

煨燒淡菜殼抗菌性評估

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摘要

食用完丟棄的貝殼，經由微生物分解而散發出強烈的氣味，造成環境污染。有研究指出高溫煨燒後殼粉使碳酸鈣成分轉為氧化鈣成分，因具有高 pH 值且有很強的抗菌活性。本研究探討淡菜殼粉以 4 種形式製備：天然淡菜殼粉及經不同煨燒溫度（600°C-900°C）下煨燒 2 小時的變化，通過掃描電子顯微鏡（scanning electron microscopy；SEM）對煨燒產物的形貌進行探討。淡菜未煨燒殼粉呈塊狀結構，有數條裂紋、表面粗糙、棱角分明，而煨燒產物呈現小球體、表面光滑、結構和形狀發生變化並發生團聚。淡菜殼粉在煨燒前後均呈鹼性（pH>7），鹼度隨著煨燒溫度和濃度百分比增加而增加，另添加不同濃度殼粉（0.79 mg/mL - 200 mg/mL）對食品病原菌（*Escherichia coli* ATCC 8739，*Staphylococcus aureus* ATCC 8538）之抑制效果，結果顯示殼粉經高溫處理 900°C 煨燒 2 小時在濃度 12.5 mg/mL 及 800°C 煨燒 2 小時在濃度 50 mg/mL 對於食品病原菌 *Escherichia coli* 有抑菌效果。煨燒溫度 900°C 濃度 12.5 mg/mL 其對 *Escherichia coli* 及 *Staphylococcus aureus* 有抑菌作用抑菌圈為 10.5 及 9.6 mm。煨燒溫度 800°C 濃度 50 mg/mL 時抑菌圈為 13.2 及 11.5 mm。故利用煨燒廢棄殼粉末生產「天然抑菌劑」可替代合成化學品，期望可以減少環境汙染問題，為產業帶來新商機的同時，達到資源永續、啟動循環經濟之目的。

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