



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Aleena R. Ali</b>	<b>Project Number</b> <b>S1001</b>
<b>Project Title</b> <b>Reduction of Nitrate in Ground and Drinking Water by Photocatalysis</b>	
<div><div><b>Objectives/Goals</b> The goal of this project was to effectively measure the concentrations of nitrate found in ground and drinking water and to use a commercially available titanium dioxide photocatalyst called P25 to reduce the concentration of nitrate.</div><div><b>Methods/Materials</b> 1)Agilent HP 1100 Series HPLC DAD System Diode Array Detector with Dell Desktop Computer 2)Agilent ZORBAX StableBond C18 HPLC Column 3)UV Lamp 4)Sodium Nitrate (NaNO<sub>3</sub>) 5)Octylamine 6)Titanium Dioxide Photocatalysts (P25) 7)A variety of Water Samples</div><div><b>Results</b> P25 paired with a UV light source can effectively reduce the concentrations on nitrate found in water.</div></div>	
<b>Summary Statement</b> Using titanium dioxide photocatalysts and a UV lamp light source, the concentrations of nitrate found in water can be reduced.	
<b>Help Received</b> Used lab equipment at Thousand Oaks High School under supervision of Dr. Malhotra; received materials from CLU's Dr. Quinlan; received tremendous amounts of information and knowledge from Dr. Cauchon	