

Abstract Submitted
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Inactivation of *Escherichia coli* ATCC 11775 in fresh produce using atmospheric pressure cold plasma DANIELA BERMUDEZ-AGUIRRE, ERIK WEMLINGER, GUSTAVO BARBOSA-CANOVAS, PATRICK PEDROW, MANUEL GARCIA-PEREZ, Washington State University — Food-borne outbreaks are associated with the presence of pathogenic bacteria in food products such as fresh produce. One of the target microorganisms is *Escherichia coli* which exhibits resistance to being inactivated with conventional disinfection methods for vegetables. Atmospheric pressure cold plasma (APCP) was tested to disinfect three vegetables with challenge surfaces, lettuce, carrots and tomatoes. The produce was inoculated with the bacteria to reach an initial microbial concentration of 10^7 cfu/g. Vegetables were initially exposed to the APCP discharges from a needle array at 5.7 kV RMS in argon, processing times of 0.5, 3 and 5 min. Initial results indicate that microbial decontamination is effective on the lettuce (1.2 log reduction) when compared with other vegetables. To claim disinfection, a 3 log reduction or more is needed, which makes APCP treatment very promising technology for decontamination of produce. We propose that with method refinements full disinfection can be achieved using APCP.

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