

Analysis of chicken fat as adulterant in butter using Fourier transform infrared spectroscopy and chemometrics.

ABSTRACT

Butter may be adulterated with cheaper animal fats, such as chicken fat (CF). Thus, the detection and quantification of butter adulteration with CF was monitored using Fourier transform infrared (FTIR) spectroscopy, combined with chemometric of partial least square (PLS) at the frequency regions of 1200-1000 cm^{-1} . FTIR measurements were made on pure butter and that adulterated with varying concentrations of CF (0-100% w/w in butter). PLS calibration exhibits a good relationship between actual and FTIR predicted values of CF with a coefficient of determination (R^2) of 0.981. The root means standard error of calibration (RMSEC) and during cross validation (RMSECV) obtained using six principal components (PCs) are 2.08 and 4.33% v/v, respectively.

Keyword: Animal fat; Butter; Chemometrics; FTIR spectroscopy; Multivariate calibration.