促進鏈球菌透明質酸醱酵產程生理代謝控制之策略

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摘 要

透明質酸（hyaluronic acid）又名玻尿酸或透明多醣體（hyaluronan），由D-葡萄糖醛酸與N-乙醯胺基葡萄糖相互交替連接而成的直鏈多糖體，廣泛存在於動物的組織細胞間質和某些細菌的莢膜。莢膜有無及其大小與菌株所產生之透明質酸?活性有密切之關係。研究指出活性氧衍生物與自由基能分解透明質酸，而抗氧化劑可抑制氧化壓力所造成之透明質酸分解。本研究探討獸疫鏈球菌（Streptococcus zooepidemicus）醱酵時不同因子如：溫度、起始pH值、攪拌速率及抗氧化劑之添加對生產游離性透明質酸、莢膜性透明質酸及莢膜大小分析之影響，實驗利用影像系統分析菌體莢膜之有無及大小，並分析各因子莢膜性與游離性透明質酸生成之相關性，結果顯示，游離性透明質酸之生成以37°C產量為1.45 g/L、起始pH 7.5產量1.74 g/L、150 rpm產量1.57 g/L、50 mg/L沒食子酸產量1.58 g/L、250 mg/L抗壞血酸產量1.54 g/L、250 mg/L生育醇產量1.49 g/L培養下最高。莢膜性透明質酸的產量上則是在37°C產量0.08 g/L、起始pH 7.5產量0.08 g/L，150 rpm產量0.09 g/L時最好。此外，莢膜大小均在培養6小時最大，此外則隨著培養時間之增加而有減少之情況，而溶血環的作用則與此結果相反。

關鍵詞 : 透明質酸 ; 獸疫鏈球菌 ; 培養溫度 ; 抗氧化劑

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