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Abstract: Factors limiting polyhydroxyalkanoates (PHA) recovery from activated sludge were examined. The biosynthesis of the polymer was carried out for 3 months in 7-day cycles in a laboratory reactor inoculated with activated sludge from municipal wastewater treatment plant. The reactor was continuously aerated and PHA synthesis was stimulated by nitrogen limitation in the medium. PHA recovery at the end of each cycle was performed by biomass centrifugation, extraction of the biopolymer with chloroform and its precipitation with n-hexane. Excess organic carbon in the medium was utilized by microorganisms to accumulate PHA during sludge regeneration phase. Parameters of the biosynthesis were conducive to production of other biopolymers, which lowered efficacy of PHA recovery from biomass, despite presence of PHA granules in the bacterial cells in the amount of 10–19% (dry weight). The PHA recovery by extraction with chloroform and subsequent precipitation of biopolymer with n-hexane was inefficient. High carbon to nitrogen ratio in the medium stimulated growth of filamentous and slime-forming microorganisms. It resulted in the increased viscosity and density of the culture, difficulties during biomass separation and limited chloroform penetration into bacterial cells. However, the method of PHA biosynthesis and recovery proved efficient for the pure culture of *Cupriavidus necator* NCIMB 10442 (49% PHA per dry weight of cells).

Keywords: PHA recovery, *Cupriavidus necator*, activated sludge.