探討微波真空乾燥加工產品對復水能力及品質之影響

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大綱

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摘要

未來糧食不足是日趨嚴重的問題，生鮮食品保存時間短、運送費用且損耗率高，為增加食品的儲存時間、保持原有風味與營養成分，將食品乾燥後不僅利於保存且質量輕盈、攜帶方便，若能具有復水性佳等特性，便可增廣使用範圍。以柳橙為例，通過微波預處理（90 W 30 min）在乾燥溫度和絕對壓力（60、70 和 80°C 在 15 和 30 kPa）的不同組合下進行的真空乾燥和不使用微波預處理的真空乾燥相較下微波真空乾燥的應用縮短了橙片的乾燥時間，同時提高了乾燥速率、有效水分擴散率，微波真空乾燥法顯示出比真空乾燥更好的復水能力，微波真空乾燥法在 60°C–15 kPa 條件下獲得最好結果（2.98 g H_2O/g d.m.）。在乾燥秋葵研究中利用微波真空乾燥與傳統的熱風乾燥、真空冷凍乾燥相比，微波真空乾燥是一種高效節能的技術，秋葵的最佳乾燥參數為：微波功率 900 W、真空度 60 kPa、密度 5 kg/m^2，同時，它可以保留產品中的顏色，風味，營養和生物活性化合物，因此是一種使蔬菜和水果脫水具潛力的方法，微波真空乾燥具有比熱風乾燥更高的乾燥速率和復水率。以不同方法乾燥南瓜片評估乾燥動力學、成品結構、復水動力學、復水指數，實驗中五種乾燥法：1.微波循環急速乾燥 2.微波真空乾燥 3.電阻循環急速乾燥 4.冷凍乾燥 5.風乾，微波真空乾燥有最高乾燥速率分別觀察到比微波循環急速乾燥、電阻循環急速乾燥、風乾和冷凍乾燥快 1.3、8、22、53 倍，在微波循環急速乾燥、微波真空乾燥都形成高度多孔的結構有助於在復水過程中吸收水分，兩種基於微波的乾燥方法都是適用於工廠生產乾南瓜的方法，可以在非常短的乾燥時間內獲得具有吸引力的產品。依上述總結採用微波真空乾燥加工方法既可縮短乾燥時間還可擁有良好產品質量及復水能力，未來可多加應用開發相關產品極具前景。

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