A rapid method for determination of commercial β-carotene in RBD palm olein by fourier transform infrared spectroscopy.

ABSTRACT

A rapid method for the determination of commercial β-carotene in refined bleached and deodorized (RBD) palm olein using Fourier transform infrared (FTIR) spectroscopy was developed. The fifty RBD palm olein samples spiked by a known amount of commercial (30%)β-carotene to produce a wide range of concentrations up to 2000 ppm were used. Samples were separated into two groups for the calibration and validation models. The partial least squares (PLS) calibration models for predicting β-carotene was developed by using the FTIR spectral region at 980-915 cm-1 which is associated with trans double bond CH absorption. The accuracy of the method was comparable to that of the HPLC method with a coefficient of determination (R2) and standard error of calibration (SEC) for commercial β-carotene 0.9934 and 52.29, respectively. The FTIR method developed was shown to be efficient, accurate and suitable for routine quality control analysis for the food industry with results obtainable in about 2.5 min.

Keyword: FTIR; Food analysis; CH absorption; SEC; Cooking oil; Malaysia; Thailand.