California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Kamie Palmer

Science Fair Use Only

J1320

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

Picky Eaters: Does the Selenium in Plants Used for Phytoremediation Discourage Feeding by Insects?

Division

X **Junior (6-8)** _ **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)

8 - Environmental Engineering

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Objective: The Objective is to determine if the selenium in plants used for phytoremediation discourages feeding by insects. I believe that the selenium will discourage feeding on the Indian mustard plant but not for the Stanleya pinnata plant.

Materials and Methods: Plants (Stanleya pinnata and Indian mustard) were grown by the Recycled Sand Culture method in a green house. The treatment plants were grown at a selenium level of 0.4 ppm and the control at zero. Leaf discs with a fifteen millimeter Diameter both control and treatment were placed into each petri dish on top of a moist filter paper. Two Spodoptera exigua (Beet army worm) at the 4th instar stage were placed into each dish. At a half an hour intervals each dish was observed and data was recorded. Then the plant material was analyzed with the result for both plant species treatment of about 100 parts per million of selenium and control at zero.

Results: The feeding preference for Spodoptera exigua on the Stanleya pinnata was that they had no preference, either plant (Treatment or Control) was liked. The feeding preference for the Spodoptera exigua on the Indian mustard was that they liked the leaf with out selenium in it (Control).

Conclusions: Selenium in Stanleya pinnata used for phytoremediation does not discourage feeding by insects and will affect the food chain. Selenium in Indian mustard used for phytoremediation will discourage feeding by insects and not affect the food chain.

Summary Statement (In one sentence, state what your project is about.)

To see if the selenium in plants used for phytoremediation discourage feeding by insects.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

Mother helped put together board; Was mentored by Dr. David R. Parker at the University of California Riverside