

**Title** Effect of a sanitizing agent on the microbial growth and quality of grape during storage  
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### **Abstract**

**Introduction:** Grape contains lots of phenolic compounds having physiological functions for health benefit, but the quality loss due to the microbial growth during storage is concerned. For microbial decontamination of food products, there have been many processing methods such as irradiation, washing with organic acids, or sanitizers. In this study, effect of aqueous chlorine dioxide (ClO<sub>2</sub>) treatment on the microbial growth and quality of grapes was examined during storage. **Materials and Methods:** Grapes were treated by dipping in a solution of 0, 5, 10, and 50 ppm ClO<sub>2</sub> for 3 min, respectively, and samples were individually packaged in polyethylene terephthalate container and stored at 4°C. For microbial analysis, 10 g of grape peel was removed using a sterile scalpel. Peel was placed with 90 ml of peptone water in a sterile stomacher bag. Samples were then homogenized, filtered through a sterile cheese cloth, and diluted with peptone water for microbial count. Serial dilutions were performed in triplicate on each selective agar plate. Total bacterial counts were determined by plating appropriately diluted samples onto plate count agar. Yeasts and molds were cultured on potato dextrose agar. **Results and Discussion:** Aqueous ClO<sub>2</sub> treatment decreased significantly the populations of total aerobic bacteria, and yeast and mold on the grapes. Fifty ppm ClO<sub>2</sub> treatment reduced the initial populations of total aerobic bacteria, and yeast and mould by 1.26 and 0.92 log CFU/g, respectively. The pH, titratable acidity, and soluble solid concentration of the grapes during storage were not significantly different among treatments. Sensory evaluation results showed that aqueous ClO<sub>2</sub>-treated grapes had better sensory scores than the control. These results represent that aqueous ClO<sub>2</sub> treatment could be useful in improving the microbial safety and quality of grape during storage.