

High pressure kills pathogens, maintains green onions' taste and color

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Green onions cause about five percent of outbreaks of food poisoning from produce, worldwide. Now a team of researchers from the University of Delaware, Newark, shows that high pressure treatment of green onions can kill various strains of *Escherichia coli* O157:H7, and *Salmonella enterica*, two major sources of food poisoning. Unlike heating, the pressure treatment preserves the produce's gustatory attributes. The research is published in the March *Applied and Environmental Microbiology*.

In the study, the researchers cultivated green onions both in soil and hydroponically, irrigating each with different mixtures of the pathogen strains. The researchers verified that the microbes were taken up by the plants, into their roots, bulbs, stems, and leaves, says corresponding author Haiqiang Chen.

The researchers then grew green onions hydroponically, in water contaminated with the pathogens, for 15 days. At the end of this period, the plants were harvested and placed in a laboratory version of a commercial pressurizer for two minutes, at up to 5,000 times [atmospheric pressure](#), at 20 or 40 degrees centigrade. In most cases, the pathogens were eradicated by this treatment. "To our knowledge, this is the first research to demonstrate that high pressure processing can kill foodborne pathogens internalized in green onions," says Chen.

In 2003, an outbreak of hepatitis associated with green onions consumed at a restaurant in Monaca, PA, sickened more than 550 people, killing at

least three, according to the [Centers for Disease Control and Prevention](#), and numerous outbreaks of Salmonella and E. coli O157:H7 have been linked to fresh produce.

More information: H. Neetoo, Y. Lu, C. Wu, and H. Chen. Use of high hydrostatic pressure to inactivate Escherichia coli O157:H7 and Salmonella enterica internalized within and adhered to preharvest contaminated green onions. *Appl. Environ. Microbiol.* 78:2063-2065.

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