SEAE 16P **EFFECT OF ELECTROPHYSICAL PROCESSING, HIGH TEMPERATURE AND PH VARIATIONS ON FOUR WHEY PROTEINS**

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Whey proteins are heat-labile. In accordance with the data in [1], high temperatures reduce whey proteins stability in the following order: PP> α-La> β-Lg> BSA> Ig. Heat treatment causes significant deterioration of the protein structure, leading to the modification of physicochemical properties, including solubility, water holding capacity, emulsifying, foaming and gelling [2]. Such factors as pH, concentration of salts, sugar and proteins have a significant influence on the thermal behavior of four major milk whey proteins.

The pH dependent aggregation of proteins apparently differs from the real protein denaturation. It was demonstrated by our team that in solutions of a low ionic strength, when increasing pH from 5.5 to 6.5, the temperature of denaturation decreases from 80ºC to 70ºC. Although β-Lg denaturizes at pH ≥6.0 rather than at pH <5.5, the increase of pH up to ≥6.0 will increase the protein-water interaction, thereby favoring protein solubility. This effect will contribute to the rejection of protein charges and will weaken the protein-protein interactions. It was found in our experiments that the solubility of whey proteins decreases markedly during heating at pH between 5.0 and 5.5, but not greater than 6.0.

The electrophysical processing of whey after the manufacture of the granulated cottage cheese „Grăuncior" and of the "Cottage cheese", 2% fat content, in electrolizer EDP-2, with a uniform flow in the cathode cell (CC), at a current density of j=20 mA/cm^2, and electrophoretic analysis of the samples collected each 5 minutes with the gel SDS-PAGE 15%,), as well as the isolation of soluble proteins with the phosphate-citrate buffer (Me Ilvane) 0.5 M NaCl, 0.5 mM EDTA (0.04% NaN_3), pH 5.6, made it possible to identify many various protein fractions depending on the energy consumption, volume of the processed whey, duration of processing and variations of pH. At the electrophysical processing of the whey after the manufacture of the granulated cottage cheese „Grăuncior in EDP-2, at j=10mA/cm^2, in the stationary regime, a higher degree of the isolation of β-Lg was registered in the soluble fraction isolated from the PMCs with 0.05 M Tris-HCl buffer 0.5 M NaCl, 0.5 mM EDTA (0.04% NaN_3), pH 8.0, during the entire processing period. Electrophoregrams of proteins soluble in 0.05 M Tris-HCl buffer 0.5 M NaCl, 0.5 mM EDTA (0.04% NaN_3), pH 8.0, of PMCs obtained at the processing of the whey after the manufacture of the "Cottage cheese", 2% fat content, in EDP-2, in the stationary regime, at j=10mA/cm^2, shows that the highest percentage of the isolation of β-Lg (about 70%) is registered from the first minutes of processing, going down later, in contrast to α-La that goes up at the end of the process. The presence of the studied protein fractions is much smaller than in the concentrates obtained in the processing of the whey after the manufacture of the granulated cottage cheese „Grăuncior", under similar conditions.

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