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 µE m$^{-2}$ 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.
TABLE OF CONTENTS

Acknowledgements ........................................................................................................ i
Abstract ........................................................................................................................ ii
Index of Figure ............................................................................................................... iii
Index of tables ............................................................................................................. iv
Index of Abbreviations ............................................................................................... iv
Table of Contents ......................................................................................................... vi

Chapter 1: Introduction ................................................................................................. p. 1
  1.1 Biodiesel from Microalgae ...................................................................................... p. 1
  1.2 *Botryococcus braunii* ......................................................................................... p. 3
  1.3 Culture Condition in *Botryococcus braunii* ........................................................ p. 9
  1.4 Presence of Symbiotic bacteria in *Botryococcus braunii* cultures ...................... p. 9
  1.5 Methods for General Cultivation of Microalgal Cells .......................................... p. 9
  1.6 Photobioreactors .................................................................................................. p. 17
  1.7 Light Sources for Bioreactors .............................................................................. p. 23
  1.8 Aim of the project ................................................................................................. p. 23

Chapter 2: Materials and Methods .............................................................................. p. 25
  2.1 *Botryococcus Braunii*, culture conditions and equipment used ...................... p. 25
  2.2 Inoculum preparation ......................................................................................... p. 31
  2.3 Sample collection ............................................................................................... p. 31
  2.4 Absorbance of the algal cultures ....................................................................... p. 31
  2.5 Dry Biomass estimation .................................................................................... p. 31
  2.6 Chlorophyll content estimation .......................................................................... p. 31
  2.7 Terpene analysis ............................................................................................... p. 32
  2.8 Ion Analysis ...................................................................................................... p. 32
  2.9 Microscopy Analysis .......................................................................................... p. 32
  2.10 Summary of Experiments ............................................................................... p. 33
Chapter 3: Results........................................................................................................ p. 34

3.1 Botryococcus braunii Culture in Batch Mode......................................................... p. 34
  3.1.2 Botryococcus braunii in red/blue LED light.................................................... p. 37
  3.1.3 Botryococcus braunii in Batch Mode: Red/Blue LED Light vs Warm White LED Light........................................................................................................ p. 38

3.2 Continuous Culture of Botryococcus braunii in Chemostat and Cyclostat Mode........................................................................................................ p. 41
  3.2.1 Continuous Culture of Botryococcus braunii in Chemostat Mode................. p. 41
  3.2.2 Continuous Culture of Botryococcus braunii in Cyclostat Mode............... p. 42
  3.2.3 Comparison between Continuous Culture of Botryococcus braunii in Chemostat and Cyclostat Modes................................................................. p. 42
  3.2.4 Comparison between Continuous Culture of Botryococcus braunii in Chemostat and Cyclostat Modes taking into account the biomass removed from the system........................................................................................................ p. 46

3.3 Continuous Culture of Botryococcus braunii in Cyclostat Mode and Red Blue LED Light........................................................................................................ p. 50

3.4 Botryococcus braunii in Warm White LED Light: a Comparison between the Continuous culture (Cyclostat mode) with the Batch Culture....................... p. 52

3.5 Botryococcus braunii in Red Blue LED Light: Cyclostat Mode vs Batch Mode p. 54

3.6 Ion Analysis........................................................................................................... p. 56

3.7 Microscopy Analysis............................................................................................. p. 57

Chapter 4: Discussion......................................................................................................... p. 58

Chapter 5: Conclusion........................................................................................................ p. 62

References ...................................................................................................................... p. 63