

# **The Potential For Safeners To Reduce The Symptoms Of Heavy Metal Toxicity In *Zea mays***

Funmi Afelumo and Lee Newman

Herbicide safeners are a group of chemical compounds used in Agriculture to increase the production of the enzyme Glutathione S-Transfereases (GST). GST is a detoxification enzyme that grants some crops tolerance to otherwise phytotoxic herbicide applications. Thus, increasing GST production could potentially provide crops, such as *Zea mays*, with increased metal tolerance, and increased metal sequestration in plant tissue. *Zea mays* seedlings will be exposed in hydroponics to varying concentrations of Zinc and Nickel in combination with varying concentrations of the herbicide safeners Napthalic anhydride, Flurazole and Dichlormid. Enzyme expression would be quantified using the Bradford method, and a GST assay would be used to determine the GST expression levels in the plants. GST expression levels will be correlated with safener treatments, and plant's metal uptake. *Zea mays* tolerance will be determined by monitoring its growth, mass, water transpiration, and visual symptoms of toxicity. Zinc and Nickel concentrations would be determined using Inductively Coupled Plasma –Atomic Emissions Spectrometer (ICP-AES).

Funmi Afelumo and Lee Newman, State University of New York, College of Environmental Science and Forestry, 1 Forestry Drive, Syracuse, New York, 13210, Tel: 344-470-4937, oaafelum@syr.edu

Presenting Author: Funmi Afelumo