34. Study of the effect of milk protein preparations on model mincemeat of chopped semi-finished products

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Introduction. Preparations of milk, whey proteins and protein hydrolysates are currently actively used as part of various complex protein additives for the production of meat products. Milk proteins stabilize the minced meat and compact the structure of the products. They activate meat proteins, increase their moisture-binding capacity, allowing to reduce losses during heat treatment, increasing elasticity and stabilizing the consistency of meat products during production and storage. Milk protein concentrates also improve the organoleptic characteristics of meat products, ennoble their taste, aroma and color, give them a fresh look, and extend their shelf life.

Materials and methods. Minced meat belongs to systems with a coagulation structure, the particles of which are bound into a solid frame by the forces of intermolecular interaction. It is known that proteins of animal origin have greater interaction forces than plant proteins. The part of beef that gives the minced meat viscosity is replaced by milk protein, which has a much lower strength of interaction between particles. Milk protein is evenly placed between the particles of muscle tissue, increasing the distance between them. To maximize the moisture-binding capacity of meat, the recommended dose of adding dry milk proteins is 0.1...1.0%. With an increase in the amount of milk, there is a deterioration of the water-binding capacity.

The results. To determine the optimal amount of added milk powder and whey, the functional and technological indicators of model minced meat were determined.

Functional and technological indicators
model mincemeat of chopped semi-finished products before and after heat treatment

Samples of meat products	Before heat treatment			After heat treatment	
	pH	Moisture content, %	Moisture-binding capacity, %	Moisture content, %	Ability to retain moisture, %
Control	6.60	70.6±0.1	80.6	57.90	63.12
Sample with dry milk 1%	6.65	75.1±0.2	79.7	59.22	61.92
Sample with dry milk 2%	6.62	78.3±0.1	79.0	58.31	60.94
Sample with dry serum 3%	6.61	79.4±0.1	78.4	58.53	59.03
Sample with dry serum 5%	6.61	67.5±0.2	81.3	58.83	64.05

Conclusions. When comparing the results of the study of functional-technological indicators of model minced meat, samples with 2% dry milk and 5% dry whey had better functional-technological indicators, which are also correlated with the control.

Literature.

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