

Impact of interventions during food production on microbial biodiversity**P4.23****Effectiveness of immersion treatments with lactic acid and potassium sorbate and modified atmosphere packaging against *Listeria monocytogenes* in poultry****Gonzalez-Fandos E.¹, Pérez-Arnedo I.¹, Martínez-Laorden A.¹**¹University of La Rioja, Food Technology, Logrono, Spain

Raw poultry is a well-recognized source of *Listeria monocytogenes* and many surveys have confirmed the presence of this pathogen on fresh poultry. Some authors have associated cases of listeriosis with the consumption of undercooked chicken. There is a great interest in reducing surface microbial contamination of poultry, with particular regard to reducing the levels of pathogens. The aim of this study was to evaluate the combined effect of lactic acid and potassium sorbate washing and packaging in modified atmospheres on the growth of *Listeria monocytogenes* on poultry legs stored at 4°C. Fresh chickens legs were inoculated with *Listeria monocytogenes*. After the inoculation, the chicken legs were decontaminated by immersion during 75 seconds on either a mixture containing 1.25% lactic acid (v/v) and 1.25% potassium sorbate (w/v), or 1.25% lactic acid and 3.75% potassium sorbate, or 3.75% lactic acid and 3.75% potassium sorbate. Control legs were treated with distilled water. Inoculated samples were packaged under a gas mixture: 20%CO₂/ 80%N₂. Surface pH values, sensorial characteristics and *Listeria monocytogenes*, mesophiles and psychrotrophs counts were evaluated after treatment (day 0) and after 1, 3, 5, 8, 11 and 14 days of storage at 4°C. Significant differences (p < 0.05) in mesophiles and psychrotrophs counts were found between the legs treated with lactic acid and potassium sorbate mixtures and the control legs after treatment. The lowest mesophiles counts were observed in those samples treated with 3.75% lactic acid and 3.75% potassium sorbate and packaged in 20%CO₂/ 80% N₂. Legs washed with 3.75% lactic acid and 3.75% potassium sorbate and packaged in 20%CO₂/ 80% N₂ showed a significant (p < 0.05) inhibitory effect on *Listeria monocytogenes* compared to control legs, being about 2.78 log units lower in the first ones than in control legs after 3 days of storage. Significant reductions on *Listeria monocytogenes* were observed between samples treated with 3.75% lactic acid and 3.75% potassium sorbate and those treated with 1.25% potassium sorbate and 1.25% lactic acid. In conclusion, the combined effect of 3.75% lactic acid and 3.75% potassium sorbate and packaging under 20%CO₂/80%N₂ can reduce *Listeria monocytogenes* populations on fresh poultry.

Keywords: Food safety, pathogens, poultry, modified atmosphere packaging, *Listeria monocytogenes*