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Effect of various salts on inosinic acid-degrading enzyme in the white and dark muscle of saury

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Saury is fished mainly in Japan and Taiwan, and is often preserved using salt. Salt has the effects of maintaining a taste component and suppressing bacterial growth. The taste component of the fish is inosinic acid (IMP), which is degraded to non-taste components by IMP-degrading enzyme (IMPase). The ratio of dark muscle in all saury muscle is approximately 40%. Previous studies have reported that the properties of IMPase in white muscle are different from the properties of IMPase in dark muscle. In this study, we investigated the effect of various salts (NaCl, $MgCl_2$, $CaCl_2$, $MgSO_4$, and Na2SO4) on IMPase activity in the white and dark muscle of saury. Enzyme extracted from white or dark muscle was added to reaction mixtures containing IMP and various final concentrations of salt (0.33–1.67%), and we measured the IMPase activity. In white muscle, the activity was suppressed by all the salts examined at a final concentration of more than approximately 0.5%. However, although IMPase activity in dark muscle was suppressed by NaCl, Na2SO4, and $CaCl_2$ at final concentrations of more than approximately 0.4%, the activity was accelerated by $MgCl_2$ at a final concentration of less than 1.5% and MgSO4 at a final concentration of 0.33-1.67 %. It was thus found that different salts have different effects on IMPase in the white and dark muscle of saury.

Biography

Hiroko Seki is currently PhD student in course of safety management in Food Supply Chain, Tokyo University of Marine Science and Technology.

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