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DOI: 10.2478/auoc-2023-0006

Ovidius University Annals of Chemistry Volume 34, Number 1, pp. 34 - 40, 2023

The effect of maturation conditions on physicochemical and viscoelastic properties of Kashkaval cheese

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Abstract. The equilibrium stress, decay stress, relaxation time, viscosity, modulus of elasticity, and decay modulus are major characteristics of viscoelastic food materials and therefore a modified mechanical model was used in this current research for the viscoelastic properties' evaluation of Kashkaval cheese. Also, the chemical composition (fat content, moisture, protein content, water activity, salt, and acidity), and inside-outside color of the Kashkaval cheese were studied. From the analysis of stress relaxation curves the analyzed cheese samples fall into the category of viscoelastic solids with equilibrium stress greater than 0. The decay stress and decay modulus of the maturated unpacked samples showed the highest values of 36.31 kPa and 121.05 kPa, while the relaxation time of cheese samples was greater than 112.35 s. To evaluate the fit of the applied mechanical model to the experimental data the determination coefficient ($R^2 > 0.937$) and the absolute average deviation coefficient were calculated (AAD < 10.324) and the evaluated cheeses' parameters with the modified Maxwell model were at statistically appropriate levels.

***Keywords*:** Kashkaval cheese; Maxwell model; decay stress; relaxation time; color.

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