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عنوان مقاله:

Optimization and Production of Botryococcus braunii Biomass using Commercial Nutrients by Response Surface Methodology

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خلاصه مقاله:

Biofuel production by a sustainable method using microalgae is entirely dependent on biomass production. However, commercialization at large scale using microalgae is a major obstacle usinganalytical grade growth nutrients, due to their cost effectiveness. Hence, development of a cost effective method is essential to reduce the production cost. Therefore, the present study envisaged the effect of low-cost commercial fertilizers such as urea, sodium bicarbonate, magnesium sulfate, potashand di-ammonium phosphate as growth nutrients for the production of biomass and total lipid of Botryococcus braunii were made. The biomass and total lipid production were optimized usingResponse Surface Methodology by 25 Central Composite Design. The result showed 225 mg L-1 of urea, 650 mg L-1 of sodium bicarbonate, 225 mg L-1 of magnesium sulfate, 150 mg L-1 of potash and15 mg L-1 of di-ammonium phosphate supported the algal growth with a maximum biomass and total lipid of 0.792 gL-1 dry wt.. and 260 mg L-1 dry wt.., respectively. The biomass productivity of alga B. brauniiat the above condition recorded as 0.04 gL-1 day-1 with a generation time of 1.90 days.

کلمات کلیدی:

Botryococcus braunii,Commercial Fertilizers,Main Effect Plot,,Response Surface Methodology

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