

# **Continuous Culture of *Botryococcus braunii* For Hydrocarbons Production**

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## ABSTRACT

*Botryococcus braunii* is a green, colonial microalga that can produce up to 75% of its dry weight as liquid hydrocarbons that can be converted easily in fuel. In order to cultivate *Botryococcus braunii* on commercial scale for the biofuel industry, new cultivation methods must be investigated. Until now, no studies have been performed on continuous culture of *Botryococcus braunii* under a photoperiod (cyclostat mode). The objective of this work is to investigate if the microalga can produce a constant amount of biomass and hydrocarbons in continuous culture under a light/dark cycle. *Botryococcus braunii* was grown in a stirred tank photobioreactor in continuous culture under a photoperiod of 12 h light and 12 h dark and using warm white LED light and red/blue LED light as light source with intensity of  $442 \mu\text{E m}^{-2} \text{s}^{-1}$ , and compared to continuous and batch culture. Results show that *Botryococcus braunii* in continuous culture under a photoperiod and in warm white LED light can produce a constant amount of dry biomass and hydrocarbons. Conversely *Botryococcus braunii* was not able to produce a constant amount of hydrocarbons and dry biomass in red/blue LED light.

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