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Short Communication

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**Lipid accumulation of *Chlorella pyrenoidosa* under mixotrophic cultivation using acetate and ammonium**

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**ABSTRACT**

Acetate and ammonium were used as organic carbon and nitrogen sources, respectively, during mixotrophic cultivation of *Chlorella pyrenoidosa*. Cell growth, content of neutral lipid (NL), productivity of biomass and total lipid, and fatty acid profiles were investigated. Results showed that *C. pyrenoidosa* could endure high concentrations of  $\text{NH}_4^+\text{-N}$  (100–200 mg/L) and immediately entered logarithmic growth, when the culture media contained 2.0–10.0 g/L NaAc. The 2.0–10.0 g/L NaAc in the media also resulted in the NL content of 1.87–3.05 mg/10<sup>9</sup> cells, much higher than 0.5 mg/10<sup>9</sup> cells of the controls. The maximum productivities of biomass and total lipid were achieved under 50 and 10 mg/L  $\text{NH}_4^+\text{-N}$  respectively when the 2.0 g/L NaAc was dosed. The fatty acids were mainly composed of C16:0, C16:1, C18:0, and C18:1 under the mixotrophic cultivation, with the higher saturation compared to the controls.

**Keywords:** acetate; ammonium; lipid accumulation; microalgae; biofuel

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