CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)

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Project Number

J1716

Project Title

Honey vs. Bactine: Bonny Doon Honey Proves Most Effective against E. coli

Abstract

Objectives/Goals

The purpose of this project is to see which variable--Manuka honey, Bonny Doon honey or antibiotic spray (Bactine)--will work the best at inhibiting the growth of E.coli bacteria.
Compared with a chemical antibiotic, how effective are Bonny Doon honey and Manuka honey in inhibiting the growth of E.coli?
Our hypothesis was that the order of effectiveness, from most to least effective would be: Bactine spray, Manuka honey, and Bonny Doon honey.

Methods/Materials

1. Following BSL-1 safety protocols, we marked and swabbed three sectioned treatment plates and three control plates, using live E.coli bacteria.
2. We soaked 3 sterile disks in each of the treatments, placed them in the corresponding marked sections of the treatment plates, and put the covered plates in the incubator set to 98.6°F.
3. For six days, we recorded the date, time, incubator temperature, and diameter of the zones of inhibition developing around the treatment disks.

Manuka honey, Bonny Doon honey, Bactine Antibiotic First Aid Liquid, Sterile Disks, Nutrient Agar Plates, Live E. coli bacteria strain K-12, Incubator, Safety equipment per BSL-1 requirements.

Results

Our results indicate that, during the 6-day experiment, E. coli had intermediate resistance to Bonny Doon honey, while E. coli was resistant to both Bactine and Manuka honey. Therefore, Bonny Doon honey was most effective at inhibiting the growth of E. coli.

Conclusions/Discussion

In our study we found that Bonny Doon honey proved more effective than Manuka honey and Bactine at inhibiting the growth of E. coli. E. coli is a common source of infections, and there is growing concern about the overuse of antibiotics. Our results support local honey as an accessible and effective alternative treatment.

Summary Statement

We found that E. coli had intermediate resistance to Bonny Doon honey, while E. coli was resistant to both Bactine and Manuka honey.

Help Received

Scott Russell (Parent and Designated Supervisor/Qualified Scientist) ordered the bacteria and project equipment, trained us on lab safety, and supervised our experiment in keeping with the procedure and BSL-1 requirements for working with microorganisms.