

***Scenedesmus obliquus* Accumulates High Lipid in Nitrogen Deficient Medium but have Defective Growth and Survival**

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Abstract—Algae have a great potential of biofuel and are being preferred as they have high photosynthetic efficiency, excellent biomass productivity, high carbon dioxide fixation and oxygen evolution in comparison to higher plants. The microalgae can be harvested on daily basis, had high oil content than higher plants and have no competition for arable land as can be grown easily in any water bodies. There are reports that microalgae like *Scenedesmus obliquus* and *Neochloris oleabundans* accumulate high lipid (30% w/w). The lipid contents of fresh water microalgae, *Neochloris oleabundans* (29% w/w) and marine microalgae, *Nannochloropsis* sp. (28.7% w/w) are being enhanced upto ~50% when cultivated in nitrogen deficient medium. Here, we are reporting that in absence of nitrogen the lipid content in *Scenedesmus obliquus* is being enhanced but leads to its defective growth and survival. Thus, due to less biomass *Scenedesmus obliquus* available in nitrogen deficient medium made it non suitable for bulk biodiesel production. Hence, we are using the tools of genetic engineering to disrupt isocitrate dehydrogenase gene to enhance citrate flow for fatty acid synthesis and biodiesel production.

Keywords: Algae, *Scenedesmus obliquus*, Lipid, Biodiesel, Isocitrate Dehydrogenase.