2017

Going Green: Experimental Adaptation of Scenedesmus Dimorphus to Marine Conditions

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Recommended Citation
Khalil, Mohammed, "Going Green: Experimental Adaptation of Scenedesmus Dimorphus to Marine Conditions" (2017). Undergraduate Research Posters 2017. 44.
https://engagedscholarship.csuohio.edu/u_poster_2017/44
**Going Green: Experimental Adaptation of Scenedesmus Dimorphus to Marine Conditions**

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**Abstract**

Algae has gained some interest as the need for alternative fuels becomes more pressing. Reliance on fossil fuels is causing our environment and economy harm, and is not sustainable moving forward. Lipid rich algae strains can be used in the production of biofuels, and provide an alternative fuel source. One challenge facing the prospect of algae as a fuel source is that lipid rich algae grows exclusively in freshwater. Considering the scarcity and cost to use freshwater for algae growth, interest has grown in the possibility of adapting lipid rich, freshwater algae to a seawater environment. Seawater can have up to 35 grams of NaCl salt per liter more than freshwater. The Scenedesmus Dimorphus algae was chosen as the interest of this research due to its high lipid content. Also, it is very robust and well researched. Algae is grown in a controlled environment with varying salinity levels in either a bioreactor unit or 2-liter glass bottles. The objective of this research is to gradually adapt the S. dimorphus to increasing salt levels and reach a total specific gravity level of 1.010, which is about 16 grams NaCl per liter, compared to 1.025 TSG level that of seawater.