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Analysis of *Crassostrea Virginica* Protein Metal Complexes after Exposure to Toxic Environmental Pollutant Cadmium

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Abstract

Cadmium is a metal found in the parts per million of the earth's crust, and it has been shown to have toxic effects on various plants, animals and humans. Exposure to cadmium occurs mainly through use of tobacco-based products or industrial pollution. Once ingested, it is observed to take 20 to 30 years for cadmium concentration to reduce in half, which means it is difficult to clear from the body. A protein that is involved in the detoxification of harmful metals in cells is metallothionein. Having a strong binding affinity to divalent metals, metallothioneins allow cells to shuttle cadmium and other toxic metals away from important biological processes. Our current research aims to determine the effects of cadmium on the proteins within *Crassostrea Virginica* (oysters) living in the Chesapeake Bay area and how fast these changes occur. After homogenizing oyster samples and testing the amount of total protein, the protein structural differences will be analyzed using circular dichroism spectroscopy and Western blot techniques with metallothionein and other proteins as well. The quantification of cadmium uptake in oysters and final destinations of cadmium within protein complexes of samples will also be examined. Knowing the impacts of this heavy metal on oysters is directly useful for increasing insights into the toxic effects from industrialization on our ecosystem, as well as elucidating the functional aspects of macromolecular complexes containing cadmium.

This is the full abstract presented at the Experimental Biology meeting and is only available in HTML format. There are no additional versions or additional content available for this abstract.