Name(s)

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Project Number

S1605

Project Title

Testing and Comparing the Ability of Different Types of Cutting Boards to Withstand Bacterial Growth

Abstract

Objectives/Goals

The objective of this project is to determine which types of cutting board, out of four different materials, constitute the least and most bacterial growth.

Methods/Materials

6 metal cutting boards, 6 wooden cutting boards, 6 plastic cutting boards, 6 bamboo cutting boards, raw chicken, 1.5 L of LB broth, 130 LB agar plates, 130 disposable 10 mL test tubes, knives, biosafety cabinet, incubator. Collected bacteria from cutting boards after use, determined and compared the concentration of bacterial growth from each board.

Results

The average concentration for each type of cutting board, derived using the 1:1000 serial dilution direct plate count, was used to determine which cutting board material harbored the most and least bacterial. Our results revealed that metal cutting boards produced the least bacterial growth concentration, with an average range of 0 - 8333.333, while wooden cutting boards produced the most, with an average range of 450.333 - 397,833.333.

Conclusions/Discussion

After comparing the average concentration of bacteria for each type of cutting board, it was revealed that metal produced the least bacterial growth, and wood produced the most. Following metal, plastic produced the second least bacterial growth, followed by bamboo. It can be concluded from this that in general, it is better to use metal or plastic cutting boards in the kitchen as they constitute less bacterial growth, even after being left out for a period of time.

Summary Statement

Our group collected and compared the bacterial growth concentration of different types of cutting boards to determine that metal produced the least bacterial growth, while wood produced the most.

Help Received

Our group#s biomedical science teacher and project advisor, Mr. Han, taught us how to make the media used in the project (LB broth and LB agar), how to determine concentration of bacteria using serial dilutions, and provided us with the materials and tools needed to carry out the project.