and deliciousness were intensified in the presence of sugar, while no significant differences were found in the tastes between salts with and without minerals when sugar was eliminated. There was only a small difference depending on the fish type in these findings, unlike the results for the last year, which showed stronger salty and bitter tastes for frozen surimi of Threadfin-bream.