Title Effects of aqueous chlorine dioxide treatment on enzymatic browning and shelf-life of fresh-cut asparagus lettuce (*Lactuca sativa* L.)

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Abstract

Effects of aqueous chlorine dioxide (ClO_2) treatment on enzymatic browning and shelf-life of fresh-cut asparagus lettuce (*Lactuca sativa* L. var. *angustana*) were investigated. Fresh-cut asparagus lettuce was treated at different concentrations (10, 40, and 100 mg L^{-1}) for different times (5, 10, and 20 min). Following treatments, lettuce slices were stored at 4 °C for 14 d. The activities of polyphenol oxidase (PPO) and peroxidase (POD) in the lettuce were reduced by ClO_2, and degradation of color was also delayed. Thus ClO_2 concentration and treatment time were two significant factors affecting ClO_2 treatment on enzymatic browning of fresh-cut asparagus lettuce. From the microbiological and sensory quality perspectives, the treatment with 100 mg L^{-1} ClO_2 for 20 min could prolong the shelf-life to 14 d compared to 4 d for the control. These results indicated that ClO_2 treatment was a promising approach to inhibit enzymatic browning and prolong shelf-life of fresh-cut asparagus lettuce.