

SEAE 15P ELECTROPHYSICAL PROCESSING OF WHEY: SOME EXPERIMENTAL DETAILS

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The presentation considers certain details of the experimental investigations of three types of whey via electrophysical processing in two electrolyzers: EDP-sectional and EDP-2, at current densities of $j = 10$ and 20 mA/cm², in the stationary regime. The study of the electrophysical processing of whey shows that certain technical requirements are necessary to follow in order to ensure control of a technological process that takes place in an electrolyzer. The three types of whey are supplied by Chisinau dairy factory “JLC”, after the manufacture of: 1) the granulated cottage cheese „Grăuncior”, 2) the „Cottage Cheese”, 2% fat content, and 3) the „Curd product”, 18% fat content. In addition, the authors dealt with the identification of the content of soluble protein fractions (Qp, %) in the 0.05 M Tris-HCl buffer 0.5 M NaCl, 0.5 mM EDTA (0.04% NaN₃), pH 8.0, investigated by the electrophoresis SDS-PAGE 15%, after major fractions mentioned above, and demonstrated variations of the protein content, which is different from those isolated in the continuous regime at electrophysical processing.

Processing of the whey after the manufacture of the „Cottage Cheese”, 2% fat content, in electrolyzer EDP-sectional, at $j=20$ mA/cm², when the ratio of the working volume on the electrode surface is 4 makes it possible to fractionize the proteins isolated in the protein mineral complexes (PMCs), however, an elevated level of the presence of β -lactoglobulins is registered from the first minutes of processing.

Electrophysical processing of whey after the manufacture of the „Curd product”, 18% fat content in EDP-2, at stationary regime, $j=10$ mA/cm², vividly demonstrates different isolation of protein whey fractions in the PMCs depending not only on the processing regime, which mostly depend on the energy consumption, the volume of the processed whey, duration of processing and variations of pH, but also on the types of the whey being processed that, in turn, depends on the primary processing of milk.

Under study also was the effect of temperature on the isolation of different protein fractions in the PMCs. Graphic presentations were made of the temperature variations in both the liquid and foaming phases during processing and immediately after processing of all PMCs with different electrolyzers, using different types of whey at different whey flow regimes, and electric current densities.

As a result, it was found that the degree of the recovery of proteins in the PMCs is different for the three types of whey investigated; and that variations of electric current strength, of the active acidity (pH), of the degree of recovery of protein fractions from whey in the PMCs are higher at high current densities

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