



2016 NOBCChE National Science Fair Abstract

Category: **Biological Science**

Title: **Building a Photobioreactor to Culture Algae**

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In this experiment, we designed an inexpensive photobioreactor that allowed maximum growth to cultured algae by connecting a reactor that consisted of Brewer's yeast, sugar, and water to a bottle that just had water and algae, obtained from a local stream, in it. The Brewer's yeast and sugar produced additional carbon dioxide that allowed the algae to grow, similarly to a manufactured photobioreactor. We compared the growth in this bottle to the growth of algae in our control, a bottle that received the same amount of water and algae, but only received atmospheric carbon dioxide, or the amount of carbon dioxide algae would normally receive through air. This control did not receive any additional carbon dioxide like our experimental group. We proposed that the algae that was in the bottle connected to the reactor would have the most growth due to the great amount of carbon dioxide that would be produced from the Brewer's yeast and sugar.

The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Science Fair is a poster competition in which students present an independent completed research project. Each contestant in the Science Fair must demonstrate their ability to conduct a research project by:

- Submitting an abstract of 150 words or less on an individual research project in one of the following **four categories: physical science, math & engineering, consumer science, or biological science.**
- Presenting the results of the research in a poster format, including answering questions from judges; and submitting a written report during the poster presentation.
- For more information, visit www.nobccheSTEMwkd.com.