

Potential of fresh POME as a growth medium in mass production of *Arthrospira platensis*

Abstract

The prospects of utilizing fresh Palm Oil Mill Effluent (POME) as an alternative and inexpensive growth medium in *Arthrospira platensis* cultivation was evaluated in outdoor large scale cultivation system. The aim of this study is to find the optimum fresh POME concentration (T1; 0%, T2; 1%, T3; 2%, T4; 3% and T5; 4%v/v) for good growth and pigments production of *A. platensis* as in control (modified Kosaric medium). The relative performance of the different concentrations of fresh POME were investigated with respect to their productivity, specific growth rate and pigments production. *A. platensis* culture in T2 (1% v/v fresh POME) had significantly higher ($p < 0.05$) productivity ($0.211 \pm 0.0034 \text{ g L}^{-1} \text{ d}^{-1}$) and specific growth rate ($0.250 \pm 0.0026 \mu \text{ d}^{-1}$) compare to control and other treatments.

Keyword: *Arthrospira platensis*; Fresh POME; Growth; Pigments; Large -scale; Outdoor condition; Cost-effective medium