Natural oil against bacteria

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Abstract

The purpose of this experiment was to see which antibacterial liquid decreases bacteria the most. Which antibacterial oil will have the least amount of bacteria when added to a bacterial colony? If I add oregano oil, garlic oil and honey to separate bacteria colonies then oregano oil will decrease it the most. My procedures are to swab bacteria into petri dishes, put antibacterial liquid in after 48 hours and check for discretion after another 48 hours. My results showed that oregano oil decreased the bacteria the most, honey decreased the bacteria the second most, and garlic oil decreased the bacteria the least. In conclusion, my hypothesis was supported because oregano oil did in fact decrease the bacteria the most.

Introduction

Purpose
This experiment was performed because I was extremely curious about this topic, medicine/herbal health and antibacterial liquid and hoped to find out which one is the best for personal reasons.

Problem
Which antibacterial oil will have the least amount of bacteria when added to a bacterial colony?

Background Research
So my hypothesis was supported by specific research. Now, I came to this conclusion concerning my hypothesis by finding out that it has antioxidant properties which make it extremely powerful. Also, my dad who is a nurse and had previously told me that oregano oil is by far the best herbal antibacterial oil he's seen. Not only has my dad said this but my cousin who is a biomedical engineer has also told me oregano oil works wonders for her.

Also, there was a study that showed oregano oil is considered the best antibacterial liquid. The reason for this is because oregano oil has 13 antibacterial ingredients in it. This study was on oregano and how it can treat infections caused by MDR. Also it suggested that oregano oil can be an alternative for topical treatments. They also tested the oregano oil on third degree burns that were infected. The results clearly showed that oregano oil can kill bacteria and bacteria biofilms way better than actual antibiotics.

Hypothesis
If I add oregano oil, garlic oil and honey to separate bacteria colonies then oregano oil will decrease it the most.

Methods

Subjects

- Garlic oil
- Honey
- Oregano oil
- Antibacterial properties
- Bacteria

Variables

Independent:

The independent variable is the type of antibacterial oil.

Dependent:

The dependent variable is the discretion of growth in the bacteria colony.

Controlled:

The controls in my experiment are petri dishes, times of checking, times to wait for growth, the amount of liquid put in the petri dish, and the area i kept them for storage.

Materials

● 20- Petri dishes
● 1- glass of oregano oil
● 1- jar of organic honey
● 1- glass of garlic oil
● 1- black sharpie marker
● 20- swabbers
● 2- cardboard boxes to carry petri dishes

Procedures

1. Gather all materials
2. Open petri dish lids and swab the counter
3. After you have swabbed the counter swab the inside of the petri dishes in 3 horizontal, vertical
and diagonal lines
4. Close the petri dish lids
5. Repeat steps 2-4 14 more times for each petri dish
6. Leave all petri dishes in a place where nobody will touch them (be sure it is also a warm place)
7. After 48 hours take the petri dishes out of their spot and put of a big flat surface

8. Grab your honey, garlic oil and oregano oil and put it on the flat surface where your petri dishes are
9. Prepare the honey, garlic oil and oregano oil to pour in
10. Open one petri dish and immediately pour 3 drops of honey, garlic oil and oregano oil
11. Close the lid immediately after
12. Repeat steps 10-11 14 more times (5 for each liquid)
13. Label the lids with its first letter and number for petri dish in sharpie for each
14. Repeat steps 13 for each liquid
15. Wait 48 hours for bacteria to decrease and put in the spot where you put it the first place
16. Take out of the spot and check the bacteria for discretion
17. Analyze and graph data

Results

Table(s)

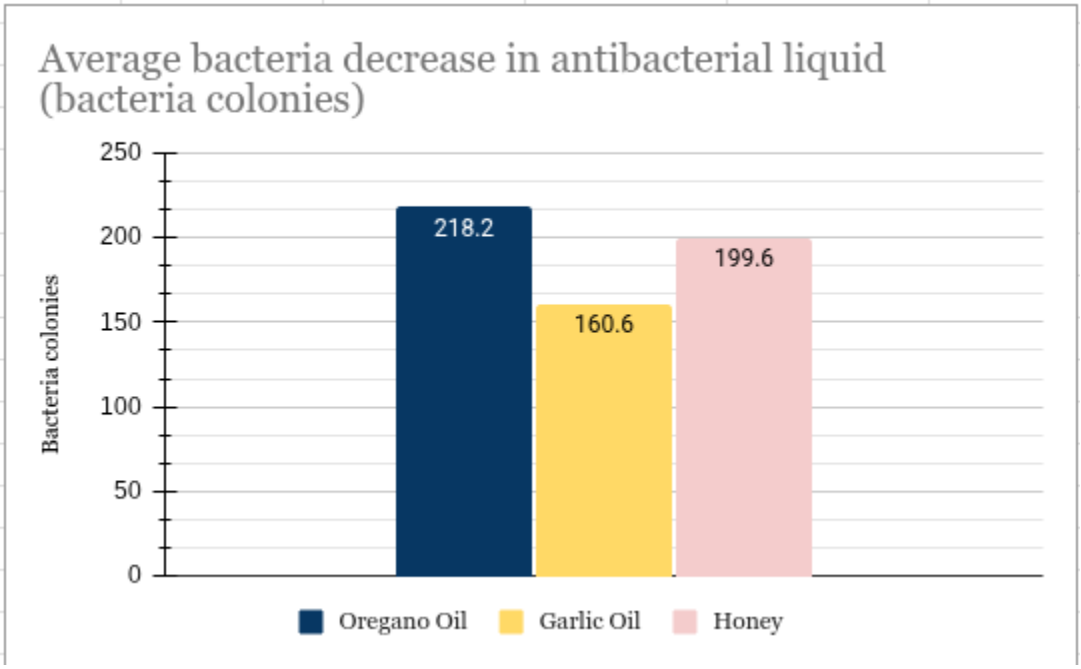
Bacteria decrease in antibacterial liquid (bacteria colonies)

Trial	Oregano Oil	Garlic oil	Honey
1	49	280	117
2	149	54	277
3	303	139	134
4	143	213	262
5	447	117	208

Average bacteria decrease in antibacterial liquid (bacteria colonies)

Oregano Oil	Garlic Oil	Honey
218.2	160.6	199.6

Graph(s)



Analysis

The results of this experiment were the oregano oil having the most decrease of bacteria, making it the most antibacterial. Trial 1's results were the smallest change in bacteria, trial 2 was the second smallest, trial 3 was the third largest, trial 4 was the second largest and trial 5 was the largest.My hypothesis was supported because I had hypothesized that oregano oil would decrease the bacteria the most and my data shows that it did, in fact, decrease bacteria the most.

Discussion

Conclusion

The results of the experiment show that Oregano oil decreased growing bacteria colonies the most. Now, my hypothesis was supported because I hypothesized oregano oil would decrease the bacteria the most.. The results turned out the way they did due to oregano oil having the most discretion of bacteria. Also, oregano oil tested better than the other liquid because of high amounts of thymol and carvacrol which disrupts the bacteria.

Application

My project relates to the real world because natural preservatives in food causing bacteria in the food industry, cleaning products including oregano oil, topical treatments in over the counter products at stores, and environmental disinfection/ aromatherapy,

Recommendations

If I did my project again I would give less time for the bacteria to grow. The reason to do this is because I feel that the bacteria grew too much for the liquid to work properly. Also, I would add more of the antibacterial liquids to the dish because of that previous reason. In addition to this, I would add another antibacterial liquid that has been medically proven to decrease bacteria.

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