Title	Effect of combined ozone and organic acid treatment for control of *Escherichia coli* O157:H7 and *Listeria monocytogenes* on enoki mushroom
Author	Hyun-Gyun Yuk, Mee-Young Yoo, Jae-Won Yoon, Douglas L. Marshall and Deog-Hwan Oh
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Abstract

This study evaluated the effects of ozonated water (1, 3, and 5 ppm) alone with different exposure times (0.5, 1, 3, or 5 min), and combinations of 3 ppm ozone with 1% organic acids (acetic, citric, or lactic acids) during 5-min exposure for control of *Escherichia coli* O157:H7 and *Listeria monocytogenes* on enoki mushroom and to observe the regrowth of these pathogenic bacteria on treated enoki mushroom during storage for 10 days at 15 °C. Results showed that ozone treatment gave less than 1.0- and 0.5-log count reductions on *E. coli* O157:H7 and *L. monocytogenes*, respectively. Efficacy was improved with combined 3 ppm ozone and 1% citric acid treatment, resulting in 2.26- and 1.32-log count reductions, respectively. During storage at 15 °C (10 days) after combined treatment and packaging, populations of *E. coli* O157:H7 and *L. monocytogenes* increased to more than 8.0 log cfu/g, indicating that the combined treatment did not have a residual antimicrobial effect during storage. Although the storage study did not show control of these pathogens, the combined ozone–organic acid treatment was more effective than individual treatments in reducing initial population levels of these pathogens on enoki mushroom.