以褐藻酸鈉為擔體進行假絲酵母脂肪?固定化及其生化特性分析之研究

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摘 要

固定化酵素不僅可以保持酵素的催化特性，也可以克服游離酵素之不足之處，使其具有一般化學催化劑所包含的特性並且能夠回收以及重複使用的優點，另外在工業上能夠進行連續化與自動化。本研究初期先將Candida rugosa lipase固定在褐藻酸鈉與Bentonite兩種擔體上並比較其活性差異。研究結果顯示以褐藻酸鈉固定酵素所獲得之酵素活性及比活性較佳，以Bentonite作為擔體而言高出兩倍。明顯看出褐藻酸鈉固定C. rugosa脂肪?之效果優於Bentonite。因此本研究繼以褐藻酸鈉為載體，探討最適固定化條件及不同反應條件對固定化酵素之影響。結果顯示，褐藻酸鈉的濃度為6%時可以最優化固定化酵素的活性，氯化鈣濃度對對固定化酵素之活性影響不大。固定化酵素之最適作用溫度與pH值分別為50 ℃與pH 7。酵素於40 ℃下具有最佳穩定性。在pH值為5時，酵素之穩定性最高。固定化酵素之儲存穩定性極佳，於4 ℃放置30天以後，依然保有90%以上之相對活性，而於30 ℃放置30天後也保有80%以上之活性。研究中亦利用掃描式電子顯微鏡對固定化顆粒表面進行拍攝。結果顯示，表面結構會根據濃度的不同而有所改變，濃度越高表面結構越緊密，反之亦越鬆弛。

關鍵詞 : 假絲酵母脂肪?、褐藻酸鈉、皂土、包埋法、固定化、最優化

目錄

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