Name(s)
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Project Number
38766

Project Title
The Efficacy of Curcumin on Chelating Alzheimer's-Associated Free Zinc Ions

Abstract

Objectives/Goals
The purpose of the experiment was to test at what molar ratios curcumin, a turmeric derivative, would best remove the heavy metal ion Zn^(2+) from an ethanol solution.

Methods/Materials
Extracted curcumin in solution by filtering a turmeric-ethanol tincture. Created zinc-curcumin complex (precipitate) by adding zinc acetate dihydrate and heating. Massed filters both before and after filtering out precipitate.

Results
Mass and mole data was used to calculate both amount and percent of zinc ions chelated. Percent chelation increased as the zinc ion to curcumin ratio increased. Little variation was seen among trial values from the same ratio set. High percentage results indicate curcumin chelated zinc ions as planned.

Conclusions/Discussion
Lack of data displaying a limiting reagent's presence suggests a necessary assumption used for experimental calculations was wrong. However, high zinc ion chelation percentages still confirmed curcumin's ability to remove heavy metal ions from the solution.

Summary Statement
Curcumin's ability to remove free zinc ions associated with Alzheimer's disease was evaluated using percent Zn^(2+) ion chelation values across various zinc ion to curcumin ratios.

Help Received
None. I designed and performed the experiment myself after researching how to extract curcumin from turmeric.