Name(s)	Project Number
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Project Title

Comparing the Amount of Bacteria in Raw and Pasteurized Milk

Abstract

Objectives/Goals

My project was to compare the amount of bacteria in raw and pasteurized milk samples using methylene blue dye to estimate bacterial content.

Methods/Materials

Over four days, I tested several 9 ml samples of grade A raw and grade A pasteurized milk, refrigerated and unrefrigerated, which were placed into test tubes with 1 ml methylene blue solution (1% Aqueous solution) diluted 1:20 with distilled water and placed in a water bath maintained at 98 degree F until the methylene blue samples returned to a natural white color. The tubes were observed to see when they turned white.

Results

The raw unrefrigerated samples turned white the fastest, averaging 10.25 hours to turn white. The raw milk refrigerated samples turned white on average in 12 hours. The pasteurized milk samples took the longest to turn white with the unrefrigerated samples taking on average 21. 25 hours and the refrigerated samples taking on average 25.75 hours

Conclusions/Discussion

In all of my tests, the raw milk samples turned white more quickly than the pasteurized samples, supporting my hypothesis that raw milk contains more bacteria than pasteurized milk, and the unrefrigerated milk samples turned white more quickly than the refrigerated samples, supporting my hypothesis that 4-hour unrefrigerated milk contains more bacteria than refrigerated milk. All of the milk samples tested, both raw and pasteurized, were of a high quality and had low amounts of bacteria because in all cases it took more than 8 hours for the milk to turn white.

Summary Statement

My project was to determine if Grade A raw milk purchased in a local health food store was safe to drink.

Help Received

My science teacher provided general oversight, my mom helped purchase the materials for my experiment and board, took pictures and helped me cut and paste my board and my aunt helped me understand the science of my experiment.

Ap2/15