Name(s)

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Project Number

S1407

Project Title

E. coli in Ground Beef

Abstract

Objectives/Goals

My objective in this experiment was to get a better understanding of food borne illnesses. I believed that in my experiment I would be able to prove that the more you cook a hamburger the less E coli can be found. My experiment focused on E coli in ground beef after I read numerous articles on it. My experiment included E coli, 64 ¼ cup patties of ground beef and sixty four dishes of agar. For each stage I planned to cook I cooked a control as well as four infected hamburgers. I then aloud the Hamburgers to cool to room temperature and then swiped for E coli. In conclusion to my experiment, I found that my controls had no E coli and that the rare cooked hamburgers percent cover was 21% more than both medium and well cooked patties. In conclusion to my experiment my knowledge of food born illnesses expanded greatly. I am of the belief now that the consumer can only do so much to prevent infection and that government programs are essential.

Methods/Materials

Make 65 dishes of agar, Set one dish of agar aside and thoroughly infect it with E coli, Make 64; ¼ cup hamburger patties, Infect 16 hamburgers to be cooked rare, Infect 16 hamburgers to be cooked medium, Infect 16 hamburgers to be cooked well done, Set 16 aside as controls to be cooked at each stage, Set pan at 400 degrees, Rare: 60 seconds, Medium: 2 minutes, Well: 4 minutes, Let cool down to room temperature, Label agar dishes, Swipe center of patties with Q tip and place on agar dishes

Results

All three of my TTEST showed 99% chance of being different. To complete my experiment I measured the percent cover of E Coli in my agar dishes and averaged it out. The averages were as fallows: Rare: 36% cover, Medium: 5% cover, Well: 2% cover and Control: 0% cover. The Standard deviation was .10 for rare, .02 for Medium and .01 for Well cooked.

Conclusions/Discussion

In conclusion to my experiment I found that there was a 21% difference in the percent cover of E coli between the rare cooked and well cooked patties. Through my experiment I was able to determine that E coli, although it was not fully killed, is less likely to survive in extreme heat. This proved my hypothesis correct, that by cooking meat all the way through, E coli has a difficult time surviving because of the extreme heat. My experiment yielded very dependable results, as my TTEST yielded 99% chance of being different in all three tests.

Summary Statement

The point of my experiment was to show that the more thoroughly meat is cooked the harder time E Coli has surviving.

Help Received

My science teacher assisted me in making agar dishes and supplied me with the E Coli