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微波及辐射真空干燥过程中的干燥动力学及能量消耗

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摘要 The general objective of this work is to analyze energy input in a vacuum process with the incorporation of microwave heating. Thus, necessary criteria for designing an efficient freeze-drying operation are considered through the analysis of strategies based on the combination of different intensities of raxiant and microwave heating.The other aim of this research topic is to study the kinetics of drying in relation to mass transfer parameters.Five freeze-drying strategies using both heating systems were used. Consequently, energy input could be related to diffusivity coefficients, temperature and pressure profiles during dehydration of the product and analyzed in comparison to a conventional freeze-drying process.

关键词 食品干燥 微波辐射 真空微波干燥 干燥动力学 能量 扩散率

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Drying Kinetics and Energy Consumption in Vacuum Drying Process with Microwave and Radiant Heating

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Abstract The general objective of this work is to analyze energy input in a vacuum process with the incorporation of microwave heating. Thus, necessary criteria for designing an efficient freeze-drying operation are considered through the analysis of strategies based on the combination of different intensities of raxiant and microwave heating.The other aim of this research topic is to study the kinetics of drying in relation to mass transfer parameters.Five freeze-drying strategies using both heating systems were used. Consequently, energy input could be related to diffusivity coefficients, temperature and pressure profiles during dehydration of the product and analyzed in comparison to a conventional freeze-drying process.

Key words vacuum microwave drying, diffusivity constant, energy.

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