SP25.15: Metals in Avocado Supply Chains

Overview

This interdisciplinary research position supports Dr. Anastario's bioethnographic investigation into biosocial avocado supply chains, with a focus on environmental health, food safety, and metal contamination in avocados. Key objectives include identifying sources and pathways of contaminants, specifically heavy metals, in avocado production regions, and exploring how bioethnographic frameworks contribute to understanding human-environment interactions in agricultural contexts. This project is ideal for students interested in toxicology, environmental toxicology, environmental chemistry, or related fields, as it integrates chemical analysis methods to assess contamination and environmental health impacts in agricultural settings.

What the student will DO and LEARN

The student will:

• Conduct a Comprehensive Literature Review: Examine scientific literature on heavy metals in avocado production, comparing contamination risks between organic and conventional farming practices and reporting on methods for chemical analysis, such as Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and X-ray Fluorescence (XRF).

• Sample Preparation for ICP-MS Analysis: Learn and assist in preparing avocado exocarp and mesocarp (flesh and skin) samples for metal analysis. This involves tasks such as drying, grinding and freezing samples in the lab to prepare for ICP-MS.

Additional benefits

• Possibility of authorship in peer-reviewed publications based on contributions.

• Opportunity for hands-on training in ICP-MS sample preparation and potential additional training in chemical analysis, pending funding.

• Experience in interdisciplinary research that bridges environmental science, food safety, and public health.

Additional qualifications

Ideal candidates will have interests in both chemistry and social sciences, especially with an interdisciplinary approach to environmental health.

Time commitment

6 hrs/week for 15 weeks