

Studies on poly-3-hydroxyoctanoate biosynthesis by a consortium of microorganisms

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Abstract. Polyhydroxyalkanoates (PHAs) are specifically produced by a wide variety of bacteria, as an intracellular energy reserve in the form of homo- and copolymers of [R]- β -hydroxyalkanoic acids, depending on the C source used for microorganism growth, when the cells are grown under stressing conditions. In this paper we present microbiological accumulation of poly-3-hydroxyoctanoate (PHO) by using a consortium of bacterial strains, *Pseudomonas putida* and *Bacillus subtilis*, in a rate of 3:1, grown on a fermentation medium based on sodium octanoate as the sole carbon source. The experiments performed in the above mentioned conditions led to the following results: from 18.70 g sodium octanoate (7.72 g/L in the fermentation medium) used up during the bioprocess, 3.93-3.96 g/L dry bacterial biomass and 1.834 - 1.884 g/L PHA, containing 85.83 - 86.8% PHO, were obtained.

Keywords: polyhydroxyalkanoates, *Pseudomonas putida*, *Bacillus subtilis*, sodium octanoate, poly-3-hydroxyoctanoate.

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