

ISEF Sample Abstract & Certification

The Effect of Food Preservatives on Bacterial Growth in Ground Beef

Lyla Curtis

Greenwich Central School, Greenwich NY, USA

In this study, I researched the effectiveness of type and concentration of food preservatives on bacterial growth in ground beef. The objective of this study was to find the correct way to preserve food in order to prevent food poisoning and other severe long term health issues. This study is important because being able to preserve food correctly is essential for life. Previous studies have shown that honey and sodium nitrate are both effective preservatives, but sodium nitrate can be a better preservative. My hypothesis was that if I use honey and sodium nitrate in different concentrations to preserve ground beef, then the higher concentration of both preservatives would be almost equally as effective. This was researched by mixing together 5g of meat and 200mL of water, then decanting the meat out of the water. Next, I added each type and concentration of preservative into the solution and put the solutions in 2 test tubes for each group. After leaving the test tubes in a refrigerator for 2 days, I swabbed the solution onto petri dishes and incubated them for two days. The data didn't have a clear trend and did not correlate with my hypothesis.

Category

Pick one only—
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1. As a part of this research project, the student directly handled, manipulated, or interacted with (check all that apply):
 - human participants potentially hazardous biological agents
 - vertebrate animals microorganisms rDNA tissue

2. This abstract describes only procedures performed by me/us, reflects my/our own independent research, and represents one year's work only.
 - yes no

3. I/We worked or used equipment in a regulated research institution or industrial setting.
 - yes no

4. This project is a continuation of previous research.
 - yes no

5. My display board includes non-published photographs/visual depictions of humans (other than myself):
 - yes no

6. I/We hereby certify that the abstract and responses to the above statements are correct and properly reflect my/our own work.
 - yes no

