



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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Project Title Allium sativum vs. Agrobacterium tumefaciens	
Abstract Objectives/Goals After completing research on the widespread Crown gall disease, we wished to help find a way to cure the disorder. Therefore, by using common knowledge that garlic is often used to alleviate human biomedical problems, we created this experiment. In this project, we tested what effect the application of Allium Sativum, commonly referred to as garlic, has on plants injected with Agrobacterium Tumefaciens. Methods/Materials To carry on the experiment, we first injected 2 white-clover plants (broad-leafed plants which are easily affected by the bacteria) with 1 c.c. of A. tumefaciens, and waited two weeks for the galls to develop. Before treating one of the plants, we made a small hole/wound in the plant root using a small needle. Next, we injected 1 c.c. of A. sativum into the wound of the variable plant (wounded plant), and waited 2 weeks. Lastly, we compared the amount of galls initially in the plant, and amount of galls alleviated or reduced in size. By analyzing this data, we were able to create a final conclusion. Results Approximately 25% of the crown galls were either completely eliminated or partially alleviated. Conclusions/Discussion After performing fifteen trials, we have analyzed that the application of A. sativum does in fact have a beneficial effect on the bacteria-infested plants, yet not to the extent we had hypothesized. A major error which could've tampered our results was the use of store-bought garlic with preservatives rather than purely strained garlic. Perhaps these preservatives could've had an effect on the plant, and therefore the use of pure garlic juice would be more accurate. Also to further carry on the experiment, we can test the application of curry powder, which similar to garlic, is known to have beneficial effects on the human body, and perhaps also on plant biology.	
Summary Statement To determine what type of effect the application of A. sativum (garlic) has on plants infected with A. tumefaciens, a bacteria which causes a disease.	
Help Received Mothers drove us to the convenient stores; Professor at Loma Linda University which supplied us with the bacteria	