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Using Low Temperature Plasma as a Method of Decontamination of Fruits SOHEILA MOHADES, RICHARD JONAS, NAZIR BAREKZI, MOUNIR LAROUCSI, Old Dominion University — Non-thermal atmospheric pressure plasmas have been investigated in biomedical applications as well as surface decontamination [1]. The characteristics of the helium plasma generated by the plasma pencil have been elucidated using spectroscopy methods, which revealed the formation of radical and metastable states [2]. The plasma pencil generates biologically tolerant plasma (BTP) that is not thermally harmful to biological living tissues. In addition, there are no persistent chemical residues as compared to the use of cleaning solutions. The rationale for this study is that the low thermal load and the reactive species can be exploited in decontaminating fruit surfaces. The BTP is evaluated in the killing of bacteria in solution and on the surface of food. The focus of this paper is to evaluate the efficacy of decontaminating surfaces of plants such as green peppers. The doses of plasma, media and growth conditions, as well as the general effect of plasma on fruit without bacteria are investigated using bacterial killing assays and spectroscopy.

[1] Laroussi M, Tendero C, Lu X, Alla S, and Hynes W L, 2006, *Plasma Processes and Polymers*. 3(6-7): p. 470-473.

[2] Jarrige J, Laroussi M, and Karakas E, 2010, *Plasma Sources Science and Technology*. 19(6): p. 1-11.

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