

PED2.57 Effect of Potassium lactate and Potassium lactate plus vinegar on growth inhibition of *Listeria* spp. in cooked meat products

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Growth inhibition of *Listeria* spp. in cooked ham formulated with two commercial food grade preservatives: potassium lactate (Purasal® HiPure P: HP) and potassium lactate plus vinegar (Opti.Form® Vinegar: OV) was investigated during storage. The chicken model cooked hams were individually formulated with the HP and OV to obtain final concentrations of 1.8, 2.5, 3.5 and 4.5% (wt/wt) or no preservatives (control). The cooked hams were sliced, and surface-inoculated to obtain  $10^3$  CFU/cm<sup>2</sup> for 4 *Listeria monocytogenes* and 2 *Listeria innocua* strains. Thereafter, the slices were modified atmosphere packaged (30% CO<sub>2</sub>/70% N<sub>2</sub>), and stored at 5°C and 15°C for 7 and 4 weeks, respectively. Counts of *Listeria* spp. reached 10<sup>9</sup> CFU/g in the control after 7 and 21 days at 15°C and 5°C, respectively. At both temperatures the OV in cooked ham resulted in a better growth inhibition of the test organisms than the HP. Growth rates and lag times of *Listeria* spp. obtained from all treated cooked hams were calculated. The growth rate at 5°C was significantly lower than at 15°C, (respectively 0.5 to 1.9 d<sup>-1</sup>) at the same concentration of the two lactate products. The lag time was extended (2 to 17 days) in all treated hams compared to the control at 5°C, where the OV demonstrated longer lag times than the HP. In contrast, at 15°C no significant difference was observed, except for the ham with 4.5% OV that had a 2 days extension of the lag time. No significant difference was observed between *L. monocytogenes* and *L. innocua*. The results demonstrated that vinegar (acetic acid) in combination with potassium lactate (OV) was more effective to inhibit growth of *Listeria* spp. than the potassium lactate (HP) alone. These lactate products are available as commercial preservatives approved by the USFDA to use at different concentrations in various meat products such as frankfurter, roast/cooked beef and cooked sausages. However, since the lactate products are bacteriostatic, their effect is maximal in combination with refrigeration.

Used in this way it is possible to inhibit growth of *Listeria* spp., and to reduce foodborne listeriosis due to the consumption of cooked meat products.