



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

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<b>Project Title</b> Do Non-Green Plants Still Contain Chlorophyll?	
<b>Objectives/Goals</b> The objective of the project is to use chromatography to measure whether non-green plants still have chlorophyll. <b>Abstract</b> <b>Methods/Materials</b> I will be measuring or testing my hypothesis using chromatography, which is the separation of a mixture by passing it in solution through a medium. Chromatography involves acetone, which is an organic solvent that can split the aqueous impurities from the pigment in leaves. I will need filter paper, a jar, a coin, acetone, and the leaves. First, I will cut a piece of filter paper about 1 cm wide and a bit longer than my jar's height. I will then place my first leaf over the top of the strip, roll the coin across the strip, and add some acetone to the bottom of the jar. Then, I will suspend the paper in the jar so that the bottom end is sticking a few millimeters into the acetone, which will separate out the colors of the leaf. If there is any green color, then that would be the chlorophyll. <b>Results</b> The green leaves quickly and clearly showed the presence of chlorophyll. The purple cabbage leaf showed green colors after a five consecutive trials in the acetone. The process took longer than it did for the green leaves because of the purple cabbage's anthocyanins, which mask the green pigmentation very well. Most of the autumn leaves contained hardly any chlorophyll. It was pretty difficult to get the color onto the filter paper also because the leaves were pretty dry. The red leaf simply showed up a bright, fire red. The orange leaf showed up its own color. The yellow leaves were light yellow, and the brown leaf did not come out on the filter paper at all because it was much too dry and dead. <b>Conclusions/Discussion</b> I accept my hypothesis because my experimentation's gave me evidence that non-green plants still do contain chlorophyll. These non-green plants' green pigmentations are just masked by the other pigments. If I were to do my project differently, I would definitely add some plants that have blue leaves, like the Colorado blue spruce, or plants that have natural red leaves, such as the Japanese red maple. I would just like to have more leaves to work with. Also, research says that autumn leaves do still contain chlorophyll, but after time the chlorophyll leaves fade. I must have waited too long to do the trials for the autumn leaves, so another thing that I would do differently next time is test the autumn leaves earlier in the fall season.	
<b>Summary Statement</b> The process of chromatography may be used to measure chlorophyll levels in green plants as well as non-green plants.	
<b>Help Received</b>	