CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J0618

Project Title
Arsenic Adversity

Abstract

Objectives/Goals
This project was based on measuring the concentration of arsenic in the local waters of Pasadena. The samples were from Eaton Canyon, which was obtained from a waterfall, South Pasadena Middle School, from a drinking fountain,South Pasadena tap water,from a local homes tap, Garfield Park and South Pasadena Public Library, both from a drinking fountain. The objective of this experiment was also to see whether or not the amounts were within safe limits according to the Environmental Protection Agency's allowed amount of 10 parts per billion.

Methods/Materials
Every trial was tested on reduction, which converted arsenic V into arsenic III, color development which involved three chemicals. In both procedures, the water samples were put in an 80 degree centigrade water bath and was left for cooling in front a high velocity fan. Oxidation and Phosphate testings were performed. The data was obtained from an "arsenic monitor program" connected to a Spectra Sensors photometer. The materials included; five water samples, pipetteman,80 degree centigrade waterbath, 250 ml wash bottles, arsenic monitor program, Pottasium Iodate, Sulphuric acid, Reagent A, 1000 ml. empty beaker for aqueous waste, 150 ml. beaker for solid waste, 250 ml. wash bottles to avoid contamination, Spectra Sensors photometer, timer, and cotton tip applicators.

Results
Every water sample tested was within safe limits. South Pasadena Middle School had -6.3483 ppb, South Pasadena tap water had -4.589 ppb, Garfield Park had -4.69144 ppb, Eaton Canyon had -2.0327 and South Pasadena Public Library with -4.2910. The negative results was because the procedure sensitivity was 2ppb and above, and all my results turned out to be less than 2 ppb. The real amounts was tested by an independant lab which used a different method which involved sophisticated equipment.

Conclusions/Discussion
My hypothesis was that the concentration of arsenic will be a bit more in the residential areas and there will be a lower arsenic concentration in places less industrialized. While taking a look at the average concentration of arsenic, South Pasadena Middle School had the least concentration, followed by Garfield Park, South Pasadena tap water, South Pasadena Library and Eaton Canyon. It is very important to monitor the concentration of arsenic in our local waters to see if it is safe. Arsenic is very toxic and can cause many carcinogenic diseases.

Summary Statement
This project is about testing the concentration of arsenic in Pasadena.

Help Received
Worked in lab of Oak Crest Institute of Science, Dr. Gregory Poskrebyshev explained the procedure and equipment.