PW444 Effectiveness of immersion treatments with lactic and acetic acids and modified atmosphere packaging against Listeria monocytogenes in poultry

Elena Gonzalez-Fandos[1], Alba Martinez-Laorden[1], Iratxe Perez-Arnedo[1]

[1]*University of La Rioja, Food Technology, Logrono, Spain*

Background: Raw poultry is a well-recognized source of *Listeria monocytogenes* and many surveys have confirmed the presence of this pathogen on poultry. There is a great interest in reducing microbial contamination of poultry, with particular regard to reducing the levels of pathogens.

Objectives: The aim of this study was to evaluate the combined effect of lactic and acetic acid washing and packaging in modified atmospheres on the growth of *Listeria monocytogenes* on poultry legs stored at 4ºC.

Methods: Fresh chickens legs were inoculated with *Listeria monocytogenes*. After the inoculation, the chicken legs were dipped into a water solution containing 2% lactic acid (v/v) and 2% acetic acid (v/v). Control legs were treated with distilled water. Inoculated samples were packaged under different gas mixtures: vacuum, 20%CO_2/80%N_2, 40%CO_2/ 60% N_2 or air. Sensorial characteristics and *Listeria monocytogenes*, mesophiles and psychrotrophs counts were evaluated after treatment (day 0) and after storage at 4º C.

Results: Significant differences ($p<0.05$) in mesophiles and psychotrophs counts were found between the legs treated with lactic and acetic acids and the control legs after treatment. Legs washed with 2% lactic acid and 2 acetic acid and packaged in 40%CO_2/ 60% N_2 showed a significant ($p<0.05$) inhibitory effect on *Listeria monocytogenes* compared to control legs, being about 2.5 log units lower in the first ones than in control legs after 8 days of storage.

In conclusion, the combined effect of 2% lactic acid and 2% acetic acid and packaging under 40%CO_2/60%N_2 can reduce *Listeria monocytogenes* populations on fresh poultry.