

DETERMINATION OF AMINO ACID COMPOSITION AND BIOLOGICAL VALUE IN PROTEIN-BERRY CONCENTRATES

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Abstract

Research of the amino acid composition of proteins, including the content of free and fixed amino acids, and biological value in protein-berry concentrates, obtained by thermo acid coagulation are an actual direction.

Concentrates obtained by thermo acid coagulation of milk proteins with organic acids of berry coagulant and milk-protein concentrates made according to the classical technology were used for researches. The study content of free and fixed amino acids has been realized by ion-exchange chromatography. To evaluate the balance of amino acid composition in concentrates by content of essential amino acids, the amino acid score and biological value have been determined by the calculation method.

Proteins in concentrates have a full amino acid composition and contain all essential amino acids, the content of which from amounts are 41.97% and 43.96%, respectively, for protein-berry and milk-protein concentrates. The total content of amino acids in protein-berry concentrates increased by 20.18% compared to the control sample - through the active coagulating effect of organic acids blackcurrant paste. A quantitative content of 18 free amino acids has been determined in protein-berry and milk-protein concentrates, of which: glutamic acid, histidine and methionine are dominant, and 16 fixed amino acids, where the dominant are: glutamic acid, leucine and proline. Protein-berry concentrates have a differential coefficient of amino acid score below the control sample at 19.73% and the amino acids in them are absorbed more fully.

This confirms the increase in biological value by 2.5 times as compared with the classical concentrate, according to the coefficients of utilitarian, redundancy and rationality of the amino acid composition.

Key words: Concentrate, Coagulation, Amino acids, Biological value.