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Microalgae digestate effluent as a growth medium for *Tetraselmis* sp. in the production of biofuels

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1 Title

2 *Microalgae digestate effluent as a growth medium for Tetraselmis sp. in the production of*
3 *biofuels.*

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8 Key words:

9 Digestate effluent, Tetraselmis sp., Biofuels, Microalgae, Gene expression, PCR-DGGE.

10

11 Abstract

12 This study investigated an alternative nutrient source arising from anaerobically digested
13 *Tetraselmis sp.* effluent (MDE) as a nutrient feed stock to form a closed loop nutrient
14 system. To determine MDE suitability the following factors were observed: growth, lipid
15 content, and the bacterial diversity. MDE was diluted according to the concentration of NH_4^+
16 content (20, 40, 60, 80 mg/L) and compared against F/2 medium a standard medium for
17 *Tetraselmis sp.*. The growth rate on the MDE medium was not as rapid as the F/2 medium
18 and the less diluted MDE correlated (R^2) with lower total lipid contents (R^2 , 0.927),
19 additionally acyl carrier proteins (ACP) gene expression rates displayed lower gene
20 expression within MDE treatments. Lastly, higher concentrations of MDE were correlated

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