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Atmospheric-Pressure Cold Plasmas Used to Embed Bioactive Compounds in Matrix Material for Active Packaging of Fruits and Vegetables SULMER FERNANDEZ, PATRICK PEDROW, School of EECS, Washington State University, JOSEPH POWERS, School of Food Science, Washington State University, MARVIN PITTS, Biological Systems Engineering, Washington State University — Active thin film packaging is a technology with the potential to provide consumers with new fruit and vegetable products-if the film can be applied without deactivating bioactive compounds.Atmospheric pressure cold plasma (APCP) processing can be used to activate monomer with concomitant deposition of an organic plasma polymerized matrix material and to immobilize a bioactive compound all at or below room temperature.Aims of this work include: 1) immobilize an antimicrobial in the matrix; 2) determine if the antimicrobial retains its functionality and 3) optimize the reactor design.The plasma zone will be obtained by increasing the voltage on an electrode structure until the electric field in the feed material (argon + monomer) yields electron avalanches. Results will be described using Red Delicious apples.Prospective matrix precursors are vanillin and cinnamic acid.A prospective bioactive compound is benzoic acid.

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