利用篩選菌株Gluconnacetobacter sp. WU2及WU3 生產細菌纖維素之研究

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摘 要

由革蘭陰性細菌Gluconacetobacter sp.WU2及Gluconacetobacter sp.WU3可分泌生產出細菌纖維素(BC)，具有特殊的物理、化學和機械特性，包括高結晶度、高含水率、且主要是由奈米纖維絲組成的表面、有彈性、機械強度和生物相容性。 本研究主要是研究Gluconacetobacter sp.WU2及Gluconacetobacter sp.WU3在30℃下，以靜置批次發酵的方式，探討不同培養條件包括碳源、氮源、pH、溫度、有機酸(檸檬酸、琥珀酸和醋酸)、酒精濃度(0-15%) 對生產細菌纖維素之影響。此結果顯示在培養條件為30 ℃及未控制pH情況下，其Gluconacetobacter sp.WU3與.WU2相比，WU3為最好的BC生產者，且培養於葡萄糖/peptone混和培養基中，其最大纖維產量為1.92 g/L。 在此亦以XRD (X-ray diffractometry)、FTIR (Fourier Transform Infrared spectroscopy)、SEM (scanning electron microscope)進行不同菌株所生產的細菌纖維素經各種不同乾燥方式處理後，細菌纖維物性結構的改變。此外，利用色差計(Hunter lab colour parameters)分析經不同溫度所乾燥之細菌纖維素色澤的變化。整體實驗顯示，凍乾後的薄膜會有較高的L值(明亮度)。

關鍵詞 : 細菌纖維素

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