限氮條件下不同溫度對Bacillus megaterium YU-1生合成PHB之影響 = Effect of temperature on the biosynthesis of PHB by ...

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摘 要

本研究以微生物發酵生合成PHB，使用之菌株為Bacillus megaterium YU-1，在氮源限制的生長環境下，於不同溫度 (26、30及35℃)進行批次培養，探討溫度對生質量、PHB產量及營養源消耗之影響。實驗結果顯示，於30℃下不調控pH值之培養，生質量與PHB產量分別為6.27與4.26 g/L，PHB為菌體生質量的68%；於26℃下，生質量與PHB產量分別為7.72與3.54 g/L，PHB為菌體生質量的48%；於35℃下，生質量與PHB產量分別為5.74與2.29 g/L，PHB佔菌體生質量為41%，其中以30℃為最佳之培養條件。 在調控pH為5.5時，於不同溫度下進行批次培養，探討溫度對菌體生質量、PHB產量及營養源消耗之影響。實驗結果顯示，於26℃下培養，可得最高之生質量與PHB產量，分別為8.31與5.59 g/L；但在PHB佔菌體之百分比中，以培養於30℃下，PHB佔菌體生質量(74%)為最高，而生質量與PHB產量分別為6.33與4.71 g/L；於35℃中，由於培養溫度較高，菌體的生長週期較短，生質量與PHB無法持續累積，因此產量較其它培養溫度下為低。 實驗結果顯示，於不同溫度下調控pH 為5.5之培養，菌體生質量與PHB產量，比不調控pH值的條件下來得高，其中又以30℃ pH 5.5為最佳之生長環境。

關鍵詞 : 聚羥基烷酯類 ; 限氮 ; 批次發酵

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