



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Lisa A. Yanuaria</b>	<b>Project Number</b> <b>S1926</b>
<b>Project Title</b> <b>Vitamins as Antioxidants</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of this experiment is to determine which vitamin (A, C, or E) has the strongest antioxidant activity.</p> <p><b>Methods/Materials</b> Solutions of each vitamin (A, C, E) were mixed with 1.5% hydrogen peroxide solution in a 5:1 ratio and applied to 20 radish seeds in a total of 14 trials (a total of 840 radish seeds). A negative control using 20 radish seeds grown in 3% hydrogen peroxide and a positive control containing 20 seeds grown in distilled water were used.</p> <p><b>Results</b> The results indicated that vitamin A as retinyl palmitate had the strongest antioxidant activity.</p> <p><b>Conclusions/Discussion</b> My hypothesis that vitamin A as ascorbic acid would be the strongest antioxidant was not supported by my results.</p>	
<b>Summary Statement</b> My project is about which vitamin (A, C, or E) is the strongest antioxidant.	
<b>Help Received</b> Mrs. Ramirez-De La Cruz helped design the controls. Bryan Ruiz, Mr. Morgan, and Dr. Renders helped determine the products of the chemical equations involved.	