Name(s)
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Project Number
J1605

Project Title
Determining the Effectiveness of Aloe Vera Gel as a Mold Growth Inhibitor on Various Fruits

Abstract

Objectives/Goals
The purpose of this project is to investigate how different quantities of Aloe vera (A. Barbadensis miller) gel applied on different types of fruits affect the growth of mold on them.

Methods/Materials
Four different types of fruits, Aloe vera leaves, utensils, trays, camera, spray bottle, blender.
Measured mold growth in a moist, dark environment, over time using grid photography, on four different types of fruit coated with various amounts (None, 1.5 tbsp, 3 tbsp) of Aloe vera gel.

Results
By the end of the testing period, the apples and oranges with no gel showed 1% mold growth while both the 1.5 and the 3 tablespoon fruits had no mold growth . The tomatoes with no gel had an average of 20% mold growth, while the tomatoes with 1.5 and 3 tablespoons of gel showed no mold growth. The strawberries with no gel showed onset of mold growth first, and ended up at at an average of 79% mold growth. The strawberries with 3 tablespoons of gel showed onset of mold growth next and ended up with 100% mold growth, but the strawberries with 1.5 tablespoons of gel showed onset of mold growth last and ended up with an average of 60% mold growth.

Conclusions/Discussion
The hypothesis was not definitively supported by the results. The data did show that all fruits with no Aloe vera gel began developing mold growth before the same type of fruit with Aloe vera gel applied, so the Aloe vera did appear to inhibit the onset of mold growth. But the amount of Aloe vera gel applied was not inversely proportional to the amount of mold growth. The fruits with 3 tablespoons of Aloe vera gel applied did not consistently show less mold growth than the fruits with 1.5 tablespoons of Aloe vera gel applied.

Summary Statement
The application of Aloe vera gel to fruits inhibited the onset of mold growth, but the amount of gel applied was not always proportional to mold growth resistance.

Help Received
We designed, built, and performed the experiments ourselves. Our Math teacher, Pam Durkee, helped us select an appropriate formula for calculating the area of an irregular shape.