Novel approaches of E. coli O157: H7 decontamination.

ABSTRACT

Researchers in the area of microbiological meat safety, in an attempt to reduce beef carcass contamination, try carcass-washing treatments as an effective method to control pathogenic bacteria. Spray wash treatments utilizing 3 concentrations (1, 1.5 and 2%) of acetic, lactic, propionic and formic acids were performed to evaluate their efficacy in reducing numbers of Escherichia coli O157: H7 on meat tissues at 4±1°C. The meat was decontaminated with hot water and then inoculated with E. coli O157: H7, which then was spray washed with organic acids for 15 sec separately. The population of E. coli O157: H7 significantly ($p<0.05$) reduced after being spray washed with all treatments. The lethality effect of all organic acids according to the concentration was 2% concentration >1.5% concentration >1% concentration. Mean log reductions of E. coli O157: H7showed that the antibacterial effect of formic acid >lactic acid >acetic acid >propionic acid. The results of this study also indicated that formic acid is a good antibacterial agent for decontaminating animals carcass surfaces.

Keyword: Beef; Escherichia coli O157: H7; Acetic acid; Lactic acid; Propionic acid; Formic acid.