Analysis of milk by FT-Raman spectroscopy.

Autorzy

Sylwester Mazurek

Roman Szostak

Tomasz Paweł Czaja

Andrzej Zachwieja

Rok wydania

2015

Czasopismo

Talanta

Numer woluminu

138

Strony

285-289

DOI

10.1016/j.talanta.2015.03.024

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Fat, protein, carbohydrates and dry matter were quantified in commercial bovine milk samples, with the relative standard errors of prediction (RSEP) in the 3.4–6.1% range, using the partial least squares (PLS) method based on Raman spectra of liquid milk samples. Results of a better quality were obtained from a PLS model derived from IR spectra registered using single reflection ATR diamond accessory, which yielded RSEP values of 2.4–4.4%. The data indicated IR single reflection ATR spectroscopy and Raman spectroscopy in combination with multivariate modelling using the PLS method, allowed for the reliable, simultaneous quantitative determination of macronutrients in milk. The low signal to noise ratio of Raman spectra affects the quality of fat quantification especially for strongly defatted milk samples.

Słowa kluczowe

Milk analysis, Raman spectroscopy, ATR, quantitative analysis, Multivariate calibration

Adres publiczny

http://dx.doi.org/10.1016/j.talanta.2015.03.024

Strona internetowa wydawcy

http://www.elsevier.com