Title The influence of acid and alkaline treatments on pathogens and the shelf life of poultry meat

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Abstract

A study was carried out to determine the influence of acid and alkaline treatments on pathogens and the shelf life of poultry meat. The following acid and alkaline substances were used: 1% lactic acid, (Purac^{R}), a 1% formulation of active constituents (sugars, foodstuff phosphates, ascorbic/isoascorbic acid or their inorganic salts) with lactic acid as activator (Glutamal bioactive^{R}) and 10% trisodium phosphate (TSP). A total of 360 poultry carcasses were collected from a poultry processing plant and subjected to spray treatments at a pressure of 300 kPa and dipping treatments using the acids and alkali. Water was used as control. The carcass rinse method was used as the method of sampling. The microbiological data obtained were subjected to statistical analyses using the multifactor analysis of variance (ANOVA). Sensory evaluations were conducted using a seven-member panel to determine the acceptability or otherwise of the treated carcasses. Mean $\log_{10}$ reductions (cfu/ml) achieved, based on the different treatments, modes of treatment and days of storage were between 0.4 and 2.5 for APC; 0.5 and 2.7 for *Enterobacteriaceae*; 0.2 and 2.4 for *Pseudomonas*, and 0.2 and 1.1 for *Lactobacillus*. The dipping treatment gave the best overall reduction effect. About 60% of the carcasses examined (day 0, only) were positive for salmonella. The sensory evaluations recorded high acceptability scores. The findings show that acids and alkaline substances are viable tools for the decontamination of poultry carcasses.