CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
S0812

Project Title
The Effect of Hyperaccumulators on Zinc-Contaminated Soil

Abstract

Methods/Materials
I tested to see if growing Zinc absorbent plants is effective at reducing the large quantities of Zinc in the soil. My two treatment plants were Thlaspi and spinach and I hypothesized that Thlaspi would be more effective at cleaning up zinc-contaminated soils because even though it has a lower plant growth, its zinc absorbency is higher than spinach. I had three treatments: control, soil with 600-ppm zinc, and soil that contained 1800-ppm zinc. For each treatment, I planted one set of Thlaspi seeds and one set of spinach seeds. After the plants had grown I measured the amount of zinc in each plant.

Results
My data showed that the Thlaspi did a better job than spinach at absorbing the zinc from the soils. The Thlaspi also ended up storing more zinc even though the spinach had a larger growth rate.

Conclusions/Discussion
I concluded that Thlaspi would be more effective at removing zinc from soil than spinach. However, in the long run, using plants to clean soil will not be very effective because although the Thlaspi did a good job at removing zinc from the soil, it was still not a significant amount.

Summary Statement
My project is about cleaning zinc-contaminated soil and comparing plants to see which accomplishes this the best.

Help Received
Leon Kochian donated Thlaspi seeds; Father took dry weights of zinc; Mother helped put together board; Nat Dellavalle analyzed zinc in Dellavalle Lab