CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)

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Project Number

38107

Project Title

The Road to the Cure for Alzheimer's

Abstract

Objectives/Goals

The objective of this project is to test the effect of heavy metals such as lead and copper on the neuronal cells. This project will also use 3 natural remedies and 1 medicine to test their effects on protecting the neuronal cells.

Methods/Materials

This study aimed to look at natural substances and their influencing Alzheimer#s disease risk. Protective action of several natural compounds (Turmeric, Walnut, Olive leaf) and the metal chelator EDTA was studied in the culture neuroblastoma N2A cells after the addition of salt of heavy metals#lead and copper#to the culture medium. Cells were incubated with heavy metals and natural products for 24 h, and cell viability and cell death were evaluated by MTS assay

Results

Cells with lead increased cell viability when treated with walnut at all three concentration levels. On the other hand, cells mixed with copper, only resulted in viability in the 5% and 1% concentrations. Cells mixed with lead and copper and treated with olive leaves were viable in the 5% and 1% concentrated solutions. The turmeric treatment was only successful at the lowest concentration, .5%, in both cells mixed with lead and copper.

Conclusions/Discussion

In conclusion, the data obtained in this study demonstrated that it is possible to use natural products such as turmeric, olive leaves, and walnut to enhance the protection of cultured neuronal cells from damage caused by heavy metal toxicity. This may be indicative of their protective potential in vivo, in particular, for nervous tissues. The results of the experiment were encouraging and can lead to further implications and studies with the goal of attaining practical significance to effective therapies.

Summary Statement

this project tests the effect of heavy metals such as lead and copper on the neuronal cells. This project uses 3 natural remedies and 1 medicine to test their effects on protecting the neuronal cells.

Help Received

Dr. Kurabi showed me how to use the micro-plate reader