

Title Aqueous ozone as an antibacterial agent for enhancing cut rose shelf-life
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Abstract

The most important factor contributing to postharvest longevity of cut roses is maintenance of adequate hydration within the water conducting vessels. Reduced water uptake of cut roses is attributed to bacterial blockage that develops postharvest. Aqueous ozone is a strong oxidizing agent and can effectively kill bacteria. The purpose of this research was to investigate the effect and role of bacteria on the shelf-life of cut roses, and to determine the ability of ozone to alleviate deleterious physiological effects of senescence. Roses stored in *Pseudomonas fluorescens* developed blockage within the xylem. This blockage was limited to open-ended vessels and impaired water uptake, demonstrated by water potential and cavitation measurements. Decline in water status was strongly correlated to the concentration of bacteria. Storage of roses in 5.5ppm of ozone extended the shelf-life of cut roses by nearly 3-fold and resulted in significant positive effects on numerous physiological parameters of the roses.