

Efficacy of Carvacrol as an Antimicrobial Wash Treatment for Reducing Both *Campylobacter jejuni* and Aerobic Bacterial Counts on Chicken Skin

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Abstract : *Campylobacter*, one of the major cause of foodborne illness worldwide, is commonly present in the intestinal tract of poultry. Many strategies are currently being investigated to reduce *Campylobacter* counts on commercial poultry during processing with limited success. This study investigated the efficacy of the generally recognized as safe compound, carvacrol (CR), a component of wild oregano oil as a wash treatment for reducing *C. jejuni* and aerobic bacteria on chicken skin. A total of two trials were conducted, and in each trial, a total of 75 skin samples (4cm × 4cm each) were randomly allocated into 5 treatment groups (0%, 0.25%, 0.5%, 1% and 2% CR). Skin samples were inoculated with a cocktail of four wild strains of *C. jejuni* (~ 8 log₁₀ CFU/skin). After 30 min of attachment, inoculated skin samples were dipped in the respective treatment solution for 1 min, allowed to drip dry for 2 min and processed at 0, 8, 24 h post treatment for enumeration of *C. jejuni* and aerobic bacterial counts (n=5/treatment/time point). The data were analyzed by ANOVA using PROC GLM procedure of SAS 9.3. All the tested doses of CR suspension consistently reduced *C. jejuni* counts across all time points. The 2% CR wash was the most effective treatment and reduced *C. jejuni* counts by ~4 log₁₀ CFU/sample (P < 0.05). Aerobic counts were reduced for the 0.5% CR dose at 0 and 24h in Trial 1 and at 0, 8 and 24h in Trial 2. The 1 and 2% CR doses consistently reduced aerobic counts in both trials up to 2 log₁₀ CFU/skin.

Keywords : *Campylobacter jejuni*, carvacrol, chicken skin, postharvest

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