以噴霧乾燥製備奈米幾丁聚醣載體於細胞活性及穿透之研究

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摘 要

本研究主要是用噴霧乾燥法製備奈米幾丁聚醣顆粒，以濃度10 mg/mL幾丁聚醣鹽酸鹽溶液分別加入 六種不同濃度（0、0.25、0.5、1、2、4 mg/mL）之架橋劑（綠槲子素，genipin），用噴霧乾燥法 進行架橋反應製備出奈米級顆粒，分別標示為樣本1~6並對其作物性分析、細胞毒性及穿透實驗。 用FE – SEM觀察粒徑大小與形態，其平均粒徑介於231～298 nm之間，且隨著genipin濃度增加其粒 徑有越小的趨勢。用FTIR來觀察是否有架橋反應發生，實驗結果發現隨著架橋劑濃度的增加，其 在1520 cm-1之特徵吸收峰漸漸變小，表示幾丁聚醣鹽酸鹽之胺基消失，即有架橋反應產生，且經 架橋度實驗証實，架橋度會隨著架橋劑濃度增加而增加。將幾丁聚醣顆粒與腸道上皮細胞 (Caco-2) 進行細胞毒性評估與穿透吸收之研究，發現經由genipin架橋後之幾丁聚醣載體在濃度100 μg /mL下 對Caco-2 cell並無明顯的毒性。由TEER實驗得知樣本可有效促進細胞緊密接合處之打開，並經trypan blue染色後發現除了樣本5、6之細胞有些許死亡，其餘的樣本都對細胞無毒性，可證明樣本1~4能 增加細胞穿透之能力。

關鍵詞 : 幾丁聚醣、噴霧乾燥、架橋反應、細胞毒性、穿透試驗

目錄

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