

# Contact time of ozonated water on microbial populations and quality changes of fresh-cut broccoli florets

P. Renumarn, V. Srilaong, A. Uthairatanakij, S. Kanlayanarat, P. Jitareerat

Acta Horticulturae 989: 177-183. 2013.

---

## Abstract

The use of ozonated water is a safe alternative technique for washing fresh produce, due to its lack of residue and may replace the chlorinated water technique. The contact time of ozonated water used to minimize the population of coliforms, total bacteria, and yeast and molds, and to maintain the quality of fresh-cut broccoli florets was investigated. Fresh-cut broccoli florets (*Brassica oleraceae* L.) were dipped in water treated with ozone gas at a concentration of 2,500 mg.h<sup>-1</sup> for 5, 10, and 15 min, Ozone concentrations in water were then detected as follows: 0.56, 1.00, and 1.50 ppm, respectively. Fresh-cut broccoli florets dipped in tap water for 2 min were used as the control. All samples were then packaged in sealed polyvinylchloride (PVC) boxes and stored for 6 d at 4°C. Application of ozonated water for 15 min significantly reduced coliforms, total bacteria, and yeast and mold counts by 1.20, 2.50, and 1.80 log<sub>10</sub> CFU.g<sup>-1</sup>, respectively, when compared with that of the control. However, ozonated water treatments impacted fresh-cut broccoli quality by decreasing the chlorophyll contents, L\* value, and hue angle; however, these significant changes were not observed by consumers. The visual quality and visual color of fresh-cut broccoli evaluated by the sensory panel in both ozonated water and non-ozonated water treatments were not significantly different.