



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Anthony R. Rajasingham	Project Number S1426
Project Title Examining the Presence of Antimicrobial Properties in Allium sativum L	
Abstract Objectives/Goals The objective of this experiment is to find out whether Allium sativum L (commercially available garlic) has noteworthy antimicrobial properties, which are effective against a wide range of pathogens, if garlic is only effective at inhibiting growth of a narrow range of pathogens, or if it has no antimicrobial properties at all. Relative efficacy of Allium sativum L will be tested by introducing antibiotics to cultures of pathogens which Allium sativum L was tested against. Antibiotics used were: Ampicillin, tetracycline, and Chloramphenicol. Methods/Materials Filter paper discs were immersed in dilutions of pure garlic. Also, discs of three antibiotics were obtained. In addition, quality cultures of 4 pathogens: Staphylococcus aureus, Group B Streptococcus, Proteus mirabilis, and Staphylococcus epidermidis were obtained. The pathogens were subcultured on blood agar and macconkey media plates and were incubated at 37C in the presence of the antibiotic, garlic, and saline control discs. The areas of inhibition were recorded. Results Allium sativum L proved to be effective in killing all 4 pathogens. Against one pathogen (Staph epi) 100% garlic produced larger zones of inhibition than any antibiotic, and against the rest of the pathogens Garlic was able to cause zones of inhibition larger than at least one antibiotic, and relatively close in size to the others. Noteworthy is Allium sativum L's performance against staph aureus. The staph aureus strain used was resistant to both ampicillin and tetracycline, but 100% garlic was able to produce zones of inhibition. Conclusions/Discussion Allium sativum L does indeed display antimicrobial properties effective against a wide spectrum of pathogens. As seen in other strains of Allium roots, the chemical allacin may be responsible for these antimicrobial properties. These data suggest that after in vivo trials Allium sativum L might have feasible clinical applications.	
Summary Statement In this experiment I looked to see if commercially garlic could inhibit growth of common pathogens, and if so, to what extent could it inhibit growth of those pathogens.	
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