



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ananta Amin; Ronak Mody</b>	<b>Project Number</b> <b>S1701</b>
<b>Project Title</b> <b>Allium cepa vs. Agrobacterium tumefaciens</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Agrobacterium tumefaciens is a bacterium which causes the disease crown gall, or a plant tumor. Allium cepa, or commonly called onion, is known to have many beneficial effects related to medicine. Therefore, in this experiment, we are going to test whether the application of Allium cepa helps alleviate/rid the plant of the tumors produced via the bacteria. <b>Methods/Materials</b> First, we will scrape Agrobacterium tumefaciens off the blood agar using a sterile inoculating loop, and mix it in a cup with distilled water. Then, inject 1 c.c. of this solution in the root of the plants and after two weeks, record the number of plant tumors. Then, inject 1 c.c. of onion paste into the root, and after two weeks, record the number of remaining tumors (galls). <b>Results</b> After observing 15 trials, we noticed the onion had a relatively alleviating effect on the crown galls. The sizes of the galls would greatly decrease or completely disappear, proving that onion was in fact beneficial in the treatment of plant tumors. <b>Conclusions/Discussion</b> This experiment was an extension of a project from last year, in which we tested the effect of Allium sativum (garlic) on the same bacteria. The main difference in the extension was the variable used. We chose onion this year because of the similar properties of allicin (active ingredient), and the experiment was a success. The purpose of both experiments is to ultimately find a substance to cure one of the largest agricultural problems today.	
<b>Summary Statement</b> This is an experiment to test what effect the application of Allium cepa, commonly referred to as onion, has on plants injected with Agrobacterium tumefaciens, which causes plant tumors.	
<b>Help Received</b> Leonard Bullas from LLU who supplied us with the bacteria, inoculating loops, and distilled water; Dr. Kishor Sanghvi who supplied us with sterile syringes.	