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Characterizing Algae Growth and Biomass Composition under Autotrophic, Mixotrophic and Heterotrophic Conditions

The algal research group at the Center for Biofilm Engineering has a library of over 100 algal cultures, for most of which the metabolic pathways are not known. By growing each culture under phototrophic, heterotrophic, and mixotrophic conditions on a small scale, we have been able to determine which pathways each organism is capable of utilizing. Upon completion of a larger scale experiment, information about a select organism's nutrient uptake, growth, and composition will be analyzed to gain a rigorous understanding of the growth under each metabolic condition. Due to the plentiful organic carbon and often light limited conditions present in wastewater, algae that is capable of growth using multiple metabolic pathways are uniquely suited to these conditions and are of particular value in exploitation and even remediation of this otherwise low value waste stream.

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