

Title Antimicrobial and antioxidant effects of sodium acetate, sodium lactate, and sodium citrate in refrigerated sliced salmon

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Abstract

This study was carried out to evaluate the microbiological quality and lipid oxidation of fresh salmon slices treated by dipping in 2.5% (w/v) aqueous solution of sodium acetate (NaA), sodium lactate (NaL), or sodium citrate (NaC) and stored at 1 °C. The results revealed that these salts were efficient ($P < 0.05$) against the proliferation of various categories of spoilage microorganisms; including aerobic and psychrotrophic populations, *Pseudomonas* spp., H₂S-producing bacteria, lactic acid bacteria, and *Enterobacteriaceae*. The general order of antibacterial activity of the different organic salts used was; sodium acetate > sodium lactate > sodium citrate. Lipid oxidation, as expressed by peroxide value (PV) and thiobarbituric acid (TBA) value, was significantly ($P < 0.05$) delayed in NaA- and NaC-treated samples. The antioxidant activity followed the order: NaC > NaA > NaL. The shelf life of the treated products was extended by 4–7 days more than that of the control. Therefore, sodium acetate, sodium lactate, and sodium citrate can be utilized as safe organic preservatives for fish under refrigerated storage.