Methods and objects of chemical analysis, 2018, Vol. 13, No. 3, 131–135

Application of Fluorescent Spectroscopy and Ultrasound Analysis for Dairy Products Identification

V.M. Ischenko†, N.P. Kvitkovska†, O.V. Kochubei-Lytvynenko†, M.V. Ischenko*‡

† National University of Food Technologies, 68, Volodymyrska str., 01601, Kyiv, Ukraine;
‡ Taras Shevchenko National University of Kyiv 64, Volodymyrska str., 01033, Kyiv, Ukraine,
*e-mail: ischenko_mv@knu.ua

Recieved: April 04, 2018; Accepted: July 23, 2018
DOI: 10.17721/moca.2018.131-135

Ultrasound analysis of more than 60 samples of pasteurized natural whole milk and of milk product made from dried milk was performed using ultrasonic analyzer "Ecomilk-Bond". Validation of this method for determination of quality indicators was performed. It was found that the precision of determination of milk quality indicators by the abovementioned method fits the purpose. Method of principal components was applied to the obtained pool of data, and this allowed to partially clusterize the samples of milk. Fluorescent spectroscopy was utilized in order to detect reconstituted milk. Fluorescence of tryptophane was recorded in 305-420 nm range with excitation at 290 nm; for the spectra of products of Maillard reaction in 345-500 nm with excitation at 330 nm. It was determined that the results of these measurement can only be markers of natural whole milk.

Keywords: milk, ultrasound analysis, fluorescence, principal component analysis