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

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Title

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

Abstract

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