CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

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Project Number

33281

Project Title

Oil's Effect on Aquatic Plants

Abstract

Objectives/Goals

The purpose of this project was to observe how motor oil effected aquatic plant life. It was originally hypothesized that the higher viscosity, as well as a 25 milliliter amount of oil would result in the subjects decomposition. Subsequent trials were conducted in an attempt to determine what ratio of water to oil would result in a plants death.

Methods/Materials

Four experiments were conducted using varying viscosities of oil, which were added to tap water in sample containers with a 10 centimeter section of Egeria Densa. Every twelve hours the samples were compared to the color charts, evaluated using the plant health rubric, and photographed. At this time the ambient room temperature was also documented. The first trial utilized 25 subjects in five groups with one control for 96 hours. The second and third trials involved 14 subjects with one control over 108 hours. The fourth used 13 subjects over 360 hours with ratios of water to oil. The fifth is still occurring using three different plant species and a 1-1 ratio of water to oil.

Results

Through-out these experimental trials the manipulated variable was the amount of and viscosity of oil, while the responding variable was the plants health. The responding variable was documented via color chart and plant health rubric. The results of the experiments were some changes in plant health with higher oil viscosity and greater concentration of oil, but no complete plant decomposition thus rejecting the hypothesis. However, it appears that the different types of plants are reacting differently to the oil.

Conclusions/Discussion

The results of these experiments would be useful for the petroleum industry and environmental impact studies. Discussions regarding results differing with the use of salt water as opposed to fresh water, or crude oil as opposed to synthetic, processed oil provide questions for further experimentation. Perhaps the largest discussion questions have involved why the public has the general idea that even small amounts of oil will result in the destruction of all life.

Summary Statement

My project is about motor oils effect on the health of aquatic plants.

Help Received

Parents helped taping, gluing, and drilling holes in project board and funded my research.