CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

Yinghao Wang

Project Number

33274

Project Title

Contaminated Milk

Abstract

Objectives/Goals

Find out which milk (Vitamin D (whole), 2%, or Fat-Free) will contain the most amounts of bacteria colonies.

Methods/Materials

Need agar powder, liter of water, Incubator, Vitamin D (whole) milk, 2% milk, fat-free milk, Petri dishes, Pipette, Q tips, Bacteria colony counter

Leave the Vitamin D milk in the incubator. Make the agar solution. Put agar solution on the petri dishes. Bring Vitamin D milk out of the incubator. Use pipette to measure 0.25 ml of milk. Squeeze 0.25 ml of milk on all of the petri dishes. Put lids on the petri dishes and put the petri dishes in the incubator. Bring out the petri dishes after 2 days and count the number of bacteria colonies. Repeat the process with the other 2 types of milk.

Results

The Vitamin D (whole) milk had an average of 5.5 bacteria colonies in it, the 2% milk had an average of 2.5 colonies in it, the Fat-Free milk only contained about 0.6 colonies. There was no high point or low points for the Fat-Free milk. There were no high points or low points for the 2% milk. The high point for the Vitamin D (whole) milk was 13 colonies. There was no low point for the Vitamin D (whole) milk.

Conclusions/Discussion

My hypothesis was supported. My hypothesis that if Vitamin D (whole), 2%, and fat-free milk are left in an incubator at 37°C for 2 days, then Vitamin D will have the most bacteria colonies on it because Vitamin D milk contains the most amount of fat. My graphs and table show that the Vitamin D milk had an average of 5.5 colonies in it. The 2% milk had 2.5 colonies in it. The Fat-free milk had 0.6 colonies in it.

The reason to this might be that the amount of fat are different in the three milks. From the nutrition facts, the Vitamin D contains 8 grams of fat per cup. The 2% milk has 5 grams of fat and per cup. The Fat-free milk has 0 grams of fat per cup. The reason why this happened might also be due to that the amount of pasteurization in the milks are different. The less the amount of pasteurization, the more bacteria will be in the milk. Vitamin D milk is the least pasteurized milk, so it contains the most bacteria.

Summary Statement

Count the amount of bacteria colonies on Vitamin D (whole) milk, 2% milk, and Fat-Free milk.

Help Received

Got materials from Ms. Herrington and did my experiment in her room.