

Nopphakorn Panyawatchilo 2010: Determination of Snack Food Quality by Near Infrared Spectroscopy. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Development of Product Development. Thesis Advisor: Associate Professor Thongchai Suwonsichon, Ph.D. 241 pages.

The market of snack food is growing depend upon the population and demand. Nowadays the market share of snack food is about 10,000 million Bath. Developing convenient and rapid method for monitoring snack quality is very useful to impose acceptable quality for consumer. The main objective of this research is to investigate the potential of near infrared spectroscopic (NIRS) technique for the predicting the moisture content (Mc), water activity (a_w), fat, thiobarbituric acid number (TBA) and monosodium glutamate (MSG) in snack food. Four sample sets of snack food, 150 experimental units are employed for calibration development of Mc, a_w and fat. Two sample sets of snack food, 100, 110 experimental units are employed for calibration development of TBA, MSG. All samples were scanned by NIRS in the region of 1100-2500 nm with rotating cup. Their spectra were pretreated by the second derivative (2 D) method. Both NIR spectra and analyte data were correlated to develop the optimum calibration models by the partial least square (PLS) regression and the moving window partial least square (MWPLS) regression. The results showed that the MWPLS could generate suitable models for quality evaluation of Mc, a_w , fat, TBA and MSG. The calibration equation of those analytes provided the correlation coefficients (R) 0.99, 0.98, 0.98, 0.95 and 0.98, respectively. The calibration equation of those analytes provided the standard errors of prediction (SEP) 0.26%, 0.02, 0.35%, 0.12 mg malonaldehyde/kg and 0.40 g/100 g, respectively. According to these results, NIR is potentially applied to determine quality of snack food.

Student's signature

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