CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)

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Project Number

22809

Project Title

Planarian as an Indicator Organism: Will Nitrate in Hinkley Well Water Compromise Our Future?

Abstract

Objectives/Goals

This project investigates the planarian#s behavior in different levels of nitrate and examines current level€ of nitrate contamination in area wells. Potential problems for humans are discussed.

Methods/Materials

I used black, brown, and dugesia planarian. Experimentation with nitrate levels was first conducted from| # 60 ppm to find an experimentation range. Planarian adjustment to contaminant and spontaneop regeneration were examined. Comparisons were made based on activity in control water. Water samples in the area were tested to check for nitrate involvement in the water table. Two nitrate comparator test| were used for nitrate testing in the water.

Results

Nitrate levels below 10 ppm are tolerable for planarian; however, spontaneous regenerations (appearing a| fragmentation into tiny, living particles) did occur. At present, local water well tests indicate that nitra€ contamination ranges from 0 # 27 ppm.

Conclusions/Discussion

The California State safe drinking water standard for human consumption is 10 ppm. Some water samples drawn from wells in the local area exceed safe levels. Health concerns abound regarding agricultural industries (dairy and alfalfa ranching) located on or near the Mojave River (dry). This planarian study leaves many questions regarding our own ability to withstand current and future nitrate contamination.

Summary Statement

Using planaria as an indicator organism, tests were conducted using water from area wells contaminated with different levels of nitrate to observe planarian adjustment to nitrate.

Help Received

Teacher advised on project