竹纖維分解菌株枝篩選及其分解酵素之探討 = Isolation and cellulase characteristics for bamboo cellulolytic microbes

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摘 要

本研究自竹筍殼廢棄物中，篩選、分離及純化出具可分解竹纖維能力之微生物，以進行其生長條件與纖維素分解酵素之特性探討。此外，利用物化法與酵素法以評估竹粉纖維與竹漿纖維被水解成可醱酵糖類之轉換率。 研究結果顯示：⑴纖維素分解菌株Streptomyces griseoaurantiacus ZQBC691分解carboxymethyl cellulose (CMC)之最佳生長條件為：初始pH為5.3、震盪速率為150 rpm、培養溫度為30 ℃及CMC濃度為15 g/L；⑵於不同商業碳源方面，ZQBC691有較佳水解CMC與salicin之能力，而水解avicel之能力極差；⑶於天然碳源方面， ZQBC691較無法直接分解竹粉，但能分解竹漿纖維，其產物有葡萄糖、乳酸與醋酸；⑷ZQBC691有較佳CMCase，其最適作用pH值為5且酵素活性為37.38 IU/L；最適作用溫度為50 ℃且酵素活性為34.13 IU/L；⑸較佳稀酸水解竹粉條件為：處理溫度為100 ℃、竹粉克數為2 g、處理時間為60 min及硫酸濃度為0.2 M；商業纖維素分解酵素水解竹漿纖維之轉換率較竹粉高。

關鍵詞 : 竹纖維 ; 纖維素分解菌株 ; 纖維素分解酵素

目錄

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