



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title Stay Away from My Territory! The Effect of Eucalyptus leucoxylon 'Rosea' on the Growth of Radishes	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Eucalyptus is a prolific litter producer, prone to dropping leaves and barks, and Eucalyptus trees rarely have an understory. If allelochemicals are released from Eucalyptus litter, their accumulation in the soil could result in poor vegetation by other flora even after the trees have been removed for restoration projects. Since Eucalyptus spp. shed bark, leaves, and pods it is hypothesized that all of these plant parts will inhibit plant germination and growth.</p> <p>Methods/Materials Both pulverized powder and water extracts of Eucalyptus leucoxylon were used to investigate their effects on germination and seedling growth of Raphanus sativus. Samples of leaves, bark, pods, and soil from under the canopy were gathered from local Eucalyptus trees. Dried plant samples were extracted by soaking (24 hours) at R.T., boiling (5 min) or pulverized into fine powder. Pots were filled with potting soil (52.52g) and one radish seed. For the first experiment, we compared leaves and bark prepared three different ways with five pots per experimental group. The experiment was repeated with the second batch of components: soil, pods, and a mixture of all four components. Everyday the plants were kept in an incubator, exposed to light for 8 hours, and watered with 10ml of extracted sample or pulverized powder.</p> <p>Results All plant extracts and soil delayed germination and had an inhibiting effect on radish plant height. The greatest effect was seen with bark: followed by the mixture, soil, pods, and leaves with decreasing effect. The trials on average showed that crushed bark and soil were the most effective inhibitors relative to the control. This outcome is reasonable knowing the trait of Eucalyptus to excessively shed bark. It is reasonable to conclude from the data that Eucalyptus extracts in their natural form (pulverized) were most effective and that the effective agent(s) is water soluble.</p> <p>Conclusions/Discussion The current restoration projects, intended to replace the habitats having prolific growth of Eucalyptus plant species, should be reconsidered before taking any preliminary actions. Due to its ability to suppress outside vegetation it should be considered that the possible effects of existing allelochemicals in the soil may interfere with the establishment of other flora. However, testing other varying species of plants will provide a broader assessment of Eucalyptus inhibitory effect on seedling germination and growth.</p>	
Summary Statement The project studies the ability of Eucalyptus plants' secretion of chemicals to protect their growth territory.	
Help Received Used lab equipment at Silver Creek High School under the supervision of Mr. Cervantes.	