

Title Effects of electrolyzed oxidizing water and ice treatments on reducing histamine-producing bacteria on fish skin and food contact surface

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Abstract

This study investigated efficacy of electrolyzed oxidizing water (EO water) and ice (EO ice) treatments in reducing histamine-producing bacteria (*Enterobacter aerogenes*, *Enterobacter cloacae*, *Klebsiella pneumoniae*, *Morganella morganii* and *Proteus hauseri*) on food contact surfaces (ceramic tile and stainless steel) and fish skin (Atlantic salmon and yellowfin tuna). Soaking ceramic tile and stainless steel in EO water (50 ppm chlorine) for 5 min inactivated inoculated bacteria on the surface (>0.92 to >5.4 log CFU/cm² reductions). *E. cloacae*, *K. pneumoniae* and *P. hauseri* did not survive well on fish skin. Soaking salmon skin in EO water (100 ppm chlorine) for 120 min resulted in 1.3 and 2.2 log CFU/cm² reductions of *E. aerogenes* and *M. morganii*, respectively. A treatment of EO ice (100 ppm chlorine) for 24 h was capable of reducing *E. aerogenes* and *M. morganii* on tuna skin by 2.4 and 3.5 log CFU/cm², respectively. EO water and EO ice can be used as post-harvest treatments for reducing histamine-producing bacteria on food contact surfaces and fish skin.