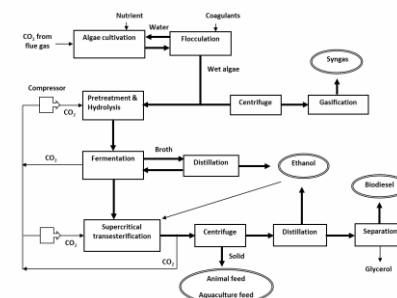
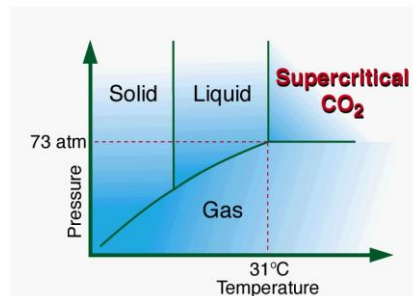


Chemistry for Sustainable Bioresources and Environment

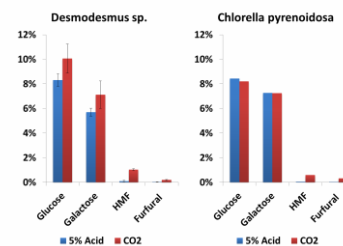
Research Topics:

R&D of advanced analytical chemistry techniques to investigate prospective environmental problems and find effective remedies.

- Fuels & valuable products from biomass
- Biopolymer synthesis & characterization
- Environmental monitoring & remediation
- Analytical method & instrument development
- Critical fluid reaction, extraction & chromatography
- Waste treatment & recycling technology



Dilute Acid vs. Carbonic Acid



Biomass conversion to biofuels & biopolymers

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Keywords: instrumental analysis; biomass conversion; biofuels; biopolymers; supercritical fluids; environmental analysis; remediation; waste treatment

Funding: USDA, DOE, EPA, Army, Mo LSRB, MSMC

Recognitions:

- US Dept of Agriculture "Grand Challenge" award for Bioenergy Awareness Days, June, 2008
- Patent **US 6,939,693** (Sept. 2005) "Enantioselective oligomerization"; Patent Application **US 2005009158** (Jan. 2005) "Process for Enzymatically Resolving an Enantiomeric Mixture"; Patents **US 6,800,318** (Oct. 2004), **US 6,793,951** (Sept. 2004), **US 6,547,987** (Apr. 2003) "Solvent and Method for Extraction of Triglyceride Rich Oil"; Patent **US 6,605,590** (Aug. 2003) "Oligomers Uses in Improving Bioavailability"; Patent **US 6,342,651** (Jan. 2002), "Reductive Combustion of Ammonium Salts of Sulfuric Acid"