

THE EFFECTS OF NITROGEN DEFICIENCY ON THE PRODUCTION OF POLYHYDROXYBUTYRATE (PHB) USING *SPIRULINA PLATENSIS*

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Abstract

The effects of nitrogen deficiency at the level of 0% (N-), 50% (N-), and 100% (N-) for the growth of *Spirulina platensis* (Cyanophyceae) for the production of Polyhydroxybutyrate (PHB) was investigated. Biomass and optic density of the cell under laboratory conditions were measured. *Spirulina platensis* cultures were grown in Zarrouk medium and kept at the constant room temperature of $25\pm 2^{\circ}\text{C}$, illuminated with fluorescent lamps at Photosynthetic Active Radiation (PAR) level of $120\ \mu\text{mol m}^{-2}\ \text{s}^{-1}$ with photoperiod of 24:0 (light:darkness, L:D) and aerated continuously. The experiment was carried out with three replications. The percentages of PHB measured were 1.13, 1.43, 2.61 and biomasses obtained were 2.30, 2.92, and 1.85 g/L for control (0%N-), 50% N(-) and 100% N(-), respectively for *S. platensis* biomass harvested. The highest PHB value and the lowest biomass were recorded from the culture treated at the level of 100% N(-).

Key words: *Spirulina platensis*, polyhydroxybutyrate, biomass, nitrogen deficiencies
