[P 16] **BATCH GROWTH KINETICS OF POLYHYDROXYBUTYRATE PRODUCTION IN HALOTOLERANT *HALOMONAS ELONGATA* STRAIN 2FF UNDER DIFFERENT NUTRIENT LIMITATION AND HIGH SALT CONCENTRATION**

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**Introduction:** Numerous *Bacteria* accumulate polyhydroxyalkanoates (PHAs) as intracellular granules to store excess carbon source under limited supply of key nutrients such as nitrogen and phosphorus. Three major classes of PHAs are frequently found in *Bacteria*: polyhydroxybutyrate (PHB), polyhydroxyvalerate (PHV), and the copolymer polyhydroxybutyrate-co-valerate (PHBV). PHAs might be used as biodegradable, non-toxic, and biocompatible polymers.

The aim of present work was to investigate the kinetics of PHB production by the environmental isolate *Halomonas elongata* strain 2FF grown in batch culture under different nutrient limitations and a high salt concentration.

**Materials and methods:** PHB kinetics was investigated in halotolerant *H. elongata* strain 2FF during batch growth in a basal medium containing 1% D-Glucose and 10% NaCl, under three different limitation conditions: 1) double nutrient (nitrogen and phosphorous) limitation supplemented with yeast extract; 2) single nutrient (N) limitation, and 3) double nutrient (N, P.) limitation without Y.E., and two different shaking speed (110 and 140 rpm). The content of total organic carbon (TOC) and total nitrogen from each culture was monitored during 72 h of incubation, at 37°C. The biopolymer was extracted using the hypochlorite-chloroform method. The purified biopolymer was characterized by crotonic acid assay, elemental analysis, 1H-NMR, XRD, and DSC. The TOC and TN were measured by a Multi C/N 2100S analyzer.

**Result:** The maximum production of PHB (40% of the total cell dry weight CDW, 0.95 g/L PHB (purity 96.4%) and 2.5 g/L CDW) was achieved after 48 h incubation in the double nutrient (N and P limitation supplemented with Y.E) condition under a 110 (rpm) shaking speed. The calculated values for specific growth rate (μ), yields of biomass to carbon (YBC) and to glucose (YBG) were 0.129 h⁻¹, 0.326 g biomass/ g C, 0.135 g biomass/ g glucose, respectively. The yields of PHB to carbon (YPc) and to glucose (YPg) were 0.22 g PHB/ g C, and 0.09 g PHB/ g glucose, respectively. The second most preferred condition by *H. elongata* 2FF was the double nutrient (N, P) limitation without Y.E., when the μ and maximum PHB production reached 0.241 h⁻¹ and 0.34 g/L, respectively.

**Conclusions:** Assessment of PHB production in *H elongata* 2FF grown in batch culture, under high-salt (10%, w/v, NaCl), at 110 rpm shaking speed and 37°C, showed that highest PHB production was attained after 48 h of incubation under double nutrient (N, P) limitation plus 0.1% yeast extract conditions.

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