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Controlled Production of Microalgae for Possible Use as the Biofuel Feedstock

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Controlled Production of Microalgae for Possible Use as the Biofuel Feedstock

As a part of the research directed at the production of biofuels from microalgae, we've been exploring algal strains and their growth conditions that yield the maximum amount of biomass and target biochemicals. Microalgal species were collected from local and non-local regions, and subjected to the isolation, identification, and cultivation. Lipid contents were monitored in order to evaluate their potential as a sustainable feedstock for producing biodiesel. Microalgae growth media containing various concentrations of essential nutrients were compared for the best algal biomass production. The optimum algal cultivation condition was determined by measuring the amount of biomass present during the log phase of growth through the measurement of optical density or dry weight. For the large-scale (65L) algae cultivation, an incremental volume was harvested daily for biomass yield determination. The harvesting and de-watering of algae culture were conducted via the chitosan-aided flocculation technique which allowed the treatment of large quantities.

Christopher Campbell is a senior undergraduate student at Missouri S&T who plans to enter graduate school in the fall. He enjoys music, reading and exercising.