Algal conversion of Brewery Waste to Biofuel

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Several strains of microalgae are notable in their ability to produce oil when grown under the right conditions. This oil can be easily extracted and converted to biofuel the same way that soybean oil can be pressed and converted to biodiesel. However, algal biofuels have been a prominent research topic for many years with little commercial success. Three of the primary limitations observed thus far are the water demand required, the nutrient (nitrogen and phosphorus) demand, and the difficulty in keeping a pure culture of the algae that produce the highest amount of oil.

Ongoing research at CSUF is working to address those three concerns. Instead of using fresh water, manufactured fertilizers, and a pure strain, researchers are using brewery waste as the feedstock and a mixed culture of algae. Brewery waste is a naturally nutrient-rich source of water, and in many urban areas of the US is also very plentiful.

Test parameters include the type of algal culture used, the dilution ratio of brewery waste, the method of separating algae from water post-experiment, and the method of extracting oil from the algae.