FAT EFFECT OF STANDARDIZED MILK ON QUALIMETRIC INDICATORS OF PROTEIN-BLUEBERRY CONCENTRATES

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Abstract

Effect research of fat content changes in standardized milk on the yield and quality indicators of protein-blueberry concentrates in the process of thermo acid coagulation of milk proteins with a berry coagulant – cavitation-processed blueberry paste is relevant. The aim of the research is to determine the effect of mass fat fraction in standardized milk on the qualimetric indicators (yield, moisture mass fraction, water-retaining capacity) of protein-blueberry concentrates, obtained by thermo acid coagulation of milk proteins.

Concentrates obtained by thermo acid coagulation of milk proteins with a mass fat fraction from 0.05% to 3.2% under classical condition - coagulation temperature 75 ± 1 ^{0}C with an hold time of 2 ± 1 min were used for research. Blueberries, in the form of a long-term storage paste and increased biological value using hydrodynamic cavitation processes, were used as a coagulant. The amount of berry coagulant addition was 7 ± 0.35%. Determination of qualimetric parameters in concentrates was completed according to the following methods: yield (mass) - by gravimetric method, mass moisture fraction - by thermo-gravimetric analysis, water-retaining capacity - by the Grau-Hamm method in A. A. Alekseev modification and microstructure - by luminescence microscopy.

Under the same process conditions of thermo acid coagulation with a change of the mass fat fraction in standardized milk from 0.05% to 3.2%, the increase in the yield of protein-blueberry concentrates is from 455 g to 580 g from 3 dm^3 of milk. The mass moisture fraction of such clots increases by 5.5% with an increase in the fat of standardized mixtures due to the fat globules presence in the concentrates, which clog capillaries and delay the whey separation, and was higher at the level of 3 - 6.5% compared to milk-protein concentrates (control samples). All protein-blueberry concentrates have a tightly bound protein structure, high water-retaining capacity, which increased by 16%, according to the clots compacting and depended on the increase in the mass fat fraction of standardized milk.

Protein-blueberry concentrates with different mass fat fractions can be the recipes basis for cheese products and half-prepared processed foods, which will expand the range of biologically valuable protein products.

Key words: *Coagulant, Qualimetric indicators, Protein-blueberry concentrate, Standardized milk, Thermo acid coagulation.*