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## A 11 - Size Distribution of Casein Micelles in Sheep Milk Studied by Dynamic Light Scattering

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Colloidal characteristic of casein micelles and average diameter from less than 50 nm to over 500 nm was confirmed in many studies. However, there is no update study dealing with size distribution of the native casein micelles during lactation period. The aim of this study was to investigate size distribution of casein micelles in raw sheep milk during lactation using DLS method (Dynamic Light Scattering). Eleven samples of fresh bulk raw milk were collected during lactation of east Friesian sheep, every 14 days, during 2007. No samples preservation was applied. Casein was isolated using a modified method ISO 17997-2:2004: Milk – determination of casein-nitrogen content, Part 2, direct method. Basic modification step in isolation protocol was application of centrifugation instead filtration. The isolated casein was suspended in 8 M urea buffer, which pH value was adjusted to the actual pH value of the investigated milk samples. The size distribution of casein micelles, in the prepared suspensions, was measured by DLS method using Zetasizer Nano ZS Malvern, UK, instrument operated with a green laser (532 nm). For every sample ten runs measurements were performed at the temperature of 25 °C. Result of every measurement was derived as average of 12 to 16 sub runs measurements. Contin analysis was used for deconvolution of intensity auto-correlation function to obtain casein micelles size distribution. Data processing was carried out by the Automeasure software (Malvern Instruments). The size distribution of casein micelles in this study varied from 55 nm to 370 nm. Results are presented as number distribution histograms for every sample. These results indicate size heterogeneity of casein micelles during lactation period. Keywords: casein micelle, sheep milk, size distribution, DLS

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