



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Cecilia T. Ong	Project Number S1319
Project Title Alchemy or Remedy?	
Objectives/Goals This experiment sought to find whether herbal medications had any medicinal affect against bacteria as western medicines did and whether there were any similarities in protein structure between the two.	
Abstract Methods/Materials Methods: High Pressure Liquid Chromatography to fractionate components according to solubility and hydrophobicity to isolate active component in medication Sodium Dodecyl Sulfate and Acid Urea Gels to identify components and to compare similarities in protein structure Bicinchonic Acid to quantify the amount of protein in substance Radial Diffusion Assay to assess anti-microbial properties of each medication Mass Absorption Laser Desorption/Ionization-Time of Flight to analyze mass of components in medication Materials: garlic pills niu tablets aloe vera grape/grapeseed extract PG-1 ampicillin dau phong dau xanh turmeric	
Results The grapeseed extract was found to contain a component that had similar biological properties to the control, ampicillin. Compared to the PG-1, another control medication and a known antimicrobial peptide, the grapeseed extract worked very well against the Staph aureus bacteria. Its zone of clearance, or a relative measure of effectiveness against a certain bacteria, was 7.5 mm while the zone for PG-1 at the same concentration was only 7 mm. The ampicillin worked equally well against the Staph aureus bacteria but showed no results in the ampicillin-resistant E. coli strain. Also, there were similarities in protein	
Summary Statement This project evaluated the effectiveness of herbal antibiotics versus known western medications, and also to find any possible similarities in protein structure between these medications for future application to defend against pathogens.	
Help Received Tung Nguyen was the researcher who granted me access to the Host Defense Lab at the University of California in Los Angeles. My parents provided transportation to UCLA and also the cultural knowledge that included that of herbal medicines and traditional remedies.	