Dairy products quality assessment by use of near-infrared spectroscopy

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Dairy products are worldwide spread and have great commercial importance within the food industry. Rapid and reliable analysis of these products would be highly desirable both for the manufacturers and consumers. Near-infrared spectroscopy has been used as a method to predict the quality of different foods due to the speed of analysis and minimal sample preparation.

The results of several experiments, related to the application of near-infrared spectroscopy to study the degree of ripeness of white brined cheese and yellow cheese and the discrimination of natural and imitation cheese and yogurt, will be presented.

* Investigation of the ripening process of Bulgarian white brine cheese and Bulgarian yellow cheesefrom cow milk, coagulated with cheese rennet and went through a process of ripening. Samples for spectral analysis were taken from the first up to 74 days.
* Yogurt from cow milk (natural or mixed with 5, 10, 15, and 20% dry skim milk), prepared in laboratory conditions.
* Bulgarian white brine cheese - natural from cow milk, produced from a mixture of cow milk and dry skim milk, imitation products with vegetable oil.

Spectra of all tested samples were obtained with a scanning NIRQuest 512 (Ocean Optics, Inc.) instrument in the range of 900-1700 nm using a reflection fiber-optics probe. PLS models were developed for quantitative determination and SIMCA for classification.

Results showed the potential of near-infrared spectroscopy as a non-destructive and rapid screening tool for assessing cheese ripening and detecting the adulteration of dairy products.

**Keywords:** cheese, natural, imitation products, near-infrared spectroscopy

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