



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

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| <b>Name(s)</b><br><b>Anthony O. Garcia</b>   | <b>Project Number</b><br><b>S0504</b> |
| <b>Project Title</b><br><b>Photochemistry Ammonium Oxalate and Iodide</b>  |                                       |
| <b>Abstract</b>  |                                       |
| <b>Objectives/Goals</b><br>Objective:<br>Does the source of light cause different outcomes in a photochemical reaction?<br>Investigate the effect of ammonium oxalate and iodide on different sources of light while determining what light sources and colors have an effect on a photochemical reaction.<br>Hypothesis:<br>In this experiment, I think each solution will have a different reaction; the fluorescent light bulb will have the least effect and the neon will have the most effect on ammonium oxalate and iodine.  |                                       |
| <b>Methods/Materials</b><br>Procedure:<br>1.)Liquefy ammonium oxalate crystals to make 1 mole of an ammonium oxalate solution.<br>2.)In each test tube place 2 mL of the prepared ammonium oxalate solution.<br>3.)Using a medicine dropper, add 10 drops of the tincture of iodine to each of the test tubes.<br>4.)Cover the top of each test tube.<br>5.)Expose one solution to total darkness.<br>6.)Expose the rest of the test tubes to different sources of light including: incandescent, fluorescent, halogen, mercury, and neon light.<br>7.)After 12 hours, compare the solutions.            |                                       |
| <b>Results</b><br>Results:<br>The neon light, the brightest of all my independent variables, resulted in the most interesting result. With so much energy and so many photons, the neon light seemed to dissolve all the iodide from the solution. After twelve hours, the ammonium oxalate solution went from a deep orange to a clear substance overnight. The everyday light bulbs, the A-line 60 watt fluorescent, incandescent, and halogen all concluded in the same result. My last solution, mercury, produced the least, only changing the solution from an orange to a light orange overnight. |                                       |
| <b>Conclusions/Discussion</b><br>Conclusion:<br>In each one of my solutions, the dependent variable seemed to result in a reduction of iodide from the ammonium oxalate solution. In one case, the orange iodide was completely dissolved and in another, only a small reduction could be found. I have concluded that the energy level along with the amount of light   |                                       |
| <b>Summary Statement</b><br>I am investigating the effect of ammonium oxalate and iodide on different sources of light, while determining what light sources and color have an effect on a photochemical reaction.   |                                       |
| <b>Help Received</b>   |                                       |