



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Bryce K. Woods	Project Number J1635
Project Title Oak Leaf Chromatography	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Can the geographic location of local live oak trees be found by the varying degree of travel of chlorophyll in paper chromatography strips, from sample trees from those areas. I hypothesized that I would be able to distinguish between chlorophyll values, from trees grown at different locations.</p> <p>Methods/Materials Oak leaves from the native live oak tree <i>Quercus agrifolia</i> were collected from 5 different locations in rural Mendocino County. Chlorophyll was extracted using a rub out method for 30 seconds onto chromatography paper. The strip was attached to a sample bottle with the tip of the strip placed in acetone. The strips were left for 30 minutes at room temperature. The travel of the chlorophyll up the strip was measured and the "RF" (retention factor) value calculated by dividing the travel of the chlorophyll by the total travel of the solvent (the acetone). The average value for each location were calculated each location was compared to the other locations. Materials used were: oak leaves, plastic baggies, paper clips, five sampling bottles, chromatography paper, 50 mL graduated cylinder, various labels.</p> <p>Results I was only able to detect chlorophyll "a" in my tests. All of the locations had RF factors that were very close to each other. Most had a RF value between 0.90 and 0.92.</p> <p>Conclusions/Discussion The chlorophyll values were too close to draw any conclusions regarding geographical area. The range was only .02 RF. I did not prove my hypothesis. Chlorophyll is very close in live oak trees. I am continuing this project at different times of the year when it is possible that more and different types of chlorophyll will be present when doing chromatography. Any information that scientific studies gather pertaining to oak trees can be valuable to science, our native oaks have been having trouble with different fungus and bacterial diseases, "Sudden Oak Death".</p>	
Summary Statement Paper chromatography was done on Live Oak leaves from various parts of Mendocino County to test for varying amounts of chlorophyll.	
Help Received My dad drove me around to collect leaves and he also taught me the computer program excel.	