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**Poster Title: Controlling *Listeria monocytogenes* on apples using lactic acid bacteria under simulated storage conditions**

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**Introduction:** Apples are one of the most valuable fruit crops in the US. However, apples can be easily contaminated by pathogens through the production process, and apples are almost always consumed raw. Towards this, there were several foodborne outbreaks associated with apples linked to contamination by *Listeria monocytogenes*. These instances pose a significant risk to public health and financial losses to the apple industry. Therefore, there is a critical need for effective and safe antimicrobial strategies for reducing pathogens on apples.

**Objective:** To reduce *Listeria monocytogenes* on apples using lactic acid bacteria (LAB).

**Methods:** The present study investigated the application of LAB, including *Lactococcus lactis* B-23802 (LL1), *L. lactis* B-23804 (LL2), *Lactobacillus rhamnosus* B-442 (LR) and *Lactobacillus plantarum* B-4496 (LP), to improve the microbial safety of apples. Specifically, the study used spray application of LAB strains to control *Listeria* on apples during storage at the packinghouse (4°C) and retail/ home (22°C) conditions. For this experiment, apple plugs, and halved apples were spot inoculated with *Listeria* (5 or 3 log CFU/plug or half) and then sprayed with LL1, LL2, LR or LP (8 log CFU/plug or half). The apples were then stored at 4°C or 22°C for 7-14 days and bacterial populations were enumerated.

**Results:** Spray application of LAB significantly ( $p < 0.05$ ) reduced *Listeria* populations on apples stored at ambient and refrigeration temperatures at both contamination levels. Specifically, at the low inoculum level, application of LL1 and LL2 reduced *Listeria* counts to below detection limits at both temperatures. However, ~ 5 or 3 log CFU of *L. monocytogenes* was still recovered from the control apples at the end of the experiment.

**Significance:** Based on the results, LAB could be potentially applied to control *Listeria monocytogenes* on apples.