



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

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<b>Project Title</b> <b>Oasis</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of this apparatus was to create a portable, cheap water filtration system that could be used in survival situations, in countries where access to filtered water is limited, during times of natural disaster, or even just on weekend camping trips.</p> <p><b>Methods/Materials</b> The apparatus filters water through the use of a semi-permeable substance, which removes any large debris from the water sample. Following filtration, the bacteria are electrocuted by way of electric current from a 12 volt battery passing through copper plating. Nine tests were run using standing water to determine which materials, such as shirts, coffee filters, printer paper, etc., would make adequate filters while still allowing a considerable amount of water to run through the system based on the clarity of the water collected and the rate at which it passed through the filter. The apparatus itself was tested on two criteria: the clarity of the water and the results of several microbiological cultures.</p> <p><b>Results</b> Over a fairly wide range of exposure times and ambient temperatures, exposure to cigarette smoke had no significant influence on the growth of wheatgrass. Studies on additional species of plants are warranted.</p> <p><b>Conclusions/Discussion</b> Under all three experimental conditions, there was no significant difference in growth between plants exposed to smoke or not and between plants exposed to smoke in the day or at night. All p-values, as computed by a Mann-Whitney test, were less than 0.05.</p>	
<b>Summary Statement</b> Increase in length of single-stalk wheatgrass plants were measured under identical conditions expect that one group was exposed to cigarette smoke during the day, one group during the night, and one group had no exposure. There were 18 plants per group. The experiment was repeated using different lengths of	
<b>Help Received</b> Grandfather provided microscope and expert advise.	