苹果介电常数与干燥特性相关性研究 Correlation between Dielectric Constant and Drying Characteristics of Apple

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关键词： 果蔬 干燥 介电常数 干燥特性

摘 要： 使用HIOKI LCR测量仪及配套电极测量了热风干燥过程中苹果及苹果与空气混合物的相对介电常数，通过介电常数与干燥特性指标的拟合，分别建立了苹果、苹果与空气混合物介电常数与相对含水率、干燥速率的关系方程。结果表明，介电常数与干燥特性指标均显著相关，且混合物介电常数与干燥特性指标相关性更好。 A simple method for online measurement of drying process of fruits and vegetables was explored. Relative permittivities of an apple sample and a mixed sample composed of air and apple were measured by LCR meter and matching electrode during a hot air drying process. Then, relation equations between permittivity and relative water content, as well as between permittivity and drying rate, were respectively established. It was found that relative permittivities and drying characteristics were significantly correlated, and correlations between the dielectric constant and the drying characteristics of the mixture were stronger than that of only the apple sample. Conclusions indicated that detecting the moisture content of fruits and vegetables could be more readily achieved with measuring mixed samples instead of only the material itself.

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