2nd Annual Cal Poly Pomona Student Research Conference
March 7, 2014
University Library, Oral Presentations from 1 to 4 pm
Bronco Student Center (Ursa Minor), Poster Session and Reception from 4 to 6 pm

Lead Author: Blanca Calderon

Degree objective when research was completed: Bachelor's

Major: Civil Engineering

College: ENG

Co-presenter(s): Not applicable

Faculty Mentor(s): Dr. Monica Palomo

Session 5: University Library - 15 - 2907

Time of Presentation: 3:00 PM

Presentation Type: Oral presentation

Project Title: Sustainable Gardening Initiatives in Previously Used Urban Soils

Synopsis: The purpose of this project was to study the mobility of lead in soils subject to gardening activities.

Abstract: The objective of the project was to test the soil quality of a community garden in the Southern California urban area. Test plots were established in urban mildly contaminated soils. The plants used for testing (carrots, beets, lettuce and radish) all had different uptake and growing characteristics. They were grown for four cycles with and without site-specific suitable best management practices (BMPs). Compost, lime, and compost +lime were used as treatments to reduce the mobility of lead (Pb) in soil. Soil testing was conducted before and after, gardening and harvesting activities. Produce grown under different treatments was tested for soils lead uptake. Moreover, to assess lead bio-accessibility due to human ingestion of lead-containing soil, soil lead bio-accessibility was measured using physiologically based extraction test (in vitro method). Results showed that the manure treatment did not have a significant effect in the plant uptake of lead. The lead concentrations in the root crops were above 1.5mg/kg. However, the uptake of leafy crops (grown above ground surface) was below 1.5mg/kg. Bio-accessible lead concentrations ranged from about 11.9% (in the control soil and lime treated plots) to 12.8% (in both lime and compost added plots) indicating that bio-accessibility of lead in these soils was lower than 30% bio-accessibility as required by EPA.