



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Taryn T. Harris</b>	<b>Project Number</b> <b>J2008</b>
<b>Project Title</b> <b>Anthocyanins vs. Anthoxanthins: Will Helix aspersa Exhibit a Preference?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this experiment was to see if Helix aspersa or Gastropoda pulmonata would exhibit any preferences for anthocyanin pigments over anthoxanthin pigments in pansies. It seemed the blue and purple pansies in my garden were being eaten more often than the yellow or white pansies. I wondered if this could be true.</p> <p><b>Methods/Materials</b> In my experiment I used premium white, yellow, blue, and purple pansies, snails, and slugs. I placed four pots of colored pansies in four corners of a box and placed a screen lid on top. I made observations for 120 hours. I verified the petal pigments by making extracts from the petals, then testing the extracts with citric acid, vinegar, distilled water, baking soda, washing soda. Universal indicator and narrow range pH paper were used to document the pHs of the test solutions of citric acid, acetic acid, water, baking soda, and washing soda. Three repetitions of the pigment experiment were performed for each of the four petal extracts.</p> <p><b>Results</b> The results of the pansy pigment petal tests revealed that the blue and purple pansies contained anthocyanin pigments, and the yellow and the white pansies contained anthoxanthins. Adult Helix aspersa were usually observed on the blue or purple pansy (anthocyanin) flowers. The younger snails seemed to spend more time on the yellow or white pansies (anthoxanthin pigments). The slugs (Gastropoda pulmonata) were observed on anthocyanin flowers, but not on anthoxanthin (yellow or white) pansies. Gastropoda pulmonata seemed to prefer anthocyanins over anthoxanthins. Adult Helix aspersa seemed to prefer anthocyanins. A few young Helix aspersa were also on the anthocyanin pigmented pansies. The smaller snails seemed to prefer the yellow or white (anthoxanthin) pansies. The Gastropoda pulmonata (slugs) seemed to eat only anthocyanin pigmented pansies.</p> <p><b>Conclusions/Discussion</b> In my second experiment, which tested only white pansies (anthoxanthins) and deep purple pansies (anthocyanins), I numbered 30 large and small snails and placed them in a box. Every 24 hours, I would rotate the box so sunlight would not be an issue. The results of this experiment were that the young and adult snails preferred purple pansies (anthocyanins). There were never more than two Helix aspersa, young or adult, on the white pansies. This second experiment verified that Helix aspersa exhibited a preference toward anthocyanin-pigmented pansies.</p>	
<b>Summary Statement</b> I noticed the blue and purple pansies (anthocyanin pigments) in my garden seemed to be eaten by Helix aspersa more frequently than the white or yellow pansies (anthoxanthin pigments); my project attempted to discover if this might be true.	
<b>Help Received</b> Thanks to my mother, who drove me to Armstrong Garden Center to purchase the pansies. Thanks to my science teacher who supervised me in the school laboratory and provided me with citric acid.	