



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.) Stefanie W. Shih	Science Fair Use Only S1220
Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) Finding an Alternative Medicine to Treat the Antibiotic-Resistant Escherichia coli and Penicillium chrysogenum	Division _ Junior (6-8) <u>X</u> Senior (9-12)
Preferred Category (See page 5 for descriptions.) 12 - Microbiology	
Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p>Objective: To determine whether alternative medicines such as traditional Chinese herbs can effectively treat Escherichia coli and Penicillium chrysogenum because of their growing resistance against antibiotics and fungicides. An effort was also made to determine the most effective timing method for application.</p> <p>Materials and Methods: Twenty plates were inoculated with either E-coli or P. chrysogenum. Two plates in each group served as control plates, containing no treatments. Two plates from each group contained just the medicines; one for the herbal solution and one for the antibiotic or antifungal. The plates were separated into 0-hour and 48-hour groups. Treatments were given to the 0-hour groups directly after inoculation. Treatments were given to the 48-groups after 48 hours of growth, and another dose was given to the 0 hour plates.</p> <p>Results: For the E-coli plates, the 0-hour plates that contained the herbal solution had an average of being 9.9% more effective than the plates that contained Amoxicillin. The 48-hour plates that contained the herbal solution were 4% more effective than the plates that contained Amoxicillin. For the fungi plates, the 0-hour plates that contained the herbal solution were 80.3% more effective than the plates that contained Tolnaftate antifungal. The 48-hour plates that contained the herbal solution were 80% more effective than the plates that contained the Tolnaftate antifungal solution applied after 48 hours.</p> <p>Discussion: Because of the growing resistance in bacteria and fungi against antibiotics and antifungals, global awareness of an alternative medicine is beginning to grow. Data suggests that some herbs are more effective and may be used as alternatives. Medicines, in general, are more effective when used before the problem becomes serious or when symptoms first develop. However, western medicines are usually taken when the problem becomes serious and obvious.</p>	
Summary Statement (In one sentence, state what your project is about.) My project is about comparing the effectiveness of Chinese herbal medicines to modern antibiotics to treat E-coli and P. Chrysogenum	
Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. 3 mentors via emails, lab equipment at Viewpoint School under the supervision of Mark McLaughlin	