

Application of FTIR spectroscopy coupled with chemometrics for authentication of Nigella sativa seed oil.

ABSTRACT

The present study is intended to analyze the presence of grape seed oil (GSO) in Nigella sativa L. seed oil (NSO) using Fourier transform infrared (FTIR) spectroscopy and gas chromatography (GC). FTIR spectroscopy coupled with multivariate calibration of partial least square can quantify the levels of GSO in NSO at wavelength number of 1114–1074, 1734–1382 and 3005–3030 cm^{-1} . The coefficient of correlation (R^2) obtained for the relationship between actual (x-axis) and FTIR predicted (y-axis) values are 0.981. The errors in cross validation and in prediction are 2.34% (v/v) and 2.37% (v/v), respectively.

Keyword: FTIR spectroscopy; Grape seed oil; Multivariate calibration; Nigella sativa L. seed oil.