

KUIC Technology Profile

Milking Lipids from Green Alga: Feasibility of Using Biocompatible Solvents to Extract Lipids from Living Cells

Summary:

This invention offers an alternative to the growth and subsequent dewatering methods used in the production of algal fuel.

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Overview:

Biodiesel fuel derived from cultured algae provides an attractive renewable energy alternative to fossil fuels. Algal fuel also has advantages over other forms of biodiesel fuel. As compared to terrestrial crops, algae grow much faster and produce significantly greater amounts of lipid oil on a per unit area basis. Thus, a method for commercial-scale production of biodiesel from cultured algae has extremely valuable industry applications.

However, a key hurdle in realizing this commercial-scale production has been the tremendous amount of water that must be processed to harvest and dewater algae cells. Producing one gallon of biodiesel from algae requires processing thousands of gallons of water.

How it works:

This invention offers an alternative to the growth and subsequent dewatering methods that involve processing great quantities water. This method involves milking algae cells to continuously extract lipids without destroying the cells. Algae cells are contacted with a biocompatible solvent in order to extract lipids.

Previous studies have used n-dodecane as a biocompatible solvent for b-carotene extraction from the alga *Dunaliella salina*. The present invention takes these prior studies a step further, and concludes that n-dodecane is also a feasible solvent for milking lipids from two green algae strains—*Ankistrodesmus falcatus* and *Chlorella klebsiella*. Bioreactor experiments are currently being performed to further investigate the commercial potential of this invention.

Patents: Pending.

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Tags: Biochemicals