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INFLUENCE OF MILK FAT AND PROTEIN LEVELS
ON COMPOSITION AND MICROSTRUCTURE
OF SKIN LAYERS IN KAJMAK FORMATION

M. Radovanovic[*], A. Nedeljkovic, J. Miocinovic, V. Pavlovic, P. Pudja

University of Belgrade, Faculty of Agriculture, Belgrade, Serbia

The effects of different milk fat and protein levels on the composition and microstructure of skin layer which was formed during initial stage of kajmak formation (60 min) were investigated. Microstructure was determined using scanning electron microscopy, SEM. Distribution of proteins fractions in the skin layer samples was studied by SDS PAGE in reducing and non-reducing conditions. At milk with typical composition (4% fat; 3.4% protein) increasing of milk fat content (4 to 8%) contributes to increase fat content ($p < 0.05$) and decrease protein content in the skin layers ($p < 0.01$). In the same conditions, the increasing of the protein content from 3.4 to 5%, there was no statistically significant effect on the skin layer composition. Add whey proteins have shown to influence the composition of the skin layers, which was statistically significant only in enriched milk composition (8% fat, 5% protein). Electrophoretic analysis, in reducing and non-reducing conditions, confirmed that the whey proteins, β-lactoglobulin and α-lactalbumin, were present in the all skin layer samples, mainly as disulfide linked complexes. Skin layer with low fat content and low F/P ratio was characterized by a uniform microstructure. Microstructure of the skin layers with higher fat content and F/P ratio were characterized by dispersive form of the stretched protein matrix. The skin layers, which are produced from milk with added whey proteins were characterized with fibrous, thread-like segments probably due to incorporated denatured whey proteins. Fibrous type of the skin layer microstructure additionally was expressed in sample with higher fat content.

Keywords: Kajmak, skin layer, milk fat, milk proteins, microstructure

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[*] Corresponding author: m.radovanovic@agrif.bg.ac.rs