

## Method for Measuring Casein Particles Size in Artisanal Fresh Sheep Cheese by Dynamic Light Scattering

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Dynamic light scattering (DLS) has, up to recently, mostly been applied for scientific purpose. But, in recent years, it is gaining importance in quality control of different industrial products as well as for analysis of biological systems. The purpose of this preliminary study was to evaluate the possibility of using DLS for measuring the casein particles size in artisanal fresh sheep cheese. It is well known that casein size has great impact on the cheese structure. The samples of the artisanal fresh sheep cheeses ( $n = 10$ ) were collected during the lactation season in 2007. The cheeses were made from Friesian sheep un-refrigerated raw milk and had the shelf life of three days. The samples were analyzed on the first day after production. Casein was isolated using modified Ridascreen Casein method: Enzyme immunoassay for the analysis of bovine casein (Art.No.:R5102, R-Biopharm AG, Darmstadt, Germany, 2006.). pH of prepared casein suspensions has been adjusted to the value of pH measured in cheeses. The casein particles sizes were determined by DLS using Zetasizer Nano ZS (Malvern, UK) instrument operated with green laser (532 nm). For each sample ten measurements were performed on 25°C. The measured mean size of casein particles in the analysed samples was  $12.81 \pm 0.36$  nm. No significant differences in sample variability were observed according to Bartlett's test. These results indicate that DLS method might be useful and efficient tools for studying the structure of the artisanal cheese. Moreover, the publications dealing with cheese structure are scarce and data poorly understood. In addition, DLS method is non-invasive and can be applied for measuring the sizes of the isolated individual particles using conditions which are similar or identical to those in the original samples.

Keywords: cheese, casein, size, DLS

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