

INACTIVATION OF *LISTERIA MONOCYTOGENES* BIOFILMS BY ELECTROLYZED OXIDIZING WATER

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ABSTRACT

This study investigates the resistance of *Listeria monocytogenes* biofilms on stainless steel surfaces to electrolyzed oxidizing (EO) water. A direct agar overlay method was used to estimate the attached bacteria on stainless steel coupons after an EO water treatment. A scraping method was also used to quantify the adherent cell populations after the EO water treatment. The stainless steel surface allowed 10 to 15% of the surface area to be covered by *Listeria* biofilm when the inoculated stainless steel coupon was incubated in 10% tryptic soy broth (TSB) at 23C for 48 h. When the stainless steel coupons containing adherent cells were treated with EO water (56 mg/L of residual chlorine) for 10, 30, 60, 180, and 300 s, adherent cell populations ($10.3 \log_{10}$ CFU/coupon) were reduced with increasing treatment time. Although the direct agar overlay methods do not quantify survival of single bacteria, only one to five cell clumps per coupon survived after 300 s of the EO water treatment. Using the scraping method, the adherent cell population on the stainless steel coupons was reduced by about 9 log cycles after 300 s of EO water treatment.