Studies on Polyhydroxyalkanoic Acid Production by *Alcaligenes* sp. GB-77

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For Polyhydroxyalkanoate(PHA) production, several microorganisms were isolated from sewage sludge by enrichment culture technique. One of them, GB-77 strain, was chosen from its PHB/HV copolymer production on only fructose without cosubstrate.

The isolated strain GB-77 was identified as *Alcaligenes* from the results of morphological, cultural and biochemical test. The strain was named temporarily *Alcaligenes* sp. GB-77. Optimal temperature and pH for cell growth were 36℃ and 6.8. Optimal medium composition was 10g/L of fructose, 5g/L of polypeptone, $1x10^{-2}$ M Na_2HPO_4 and $1.3\ x10^{-2}$ M KH_2PO_4.

To investigate the optimal condition for Polyhydroxyalkanoic acid production two-stage culture technique was used; first stage for cell growth and second stage for accumulation of PHA production on unbalanced growth condition. The optimal condition for high PHA accumulation was C/N ratio 60, temperature 36℃ and pH 6.8

To overcome fructose inhibition on cell growth, intermittent feeding fed-batch culture technique was used. Total cell concentration was 17.4g/L with 9.1g/L of PHA. The purified PHA was identified PHB/HV copolymer by NMR analysis.