Investigating the Use of Structural Supports to Optimize the Production of Algae

McGuire, Kiara (School: Ogallala High School)

The use of biofuels such as cellulosic ethanol has the potential to decrease the amount of carbon emissions. Algae is a potential source of biomass to produce such cellulosic ethanol, but the area needed to grow sufficient amounts of algae is an ongoing struggle. This project investigates the use of structural supports to optimize the production of algae for biofuel stores. To do this, nannochloropsis algae was grown in 5-gallon tanks with the use of fluorescent light and a heater to generate the ideal conditions for algae growth. Pond light conditions were simulated by the use of opaque containers in which different plastic structural supports were placed. There was a control container with no support, one with a solid, hard polyvinyl chloride(PVC) plastic, and one with a soft, flexible polyvinyl chloride(PVC) plastic. Algae growth was present on the soft supports after three days, and on the solid support after 4 days. After 3 weeks, the supports were removed, dried, and weighed to determine the amount of algae growth. The structure with soft plastic yielded more algae growth than the hard plastic. Future studies should examine the size of structures and light absorbance limits.

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