



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Amethyst B. Audon	Project Number J1701
Project Title Antibiotic Resistance: Synthetic vs. Natural	
Abstract Objectives/Goals I am testing which type of antibiotic, natural or synthetic, leaves a larger zone of inhibition against bacteria. Methods/Materials I used LB agar plates, and s. epidermidis bacteria. the antibiotics that I used were (natural) ACV (raw apple cider vinegar), honey, garlic, (synthetic) tetracycline, penicillin, and ampicillin. I inoculated six antibiotics into each agar plate and let it grow for two days in and incubator at 38 degrees Celsius. After two days, I measured the zones of inhibition in millimeters. Results Natural antibiotics showed more consistency, while the synthetic ones only worked well in the beginning, but had little to no zone of inhibition in trials 2 and 3. The mean for pharmaceutical was 9.19 mm. The mean for natural was 10.62 mm. Garlic had the largest (average) zone for natural, and ampicillin had the largest (average) zone for synthetic. Conclusions/Discussion Synthetic antibiotics were not as consistent as the natural. Natural antibiotics, on average, left a larger zone of inhibition than synthetic antibiotics.	
Summary Statement My project is about antibiotic resistance, testing which antibiotic, synthetic or natural, will leave a larger zone of inhibition against bacteria	
Help Received My science teacher allowed me to use his lab, my sister gave me the idea of this project, and my mother gave me tips on what to do in my procedure.	