**Centennial Honors College**
**Thomas E. Helm Undergraduate Research Day 2024**

## ABSTRACT

Major: Biology

Poster

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**Study of the heavy metal detoxification effects of yellow onions**

**Adam Miller**

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Heavy metal poisoning occurs when we are exposed to a large amount of heavy metals including eating food that contains heavy metals such as fish, drinking water from older water supply systems, taking medications or supplements with high amounts of metallic elements, etc. Heavy metals attach to our cells and prevent them from performing their functions, which causes symptoms that could be life threatening without treatment. Cadmium, mercury, lead, and arsenic are toxic heavy metals that are most frequently involved in environmental and health hazards. The most common method for the removal of heavy metals from the body is administration of chemical chelators. Research shows plants' tolerance and accumulation of heavy metals are known to be related to sulfur assimilation. Onions contain organic sulfur compounds that have powerful detoxifying properties on heavy metals.

The objective of our research is to study the chemical mechanisms and effects of the fresh yellow onion on the heavy metal detoxification and to compare its efficacy with the onion powder.

The active ingredients of yellow onions are extracted and prepared in solutions in certain concentrations. The heavy metals to be studied are lead acetate, cadmium chloride and mercury nitrate. The concentrations of these solutions will be checked and compared before and after adding the yellow onion solution, so that the amount of heavy metals removed can be calculated. Meanwhile, we are going to compare the results with the commercial onion powder.