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**Project Title: Screening and Assessing Growth Kinetics of  
High Lipid Microalgal Strains**

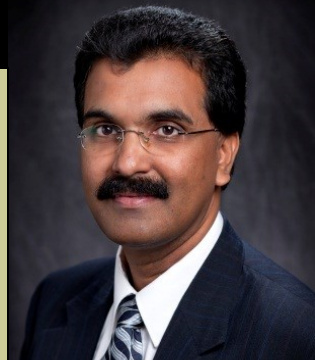
**DR. CHANDRA THEEGALA**

**Project Goal:**

The project goal was to comprehensively screen microalgal species for sustainability to produce biodiesel feedstock. The objectives were: 1) A shortlist of algal strains suitable for outdoor cultivation in Louisiana for high and moderate temperature seasons, 2) Lipid content for all strains suitable for outdoor cultivation, 3) Kinetic parameters for the best strains (8 high and 8 moderate temperature strains), 4) Mathematical models for estimating lipid productivities.

**Project Outcomes:**

- A total of 34 species of microalgae were successfully screened for growth rates and non-polar lipid contents (NPLC) at two different water temperatures of 35 and 25 °C, representing the average local water temperatures for high and moderate temperature production periods, respectively.
- Top 8 algal sp. for the best lipid yields for warmer water temperatures (simulating outdoor conditions during summer): *Dunaliella tertiolecta*, *Nannochloris* sp., *N. oculata*, *Neobloris oleabundans*, *Selenastrum capricornutum*, *Scenedesmus dimorphus*, *Scenedesmus* sp., and *Thalassiosira* sp.
- Top 8 algal sp. for the best lipid yields for moderate water temperatures (simulating outdoor conditions during moderate months): *Dunaliella tertiolecta*, *Dunaliella* sp. 1, *Nannochloris* sp., *N. oculata*, *Neobloris oleabundans*, *Selenastrum capricornutum*, *Scenedesmus dimorphus*, and *Thalassiosira* sp.
- The kinetic parameters (maximum net specific growth rate, half saturation constants, biomass production factors, lipid production factor, etc.) were computed for the 16 short-listed species/strains for the two culture temperatures, under outdoor field conditions.
- Mathematical models were developed to predict the lipid productivities from the top 3 finalist species from outdoor cultures (at each culture temperatures).



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