



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Radhika S. Gosavi	Project Number J1617
Project Title Phytoremediation of Zinc	
Abstract Objectives/Goals The objective of my study was to see if mustard plants could be used for phytoremediation of Zinc. Methods/Materials To study whether zinc can be phytoremediated, mustard plants were grown in nutrient solutions spiked with 2 ppm and 3 ppm zinc. Nutrient spiked with 0.05 ppm zinc was used as the control. The plants were grown hydroponically in these solutions for 3 weeks. At the end of the experiment, the plants were tested for zinc accumulation using AAS (Atomic Absorption Spectrophotometer). The relative growth, zinc accumulated in the plant tissue and the bioconcentration factor values for zinc were then calculated to study whether the mustard plants could tolerate and remove the zinc from the nutrient solutions. Results The mustard plants did not show signs of toxicity till day 14. The results obtained are summarized below: · The relative growth of the control and the test 2 (3 ppm) is almost same but the relative growth in test 1 (2 ppm) is much more than the control or test 2 (3 ppm). · The test plants show more accumulation of zinc than the control and the amount of zinc accumulated in the plants is maximum at 2 ppm concentration. It decreases as the concentration is increased to 3 ppm. · The BCF value decreases as the concentration of Zinc in the nutrient solution increases. Conclusions/Discussion From these experiments, it was found that, since the amount of Zinc accumulated in the plant growing in the experimental nutrient went up, it indicated that the mustard plants were removing the Zinc from the test nutrient solution by phytoremediation. It was found that the mustard plants could tolerate and remove up to 3 ppm zinc from the environment and so were moderate accumulators of zinc.	
Summary Statement The mustard plants can moderately accumulate Zinc and they could best be used for phytoremediation when the zinc concentration is around 2 ppm.	
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