高温处理对食用调和油微波介电特性与品质的影响 Effect of High-temperature Heat Treatment on Microwave Dielectric Properties and Qualities of Mixed Edible Oil

吕俊峰 郭文川 于修烛

西北农林科技大学

关键词： 调和油 高温处理 相对介电常数 介质损耗因数 品质

摘 要： 以食用调和油为研究对象，采用同轴探头技术测量了高温处理（120～240℃，3～15 h）后调和油在200～4500 MHz的微波介电特性和品质指标。结果表明：未处理调和油的相对介电常数ε′r和介质损耗因数ε″r随频率的变化而变化，经高温处理后ε′r和ε″r基本不随频率改变。与未受高温处理相比，处理使同频率下调和油的ε′r减小，ε″r增大。高温处理的温度、时间对介电参数值有一定的影响。当温度大于180℃时，随着处理时间的增加，调和油的酸价迅速增大；当温度为120℃时，处理时间对过氧化值有明显的影响。 The open-ended coaxial technology was used to measure microwave dielectric properties and quality indices of heated mixed edible oil at 120～240℃ for 3～15 h over the frequency range from 200 to 4500 MHz. Results showed that, without high-temperature heating, the relative dielectric constant and loss factor of the oil would change with frequency, but kept constant generally when the oil was heated. The dielectric constant of heated oil was lower and the loss factor was higher than that of unheated oil. The high-temperature and heating time had small effect on permittivities. When the temperature was higher than 180℃, the acid value increased with heating time, but the time had obvious effect to peroxide value when the temperature was 120℃.

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