Negative effect of alkaline-saline and sodium hypochlorite washing on the physicochemical properties and gel-forming ability of oxeye scad (*Selar boops*) surimi

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Abstract:

Physicochemical properties and gel-forming ability of oxeye scad surimi produced by washing with different media (distilled water, alkaline-saline solution (0.15% NaCl in 0.2% sodium bicarbonate) and 20 ppm sodium hypochlorite (NaOCl) solution) were investigated. The lowest Ca^{2+}-ATPase activity and protein solubility with the highest TCA-soluble peptide content were found in surimi produced by alkaline-saline washing process (p<0.05), suggesting the highest degree of protein denaturation and hydrolysis induced by this process. The decrease in reactive sulfhydryl content with a concomitant increase in disulfide bond formation were found in surimi produced by NaOCl washing process (p<0.05). The most efficacy in lipid and myoglobin removal with the lowest metmyoglobin formation was found in surimi prepared with alkaline saline washing process (p<0.05). However, surimi conventionally prepared by water washing had the lowest TBARS value and showed the gel with greater breaking force and deformation than those did by alkaline-saline and NaOCl washing processes (p<0.05). Higher expressible drip and TCA-soluble peptide were also found in the gels of surimi prepared by alkaline-saline and NaOCl washing processes compared to water washed surimi (p<0.05). However, alkaline-saline washing seemed to gradually improve the whiteness of surimi gel. Washing with alkaline-saline and NaOCl solutions showed detrimental effects on physicochemical and textural properties of oxeye scad surimi. Therefore, conventional water washing was still necessary for the production of surimi from oxeye scad muscle.

Keywords: physicochemical properties, gel-forming ability, oxeye scad, surimi, washing

