

Production of Poly(Hydroxybutyric-Co-Hydroxyvaleric) Acid by *Pseudomonas* sp.

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To produce PHA (polyhydroxyalkanoic acid) from microbe, dozens of microorganisms have been screened from sewage sludge. Selected a strain HJ out of 50 strains of PHA producing bacteria has a capability of accumulating large amounts of PHB/HV copolymer consisting of hydroxybutyrate and hydroxyvalerate when grown in batch culture with a single carbon source (glucose) that was not generally considered as precursor of hydroxyvalerate monomer unit. The strain HJ was identified as the genus *Pseudomonas* with respect to morphological, cultural, and biochemical characteristics. The optimal temperature and pH for cell growth were 37°C and 7.0. The optimal medium composition for cell growth was glucose 1% as carbon source, (NH₄)₂SO₄ 0.2% as nitrogen source, K₂HPO₄ 0.3%, and KH₂PO₄ 0.5%. To investigate the optimal condition for PHA production two-step cultivation method was employed. PHA production was induced by deficiency of NH₄, SO₄, Mg. Besides carbon source, deficiency of all nutrients was stimulated PHA productivity but deficiency of NH₄ was stimulated the most HV monomer content. The highest PHA production was C/N molar ratio 190. *Pseudomonas* sp. HJ was also able to produce PHB/HV copolymer when cultivated on alkane, alkanoate, alcohol as carbon sources. The contents of PHA and the proportions of hydroxyvalerate monomer units varied depending on the carbon source. Especially *Pseudomonas* sp. HJ was able to incorporate hydroxyvalerate into a poly(hydroxybutyrate-co-hydroxyvalerate) polymer to level as high as from 49 to 74 mol% when grown in a medium containing hexadecane and propionate. The purified PHA was identified PHB/HV copolymer by ¹³C-NMR analysis.