

Development of a Novel Technology to Produce Fish Surimi with Low Potassium Content for a Renal Diet.

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Summary

Patients with severe renal disease need to keep many dietary restrictions, such as sodium and potassium restrictions. Although many studies have focused on the reduction of sodium content, there are few studies to reduce potassium content in foods. It is well known that elevated potassium levels in the blood cause acute heart failure. In this study, in order to solve the above problems, we investigated the reduction of potassium content in surimi products, which have been consumed worldwide.

Alaska pollock mince (surimi) was washed using various solutions including 0.2% NaCl, Na-citrate, and EDTA, respectively. The 0.2% NaCl solution significantly affected on the reduction of the potassium content in the surimi. A 90% or more decrease in the potassium content was observed in the surimi after three time washing with 0.2% NaCl as compared to that in the raw sample. In addition, the surimi sample after the 0.2% NaCl washing exhibited the highest thermal gelation properties among the tested samples.

These results indicated that use of 0.2% NaCl solution can efficiently remove potassium in fish meat. It was also shown that ionic bonds mainly present between fish meat protein and potassium. Furthermore, thermal gel-forming ability of the surimi was improved using the 0.2% NaCl washing. This study indicated that the 0.2% NaCl washing might be useful to produce surimi for a renal diet.