

探討溶菌酶輔助酪蛋白丁香酚之複合奈米粒子 (ECL-NPs) 以增強對革蘭氏陽性病原菌的抗菌活性

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- 一、 前言
- 二、 材料與方法
- 三、 丁香酚、酪蛋白與溶菌酶奈米粒子 (ECL-NPs) 對金黃色葡萄球菌與芽胞桿菌屬之影響
- 四、 結論

摘要

現今國際疫情大流行，經濟損失與食物短缺的情況更是層出不窮，因此食品保存是必然的手段，而天然無害的抗菌來源更是最佳的選擇。故本研究目的是探討由丁香酚、酪蛋白與溶菌酶配製而成的新穎奈米粒子 (ECL-NPs)，對於革蘭氏陽性菌的抑菌效率與協同作用。經實驗所得，粒徑 151.9 nm 與包埋效率達 92.2% 的 ECL-NPs 有著極佳的緩釋作用、儲存安定性 (4 °C 下長達 180 天) 與冷凍乾燥安定性。而且低劑量的溶菌酶測試下，丁香酚與酪蛋白奈米粒子對金黃色葡萄球菌的抑菌效果增強 5.83 倍；對芽胞桿菌屬的抑菌效果提升 5.53 倍。此外，最低抑菌濃度與最低殺菌濃度也是 ECL-NPs 的數據最好。而在掃描式電子顯微鏡下，發現經曝露在 ECL-NPs 的環境下，芽胞桿菌屬細胞壁的完整結構破裂成碎片。最後加入 ECL-NPs 至新鮮蔬果汁中，仍可維持 100% 的抑菌效果長達 15 天。綜合上述結果，ECL-NPs 對於食品工業抵抗革蘭氏陽性菌，有著極佳的潛力。

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