

Abstract

Determination of fish oil quality using near infrared spectroscopy

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A rapid near infrared (NIR) spectroscopic technique was developed to measure peroxide value (PV), acid value (AV) and anisidine value (AnV) of oxidized fish oil. A partial least squares (PLS) regression was used to develop calibration models from spectral data in first derivative and second derivative of $\log 1/T$ formats. The optimised calibration model of PV and AV were developed in the region of 1100–2200 nm. The AnV calibration model was developed in the region of 1100–2500 nm. The correlation coefficient (R) of PV, AV and AnV were 0.96, 0.98 and 0.88 respectively. Calibration models were validated with an independent set of samples. The root mean square error of prediction ($RMSEP$) of PV, AV and AnV were 1.44 meq/kg⁻¹, 0.07 mgKOH/g and 6.88 respectively. The results obtained in this study indicate that NIR spectroscopy is a potentially useful technique for measuring the quality of fish oil.