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Analysis of cow milk by near-infrared spectroscopy

In this work, the major components (total solids, fat, protein, casein, urea nitrogen, lactose, and somatic cells) were determined in cow milk by near-infrared spectroscopy. Fifty calibration samples of milk were analysed by reference methods and by FT NIR spectroscopy in reflectance mode at wavelengths ranging from 4000 to 10 000 cm— 1 with 100 scan. Each sample was analysed three times and the average spectrum was used for calibration. Partial least squares (PLS) regression was used to develop calibration models for the milk components examined. Determined were the highest correlation coefficients for total solids (0.928), fat (0.961), protein (0.985), casein (0.932), urea nitrogen (0.906), lactose (0.931), and somatic cells (0.872). The constructed calibration models were validated by full cross validation. The results of this study

indicated that NIR spectroscopy is applicable for a rapid analysis of milk composition.

Keywords:

near-infrared spectroscopymilk

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