Effect of chlorinated water and sodium tripolyphosphate spray washing on bacterial numbers and quality of quail carcasses

ABSTRACT

Quail is considered a high protein product, with such nutrients that are appropriate for the growth of the microorganisms, for example, bacteria, fungal and yeast. This condition can contribute to easy spoil of the product. The comparison between tap water (control), chlorinated water (CL) and sodium tripolyphosphate (STPP) at 30 and 60°C on the total microbial count of quails. Carcasses were sprayed for 60 s with a tap, (CL) or STPP solution, subjected to 30 °C and 60 °C temperature. Treated carcasses were then diluted up to 10-5 for microbiological analyses; total plate count using plate count agar (PCA), yeast, and mould count using potato dextrose agar (PDA) and Salmonella count using hektoen enteric agar (HEA). Results indicated that a higher bacterial population were found on sample treated with control, followed by a CL-treated sample and STPP solution recorded the least for both PCA and PDA agar when in 30°C. However, when being introduced to the high temperature of 60 °C, (CL) showed the best antimicrobial activity, recorded 4.23 log cfu/g bacterial count for PCA. Meanwhile, STPP solution with 4.42 log cfu/g and control with 4.79 log cfu/g. A different pattern was observed in yeast and mould count, whereby it showed sample treated with control and STPP solution does not significantly different in decreasing the yeast and mould count, in turn, CL counted with the highest microbial load of 4.64 log cfu/g. There was also no presence of Salmonella spp found on the quail of all treatments. The pH of the quail after each treatment was ranging from pH 6 to 7. This indicated that STPP had shown a stronger antimicrobial activity as spray washing for quails than CL and control, at 30°C.

Keyword: Quail; Quality; Washing procedure; Spray washing; Chlorine; Sodium Tripolyphosphate; Temperature