CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
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Project Number
J1724

Project Title
A Secret Cure: Evaluation of a Novel Method Applying Curcuma longa's Antioxidant Properties to Cure Hypothyroidism

Abstract

Objectives/Goals
The thyroid hormones are key to our body because they maintain our metabolic rate. They are created at the thyroid gland with the aid of the integral component iodide ions. Once inside the thyroid gland, these ions combine with the amino acid, tyrosine, and form the T3 and T4 thyroid hormones. This cycle continues until we eat or drink a substance contaminated with Perchlorate, an ion which competes with iodide ions. The objective of this project was to see whether Curcuma Longa an antioxidant will be able to deactivate the Perchlorate so that it does not interact with the iodide ions

Methods/Materials
To perform this experiment, I needed the following materials: Iodide solution, Curcuma Longa, Potassium Perchlorate, the UV/Vis spectrophotometer, starch solution, test tubes, Deionized water, and methanol. I needed to perform the following procedure: Put 3mL of starch solution and 2 drops of iodide solution in 9 test tubes and take the UV/Vis spectrophotometer wavelength. Prepare the 5 different concentrations (10%, 30%, 50%, 80%, and 100%) of potassium perchlorate and add it to the starch-iodine complex. Take the UV/Vis absorbance and record it. Take different concentrations of Curcuma Longa and Make the concentrations (0.01-07%) of Curcuma Longa and measure the absorbance to create a calibration curve. Dissolve 100 mg of Curcuma Longa in 100 mL of DI and filter it. Use the filtrate as the 100% Curcuma Longa solution. Add 2mL of the 10%, 50%, and 100% Perchlorate solutions to 3 test tubes. Then add the Curcuma Longa solution to each test tube. Take the UV/Vis absorbance and record it Calculate the percentage of Curcuma Longa left in the test tubes using the Calibration curve created before.

Results
As the concentration of the Perchlorate increased, more iodide ions were competed with. The higher concentrations of the Perchlorate consumed more Curcuma Longa. However, the Curcuma Longa still succeeded in deactivating the Perchlorate; I knew this because the solutions were still giving an absorbance in the UV/Vis Spectrophotometer which Curcuma longa gives not Perchlorate.

Conclusions/Discussion
This experiment proves that Curcuma Longa is an antioxidant and can be used as a natural cure for not only Hypothyroidism but for various malicious diseases such as heart disease, lung disease, ulceritive colitis, Alzheimer's disease, etc.; Curcuma Longa can also be used as a sanitizer for cuts, bruises, and splinters.

Summary Statement
This experiment explored a novel method of utilizing Curcuma Longa's antioxidant properties to cure malicious diseases such as Hypothyroidism; it provides a natural way to alleviate health issues as an antioxidant.

Help Received
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