CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
S1410

Project Title
Battle with the Bacteria: How Well Does E. coli Survive on the Cutting Boards?

Abstract

Objectives/Goals
The objective is to find out which cleaning method (water wash, soap wash, or salt wash) can best eliminate E. coli contamination from the wooden cutting boards.

Methods/Materials
Used E. coli ATCC strain to contaminate the wooden cutting boards, which were later washed with tap water, soap solution, or salt. Each board was then sampled to agar plates. After 24 hours incubation, counted all the colonies and compared to the control (which was not washed).

Materials include E. coli ATCC strain, 2 ml 0.85% saline, Mcfarland Standard No. 2, sterile swabs, sticks, agar plates, wooden cutting boards, soap, and salt.

Results
The results showed a significant decrease in bacterial growth after long periods of salt wash were applied. It reduced the colony counts by approximately 67% from the control while the water wash and the soap wash reduced the colony counts by approximately 49% and 60%.

Conclusions/Discussion
My conclusion is that salt rubbing under flowing water with vigorous and long enough washing period is more effective than the soap wash as usually recommended. This suggest that the commonly use soap wash should be considered replace by the more natural and safer cleaning method-salt wash in kitchens.

Summary Statement
My project is looking for a cleaning method that can prevent pathogenic contamination from wooden cutting boards and moreover, reduce the food borne illness that is caused by cross-contamination.

Help Received
Mother helped and advised my project. Science teacher, Ms. Karen Kelly supported and helped me throughout my project. Used lab equipment at John Muir Laboratories, Walnut Creek, CA under the supervision of Denise Tucker and Audria Buchanan (CLS).