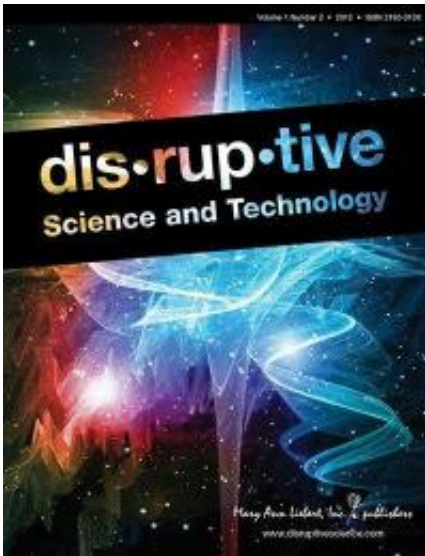


# Can algae-derived oils support large-scale, low-cost biofuels production?

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ExxonMobil and many other energy companies are investing hundreds of millions of dollars to develop transportation biofuels from renewable resources such as the oil or hydrocarbons produced by microalgae. As global supplies of fossil fuels continue to shrink, biofuels derived from algae represent one promising source of low-cost, scalable renewable energy. The feasibility and economic projections for large-scale biofuels production from microalgae are examined in a Review article and accompanying Commentary published in *Disruptive Science and Technology*.

Microalgae are single-celled organisms that can be grown in open ponds, tubes, or bags, with just sunlight and carbon dioxide, or in the dark and fed sugars or starches. They can be genetically modified to optimize their productivity.

John Benemann, Ian Woertz, and Tryg Lundquist, MicroBio Engineering, Inc. (Walnut Creek, CA) and California State Polytechnic University (San Luis Obispo, CA), present the results of an engineering and economic study of vegetable [oil production](#) from microalgae grown in open ponds. In the Review article "[Life Cycle Assessment](#) for Microalgae Oil Production" the authors also project the energy input and [greenhouse gas emissions](#) required to carry out this process at large scale.

In the Commentary entitled "An Introduction to Photosynthetic Microalgae," Melissa Stark and Ian O'Gara, Accenture, compare algae culture to agriculture and state that for [biofuel](#) applications, algae is relatively high risk compared to other technologies and will require "long-term commitment to achieve commercial scale." Algae had "high yield potential" and it "could add significantly to potential biofuel resources."

"As the planet moves inexorably toward populations in excess of 10 billion people, we must find new ways of generating food and fuel," says Editor-in-Chief Alan J. Russell, PhD, Highmark Distinguished Professor, Carnegie Mellon University. "These are national security issues for all countries, as well as moral imperatives. Benemann et al.'s paper on [microalgae](#) oil production, and the related commentary by Melissa Stark and Ian O'Gara, point to a sustainable future using this technology."

Provided by Mary Ann Liebert, Inc

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