

## CALIFORNIA SCIENCE & ENGINEERING FAIR 2018 PROJECT SUMMARY

Name(s)	Project Number
Lizzie D. Garcia	
	38290
Project Title	
Foothill Pharmaceuticals: Assessing Antibacterial Potential of Sierra	
NV Flora & Microflora for Use in Clinical Medicine	
Objectives/Cools Abstract	
<b>Objectives/Goals</b> The objective of this study is to determine if naturally occurring antibacterial as	ents den be derived from
The objective of this study is to determine if naturally occurring antibacterial as plants and soil-dwelling microorganisms in the Sierra Nevada Foothill Region a	nd have the potential for
application within the field of clinical medicine.	
Methods/Materials	nhuffer 5 heateria notive
Agar plates, mortar and pestle, sterile pipettes, paper discs, antibacterial solution plants, and native soil-dwelling bacteria and fungi. The materials were purchas were put on plates. Plant samples were made into extract. Solid welling bacteria medium. Paper discs were dipped in plant extract and bacteria and fungi soil sa	d from Odin Bacteria
were put on plates. Plant samples were made into extract. Sol dwelling bacteri	a and fungi were placed in
medium. Paper discs were dipped in plant extract and bacterie and fungi sai sa	mple solution and placed
as 5 replications on plates with 3 controls (paper disc, antibacterial and buffer)	. Every 12 hours pictures
were taken along with measurements in mm of the area cleared by the antibacter and/or the bacteria and fungi soil samples.	erial control, plant extracts,
Some plants had antibiotic qualities. Bee#s Bliss was effective against Escherichia coli, clearing an area	
of 11.79mm2-452.39mm2, but compared to the artibacterial control, clearing an area of	
Some plants had antibiotic qualities. Bee#s Bliss was effective against Escherichia coli, clearing an area of 11.79mm2-452.39mm2, but compared to the antibacterial control, clearing an area of 1218.16mm2-1551.95mm2, there was little effectiveness. Bee#s Bliss was effective against Micrococcus luteus, clearing an area of 40.06mm2-157.48mm2, but compared to the antibacterial control, clearing an area of 1551.95mm2, there was little effectiveness. Bee#s Bliss had some effect on both gram-positive and gram pagative bacteria. In last year's fund, plant extracts only had an effect on gram positive	
area of 1551 95mm2 there was little effectiveness. Beet Wiss had some effect on both gram-positive	
and gram-negative bacteria. In last year's study plant extracts only had an effect	et on gram-positive
and gram-negative bacteria. In last year's study, plant extracts only had an effect bacteria. This year, the plants affected gram-positive and gram-negative bacteri	a.
Conclusions/Discussion	
The study found that naturally occurring antibacterial agents derived from plant or soil-dwelling	
The study found that naturally occurring antibacterial agents derived from plant or soil-dwelling microorganisms did not kill a broad spectrum of bacteria and were not fast-acting. Bee's Bliss had some effect on gram-positive and gram-negative basteria. If more concentrated, Bee#s Bliss might have more	
effect on bacteria. New antibioics are needed the to antibiotic resistance and the possibility of	
catastrophic events with no antioidic availability. New antibiotics could be found using plants and	
soil-dwelling microorganisms. In uture studies, more plant and soil samples would be needed to find one	
that killed a broad spectrum of bacteria, would be fast-acting and a good candid the field of clinical medicine	late for application within
Summary Statement	
I showed that neturally occurring antibacterial agents found in the Sierra NV Fo	pothill Region had some
effect on gram+ and gram- bacteria, but currently would not be good candidates medicine.	s for use in clinical
Help Received	
I conducted all the steps of my experiment on my own under adult supervision.	
Garcia, helped me determine how to measure my findings so I could properly r	
received help from a college student, Andy Garcia, to input the data into a statis	stical program.