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Rapid method for determining malondialdehyde as secondary oxidation product in palm olein system by Fourier transform infrared spectroscopy

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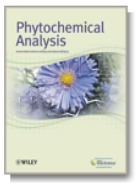

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Keywords:
FTIR spectroscopy; malondialdehyde; palm olein system; partial least square; thiobarbituric acid

Abstract

A simple and rapid Fourier transform infrared (FTIR) spectroscopic method has been developed for the quantitative determination of malondialdehyde as secondary oxidation product in a palm olein system. The FTIR method was based on a sodium chloride transmission cell and utilised a partial least square statistical approach to derive a calibration model. The frequency region combinations that gave good calibration were 2900–2800, and 1800–1600 cm^{-1}. The precision and accuracy, in the range 0–60 μmol malondialdehyde/kg oil, were comparable to those of the modified distillation method with a coefficient of determination (r^2) of 0.9891 and