Production of medium chain length polyhydroxyalkanoates from oleic acid using Pseudomonas putida PGA1 by fed batch culture

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Abstrak

Bacterial polyhydroxyalkanoates (PHAs) are a class of polymers currently receiving much attention because of their
potential as renewable and biodegradable plastics. A wide variety of bacteria has been reported to produce PHAs
including Pseudomonas strains. These strains are known as versatile medium chain length PHAs (PHAs-mcl) producers
using fatty acids as carbon source. Oleic acid was used to produce PHAs-mcl using Pseudomonas putida PGA 1 by
continuous feeding of both nitrogen and carbon source, in a fed batch culture. During cell growth, PHAs also
accumulated, indicating that PHA production in this organism is growth associated. Residual cell increased until the
nitrogen source was depleted. At the end of fermentation, final cell concentration, PHA content, and productivity were
30.2 g/L, 44.8 % of cell dry weight, and 0.188 g/l/h, respectively.