

Title Storage quality of fresh-cut lettuce treated with ozonated water and stored in high CO₂ modified atmosphere packaging

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Citation ISHS Acta Horticulturae 746:417-424. 2007.

Keywords disinfectant; microbiological control; electrolyte leakage; pitting; browning; water soaked appearance

Abstract

Microbiological and physicochemical quality of fresh-cut lettuce was evaluated after treatment with ozonated water and stored in modified atmosphere packaging (MAP) at 10°C. Cut lettuce was dipped in 1 or 3 ppm ozonated water for 5 min and washed product was sealed in OPP film at initial concentrations of 0, 5, 10, 15, and 20% CO₂. Ozonated water reduced counts of mesophilic aerobic bacteria and coliform groups on fresh-cut lettuce by 0.4-0.6 logs and 0.7-1.3 logs CFU g⁻¹, respectively, relative to water-dipped control. However, the treatment increased the rate of electrolyte leakage from tissue slices and induced occurrence of pitting in mesophyll cells on day 0, and accelerated pitting, browning, and water soaked area of fresh-cut lettuce during 2 days of passive MA storage at 10°C. The best organoleptic quality of fresh-cut lettuce occurred when it was treated with ozonated water (3 ppm) and stored in active MAP with 15% CO₂. Therefore the combination of ozonated water (3 ppm) treatment and active MAP of 15% CO₂ would be recommended for the storage of fresh-cut lettuce based on microbiological and physicochemical quality.