CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)

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Project Number

31419

Project Title

The Oil Spill: The Effect of Mineral Oil on the Photosynthesis of Scenedesmus Algae

Abstract

Objectives/Goals

Last year, the Bp oil rig in the Gulf of Mexico exploded, devastating wildlife. The purpose of our experiment was to determine how mineral oil affected the photosynthesis of Scenedesmus algae. We hypothesized that if more mineral oil was added to the algae, then less photosynthesis would occur.

Methods/Materials

We first took the algae and made them into algal balls with different concentrations of oil in them (0%, 1%, and 2%). Then we made a hydrocarbonate indicator that turned a darker color when the level of carbon dioxide decreased. This showed us that photosynthesis was occurring.

We put 10 algal balls into each of the 12 vials filled with indicator. At various time points, we took readings of the color of the indicator in a spectrometer and recorded our data.

Results

At the end of 23.5 hours, the algal balls with 1% oil had turned the indicator 14% lighter than the 0% oil algal balls. The algal balls with 2% oil had turned the indicator 27% lighter than the 0% oil algal balls.

Conclusions/Discussion

Our final results supported our hypothesis. The algal balls containing oil performed less photosynthesis than the algal balls without oil, a. However, photosynthesis still occured in all of the samples.

Our next steps are to test this experiment with different kinds of oil and algae, leading us to further understand the effects of oil spills.

Summary Statement

Our project, inspired by the Gulf oil spill, is on the effect of mineral oil on the photosynthesis of Scenedesmus algae.

Help Received

Dr. Germeraad provided and assisted us with materials, answered our questioons, and edited final drafts.
Mr. Robert Kucer lent us the spectrometer.