



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Faatima Zahra Motala	Project Number J1609
Project Title Bacteria Slayer: Stop Antibiotic Resistance	
Abstract Objectives/Goals My objective was to determine the susceptibility of gut bacteria to natural antimicrobial agents compared to antibiotics. I chose two types of gut bacteria <i>Candida Albicans</i> and <i>Escherichia Coli</i> and relevant antibiotics used to treat each. Fluconazole for <i>Candida Albicans</i> and Ampicillin for <i>Escherichia Coli</i> . My natural antimicrobial agents were, Oregano Oil, Garlic, Turmeric, Thyme, Black Walnut, and Propolis. My hypothesis was all natural antimicrobial agents would inhibit the growth of both <i>Escherichia Coli</i> and <i>Candida Albicans</i> . Methods/Materials To determine the susceptibility of bacteria I used the standard Microbiology test called the Kirby-Bauer Disc Diffusion Method. Using the aseptic technique, antibiotic sensitivity discs are inoculated with an antimicrobial agent and then placed onto an agar plate that has been swiped with bacteria and allowed to incubate for 24 hours at 30 degrees C. I then measure the zone of inhibition to determine susceptibility. I repeated this procedure 5 times. Results My results showed that some natural antimicrobial agents worked better than antibiotics. Oregano Oil worked better than Ampicillin on <i>Escherichia Coli</i> by preventing the bacteria from growing on the plate altogether. Black Walnut Oil was as effective as the antibiotic in <i>Escherichia Coli</i> . The results of my Fluconazole for <i>Candida Albicans</i> were inconclusive, however the Oregano Oil also prevented the <i>Candida Albicans</i> from growing on the agar plate. <i>Candida Albicans</i> is also susceptible to Black Walnut Oil. Conclusions/Discussion From my results I was able to conclude that gut bacteria can be effectively treated using natural antimicrobial agents instead of antibiotics. Based on my conclusion and research this is beneficial helping prevent antibiotic resistance. By treating mild diseases and infections with natural antimicrobial agents we can avoid the over use of antibiotics and prevent antibiotic resistance.	
Summary Statement Determining the susceptibility of gut bacteria to natural antimicrobial agents.	
Help Received Mum helped discussing project details, Dr.Hafizah Chenia (Microbiologist) discussed procedure to be used. Asma Mana helped get approval for project.	