

POULTRY

REDUCTION OF SALMONELLAE ON PRODUCE AND POULTRY BY ORGANIC ACID PLUS DETERGENT (M.P. Doyle)

A group of organic acids, including lactic acid, acetic acid, and levulinic acid, and sodium dodecyl sulfate (SDS), were evaluated individually or in combination for their ability to inactivate *Salmonella* and *E. coli* O157:H7. Results from pure culture assays in water with the treatment chemical reveal that 0.5% organic acid and 0.05-1% SDS, when used individually, reduced pathogen cell numbers by <2 log CFU/ml within 20 min at 21°C. Combining any of these organic acids at 0.5% with 0.05% SDS resulted in >7 log CFU/ml inactivation of *Salmonella* and *E. coli* O157:H7 within 10 sec at 21°C. A combination of levulinic acid and SDS was evaluated at different concentrations for pathogen reduction on lettuce at 21°C, on poultry (wings and skin) at 8°C, and in water containing chicken feces or feathers at 21°C. Results revealed that treatment of lettuce with a combination of 3% levulinic acid plus 1% SDS, for < 20 sec reduced both *Salmonella* and *E. coli* O157:H7 populations by > 6.7 log CFU/g on lettuce. *Salmonella* and aerobic bacteria populations on chicken wings were reduced by > 5 log CFU/g by treatment with 3% levulinic acid plus 2% SDS, for 1 min. Treating water heavily contaminated with chicken feces with 3% levulinic acid plus 2% SDS, reduced *Salmonella* populations by >7 log CFU/ml within 20 sec. The application of levulinic acid plus SDS as a wash solution may have practical application for killing foodborne enteric pathogens on fresh produce and uncooked poultry.

