



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Hermak Banda	Project Number J1104
Project Title Which Tree Is More Capable of Sequestering Carbon from the Environment?	
Abstract Objectives/Goals The purpose of this project is to compare the ability different types of trees have to sequester carbon from the environment and leave it in the soil by measuring inorganic carbon (carbonates: CaCO_3) present in the soil around it as an indirect indicator of CO_2 . Methods/Materials Three type of trees were selected: Date Palm tree, Mesquite tree and Eucalyptus, common in Southern California. Three samples were taken from the soil around them, digging 30 cm away from the tree and 30 cm depth. Other three samples were taken from an area with no trees or plants around (blank sample) to compare results. I measured the amount of inorganic carbon (CaCO_3) present in the soil by the method of acidification. For the acid, I used hydrochloric acid (HCl) or muriatic acid and performed titration analysis with NaOH or Easy off. Results My analysis shows that Date Palm tree is more effective in sequestering carbon from the environment. Date palm tree required 115 droplets of NaOH to neutralize, which means that 28.75 % of CaCO_3 is in every gram of soil of this type of tree, followed by Eucalyptus tree and Mesquite with 16 % and 15.15 % each one. Blank sample showed the lowest content, 12.75 %. Conclusions/Discussion Date palm tree is more capable to sequester carbon from the environment, although the difference between trees is small. Compared to a blank sample, there is a significant difference. It means that having a tree around, would help for sure to clean the environment that surround us. I would like to explore other methods to measure carbon in soil as well as ways to improve their ability to maintain carbon in the soil.	
Summary Statement Date palm tree is more effective sequestering carbon from the environment than mesquite and eucalyptus trees.	
Help Received I did all procedures and analysis. PhD Monica Carrillo explained to me titration method and formulas to calculations.	