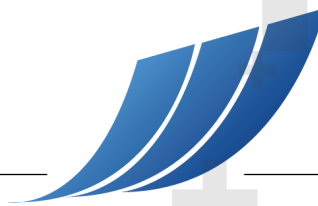


Working For You

Presented by the University of Kentucky's Center for Applied Energy Research



Algae & Biofuels Lab



Microalgae have attracted considerable interest in recent years as a high-yield renewable feedstock for the production of fuels and chemicals. In addition, algae have been proposed as a means to capture and utilize power plant emissions, since photosynthetic algae can use the CO₂ in flue gas as a carbon source.

CAER has extensive expertise in this area, specializing in activities such as:

- Photobioreactor design, construction and operation
- Photobioreactor integration with power plants
- Algae cultivation, harvesting and dewatering
- Algal biomass analysis

Biofuels – fuels derived from biomass – are promising alternatives to fossil fuels since they are renewable and carbon neutral (the CO₂ generated during biofuel use is consumed by plants through photosynthesis, closing the carbon cycle).

CAER has considerable experience on the catalytic conversion of different forms of biomass to fuels and chemicals, particularly as it pertains to:

- Biomass densification through pyrolysis and liquefaction
- Catalyst synthesis and characterization
- Catalytic upgrading in batch, semi-batch and continuous reactors
- Analysis of reaction feeds and products

CAER welcomes inquiries from parties interested in its expertise for potential collaborations, consulting or contract work.

Available equipment and instrumentation

- Airlifts and photobioreactors for algae cultivation with capacity ranging from 8-1,500 L
- Portable flue gas analyzer for SO_x, NO_x, CO_x and O₂
- UV-vis spectroscopy and optical microscopy to monitor algae growth
- Dionex DX500 ion chromatograph to monitor algae nutrients
- 300 mL, 2 × 100 mL and 4 × 25 mL stirred autoclaves
- 2 × fixed bed microflow reactors
- Agilent 7890A GC, 7890A GC-MS, 6890 for Simulated Distillation
- Agilent Infinity 1260 HPLC
- Agilent 3000A Refinery Gas Analyzer
- Micromeritics ASAP2020 gas adsorption analyzer
- Nicolet Nexus 873 FTIR spectrometer with DRIFTS accessory



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