The Effect Of Lactic Acid Dip Treatment To Control Salmonella In Beef Skirt Steak

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Introduction

The steady growth of the population demands more food each day. The increasing distance between producers and consumers requires products to be stored and travel over longer time. This problem is more severe in fresh meat products, with susceptibility to Salmonella contamination and growth in the products. This is a validation type study about using lactic acid dip as an intervention with the skirt steak obtained from the campus meat lab. This study was ultimately replicated three times. Beef samples were be inoculated with cocktail mixture of three strains of Salmonella Typhimurium (14028), Salmonella Heidelberg (3347-1), and Salmonella Enteriditis (31194). The cocktail was be made with the concentration between 10^6 and 10^7.

The aim of this study was to validate the effectiveness of using a 4% lactic acid dip to reduce the presence of Salmonella on skirt steak.

Methods

- Six meat samples be obtained from the campus meat lab.
- Each set of samples (6 whole pieces) was be inoculated with 5 liters of inoculum, that was agitated with the meats samples for two minutes for even and uniform exposure.
- Inoculated samples was be placed in bags, in the bio-safety hood for 1 hour.
- Half of the samples was be dipped in the 4% lactic acid solution, at room temperature. Pieced was submerged approximately 5 seconds, ensuring that the samples were completely dipped. The other half of samples (control) was be swabbed for control dilutions.
- Treated samples was sit at refrigeration.
- After 1, 12, 24, and 48 hours swabs taken of meat samples, then was stomached for 2 minutes.
- Dilution was created from 1:10 to 1:100,000
- Plates were created in duplicate. The plate were spread plated on Xylose lysine deoxycholate agar and plates were incubated at 35 °C for 48 hours.
- Finally were counted and record plates.

Results

Results indicate that there is some reduction of Salmonella in meat samples immersed in lactic acid, in comparison to the samples of meat not treated with lactic acid (Deshpande, 2002). Salmonella behavior is observed through time in Figures 1, 2 and 3, noting that in the first hour there is a significant reduction due to the antimicrobial effect of the lactic acid present in Salmonella, and then observed through the while the growth rate is significantly reduced, thus maintaining the same levels of CFU of salmonella and therefore get a longer shelf life (Troy et al., 2006)

Conclusions

References