

Application of gaseous ozone to control populations of Escherichia coli, Bacillus cereus and Bacillus cereus spores in dried figs.

Food Microbiol. 2008 Apr;25(2):386-91. Epub 2007 Oct 5.
Akbas MY, Ozdemir M.

The effect of ozonation as a method to reduce Escherichia coli, Bacillus cereus and Bacillus cereus spores in dried figs was investigated. Dried figs were sprinkle inoculated with E. coli, B. cereus and B. cereus spores in sterile bags at a level of 10^7 microorganism g⁻¹, mixed and allowed to dry for 1h at 25 degrees C prior to ozonation. Inoculated samples were exposed to gaseous ozone in a chamber at 20 degrees C and 70% relative humidity. Ozone concentrations of 0.1, 0.5 and 1.0 ppm up to 360 min were used to inactivate E. coli and B. cereus while 1.0, 5.0, 7.0 and 9.0 ppm ozone concentrations for 360 min were used to treat B. cereus spores. E. coli and B. cereus counts were decreased by 3.5 log numbers at 1.0 ppm ozone concentration for 360 min ozone treatment. Up to 2 log reductions in the number of B. cereus spores were observed above 1.0 ppm ozone concentration at the end of 360 min of ozonation. No significant changes in color, pH and moisture content values of dried figs were observed after the ozonation treatments. No significant changes were found between sweetness, rancidity, flavor, appearance and overall palatability of ozonated and non-ozonated dried figs. Ozonation was found to be effective especially in reduction of vegetative cells in dried figs and a promising method for the decontamination of dried figs.