**Title** Effect of a simple chlorine dioxide method for controlling five foodborne pathogens, yeasts and molds on blueberries

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**Abstract**

The effect of aqueous chlorine dioxide ($ClO_2$) on controlling foodborne pathogens, yeasts, and molds on blueberries was studied. Five pathogens were spot-inoculated on the skin of blueberries. A sachet containing necessary chemicals for generation of $ClO_2$ was used to provide 320 ppm of $ClO_2$ in 7.5 l of water. The efficacy of different concentrations (1, 3, 5, 10, and 15 ppm) of $ClO_2$ and various contact times (10 s; 1, 5, 10, 20, 30 min; and 1 h and 2 h) were studied. $ClO_2$ was most effective in reducing *Listeria monocytogenes* (4.88 log cfu/g) as compared to the other pathogens. *Pseudomonas aeruginosa* was reduced by 2.16 log cfu/g after 5 min when treated with 15 ppm of $ClO_2$. Relatively short treatment time was more effective in reducing *Salmonella Typhimurium* than longer treatment time for most concentrations. The highest reduction (4.56 log cfu/g) of *Staphylococcus aureus* was achieved with 15 ppm of $ClO_2$ for 30 min. When treated for 2 h with 5 ppm of $ClO_2$, *Yersinia enterocolitica* was reduced by 3.49 log cfu/g. Fifteen ppm of $ClO_2$ reduced natural yeasts and molds by 2.82 log cfu/g after 1 h. Concentrations of $ClO_2$ decreased over time. When exposed to blueberries, $ClO_2$ concentrations were further reduced, showing significant degradation.