

Sittichai Wattanavipatcharoen 2008: Recovery and Utilization of Surimi Wash Water by Using pH-Shifting Method. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Wanchai Worawattanamateekul, Ph.D. 106 pages.

The pH-shifting method for washing mince fish meat from surimi manufacture (pH 7.85-8.12) were determined. There was direct correlation between percentage of precipitation and reaction temperature. Reaction time for shifting the pH had no effect on precipitation. The optimum condition for pH-shifting was at first from pH 7.85-8.12 to 5.0 at 10 °C for 20 min and then second from pH 5.0 to 7.0 at 10 °C for 20 min with minimum chemical cost. The properties of recovered protein powder (RPP) were 2.08% moisture 80.59% protein 3.78% fat and 5.45% ash. Main compositions of RPP are essential amino acids such as tryptophan, threonine, isoleucine, leucine, lysine, valine and histidine were sufficient for body requirement. Quality of RPP was investigated during 8 weeks at room temperature (32 ± 2 °C). The results showed that protein and fat content decreased with time, but moisture content increased. The RPP could be added at 5% by weight to butter cake. Trained panel test indicated that this product was accepted at the level of like slightly to like moderately. The property of butter cake added RPP was 7.05% protein which was 1.45 fold of the sample without RPP. The efficiency of pre-treatment system to treat total solids total dissolved solids total suspended solids biochemical oxygen demand chemical oxygen demand total nitrogen oil and grease up to 40.31% 24.42% 88.42% 66.08% 65.86% 55.54% 55.38% and 57.89%, respectively. The pH-shifting method is one solution for reduce discard waste water from seafood industries.

Student's signature

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