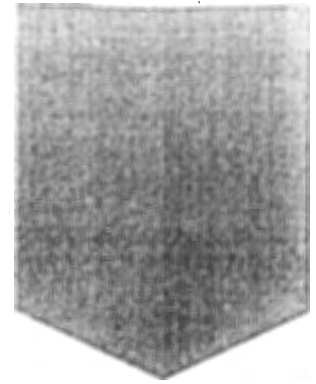
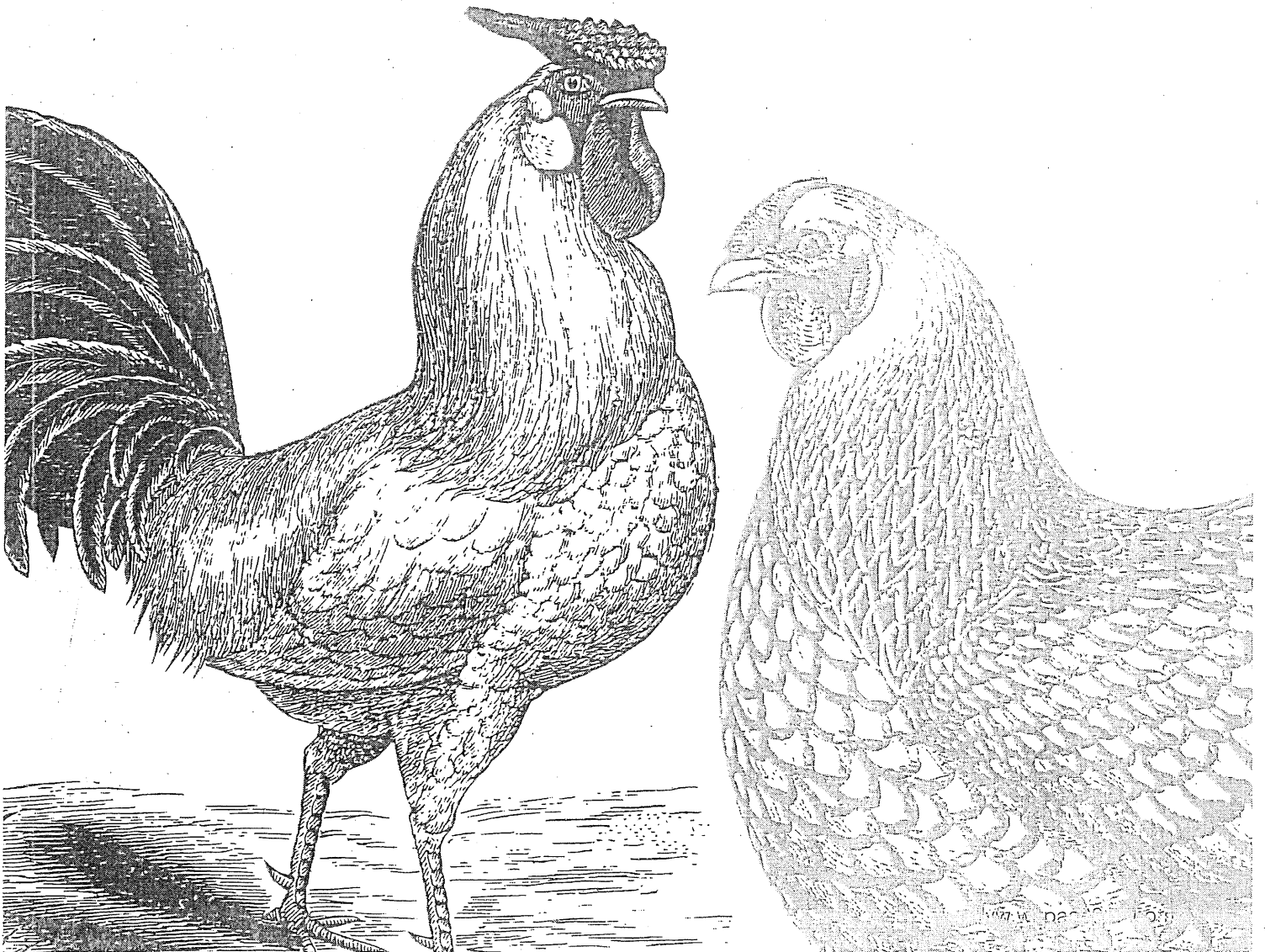


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### EFFECTIVENESS OF IMMERSION TREATMENTS WITH CITRIC AND LACTIC ACIDS AND MODIFIED ATMOSPHERE PACKAGING AGAINST *CAMPYLOBACTER JEJUNI* IN POULTRY

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**Abstract:** Raw poultry is a well-recognized source of *Campylobacter jejuni* and many surveys have confirmed the presence of this pathogen on fresh poultry. 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 a mixture of citric and lactic acids and packaging in modified atmospheres on the growth of *Campylobacter jejuni* in poultry legs stored at 4°C.

Fresh chicken legs were inoculated with *Campylobacter jejuni*. After the inoculation, the chicken legs were dipped into a mixture containing 1% citric acid and 1% lactic acid. Control legs were treated with distilled water. Inoculated samples were packaged under different gas mixtures: vacuum, 20%CO<sub>2</sub>/ 80%N<sub>2</sub>, 40%CO<sub>2</sub>/ 60% N<sub>2</sub> or air.

Surface pH values, sensorial characteristics and *Campylobacter jejuni*, mesophiles and psychrotrophs counts were evaluated after treatment (day 0) and after 1, 3, 6, 8, 10, 13, and 15 days of storage at 4°C.

Significant differences (p<0.05) in mesophiles and psychrotrophs counts were found between the legs treated with a mixture of citric and lactic acid and the control legs after treatment. The air-packaged legs had the fastest increase in mesophiles counts. The lowest mesophiles counts were observed in those samples packaged in 40%CO<sub>2</sub>/ 60% N<sub>2</sub>. Legs washed with a mixture of 1% citric and 1% lactic acid solution showed a significant (p<0.05) inhibitory effect on *Campylobacter jejuni* compared to control legs, being about 1.59 log units lower after treatment. No significant reduction on *Campylobacter jejuni* was observed in samples packaged under vacuum, 20%CO<sub>2</sub>/ 80%N<sub>2</sub> or 40%CO<sub>2</sub>/ 60% N<sub>2</sub>.

In conclusion, immersion of chicken legs in a mixture of 1% citric acid and 1% lactic acid solution can reduce *Campylobacter jejuni* populations on fresh poultry. Atmospheres containing 20%CO<sub>2</sub>/ 80%N<sub>2</sub> or 40%CO<sub>2</sub>/ 60% N<sub>2</sub> are not able to reduce *Campylobacter jejuni*.

Disclosure of Interest: None Declared

Keywords: *Campylobacter jejuni*, Organic acids, poultry, Public Health