Outdoor cultivation of heat-resistant microalgae *Chlorella sorokiniana* in an tubular photobioreactor during summer season

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Chlorella sorokiniana UTEX 2805, a heat-resistant microalga, was cultured autotrophically in outdoor tubular photobioreactor in summer season. Particularly, a liquefied natural gas (LNG) flue gas and a natural sunlight were used for the economic production of biodiesel from the microalgal biomass. After performing a primary assessment of the biomass production under different temperature conditions (23 ℃ and 36 ℃) in laboratory-scale, the cells were cultured in outdoor conditions under photoautotrophic condition in spring (March, 2014) and summer (July, 2014). As a result, *C. sorokiniana* showed high tolerance to flue gas and high temperature. The cell exhibited the remarkable lipid content (>35% of dry biomass) under nitrogen-starvation conditions to accelerate an intercellular oil accumulation. *C. sorokiniana* will improve microalgal biodiesel production under high temperature in outdoor conditions.