

AMINO ACID COMPOSITION OF PROTEIN MINERAL CONCENTRATES BY ELECTROACTIVATION OF WHEY

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High biological or nutritional value of whey proteins is due to an elevated content of essential amino acids and conditionally essential or functional amino acids. It is known that whey proteins make up about 20% of the milk proteins. The remaining 80% is casein. But comparing the amino acid profile of these two milk protein fractions shows that whey proteins contain a higher amount of essential amino acids (EAAs) and branched chain amino acids (BAAs) that are physiologically extremely important and confer whey proteins an important biological value. More than 50% of the amino acids in whey proteins are essential or conditionally essential amino acids. The nutritional value of a protein reflects its essential amino acid composition. Whey and casein (the principal milk protein) is the only protein containing all essential amino acids, and therefore has a very high nutritional value.

The degree of amino acid isolation in protein mineral concentrates (PMC) during electroactivation of whey (collected at the Joint Stock Company "JLC", Chisinau, RM, after the manufacture: of the granulated cottage cheese „Grauncior” and “Cottage cheese”, 2% fat content,, at different processing regimes (stationary regime, current density electric $j = 10 - 20 \text{ mA/cm}^2$), depends on: current density, duration (time) of processing and on the type of whey. The determination of the content of amino acids in the studied samples was done by the ion-exchange chromatography, with the help of amino acid analyzer AAA-339M.

Varying these parameters, it can be modeled content of essential and functional amino acids in PMCs during processing.

The maximum degree of isolation of free amino acids, especially of essential amino acids it is recording during electroactivation of whey after manufacture of the granulated cottage cheese „Grauncior” at current density $j=20 \text{ mA/cm}^2$ in the 10th min of processing.

Also the most important functional amino acids such as immunoactive amino acids, sulfur containing amino acids, glycogenic and ketogenic amino acids have the same character of content variation in PMCs as essential amino acids: during electrophysical processing whey after manufacture of the granulated cottage cheese „Grauncior” and of whey after manufacture “Cottage cheese”, 2% fat content, at current density $j=10 \text{ mA/cm}^2$ and $j=20 \text{ mA/cm}^2$ the highest degree of isolation it is revealed at whey after manufacture of the granulated cottage cheese „Grauncior”, at current density $j=20 \text{ mA/cm}^2$.

Obtained results represent interest in direction of PMC obtaining with desired amino acids content and spectrum by applying various parameters (regimes) of whey electroactivation.

The level of migration of each essential amino acids and nonessential amino acids in PMCs is varying in dependence of time of electroactivation, current density, pH value and temperature that can be promising investigations in direction of PMC obtaining with desired amino acids content and spectrum by applying various parameters (regimes) of whey electroactivation.

Keywords: amino acid, electroactivation, essential and nonessential amino acid, whey.

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