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Academic interests: Plant biotechnology, Biochemical engineering, Biomass and biofuel

Research Focus & Techniques of Expertise:

Plant cell/tissue culture for the production of recombinant proteins; Plant cell wall protein and glycosylation; Algae culture for the production of biodiesel and recombinant proteins; Bioreactor design and operation; Anaerobic digestion; and Cell free protein expression.

Current Research Projects:

- Produce recombinant proteins of potential pharmaceutical or industrial applications by using plant cells or microalgae as bio-production “factories”. Experiments are focused on understanding gene expression, protein synthesis and post-translational modification, and protein separation/ purification. In addition, bioprocess engineering strategies are also involved in our research to maximize protein production and scale up process.
- Develop an efficient anaerobic digester to convert agricultural wastes such as animal manure, rice straws, soybean straws, cotton gins, and catfish waste etc. into methane and hydrogen (biogases).
- Develop a cell-free protein expression system as an alternative bio-production platform for special (hard-to-express) recombinant proteins including membrane proteins, toxic proteins and novels proteins with unnatural amino acids incorporated.