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*Food Science for Well-being*  
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### **SOY ISOLATES IN TECHNOLOGY OF MEAT PRODUCTS**

Proteins from plants and animals are the most common preparations on the market food supplements. They are used to correct the balance of properties and chemical composition of foods. They can stabilize the quality and yield of products and effectively modify the functional and technological properties of meat and correcting nutritional and biological value of the finished product.

To justify scientifically the usage of plant protein preparations for production of functional compositions by studying their functional and technological properties, the impact of the latest technological various factors and determine the feasibility and benefits of entering into the meat system.

In the production of food products, plant protein preparations are widely used. Their usage is proved because of functional properties, which refers to the behavior of proteins in food systems. These preparations can improve the technological quality, replace scarce, expensive raw materials and enrich foods with protein.

Particularly soy protein isolate is noteworthy. Their high functional and technological properties combined with high biological value, multiplicity of technological applications, high efficiency and ease of use suggest this type of preparation as the most promising for implementation in the production of meat products, as evidenced by the experience of most countries. Soy isolates are mainly presented by globular proteins that are well combined with the physical characteristics (ability to hydration, high solubility, viscosity, thermal and salt resistance) with raw meat. Soy isolates are characterized by high functional and technological properties: moisture linking, fat absorbing and emulsifying capacity, are capable to form gels, structured matrices, stabilize the emulsion.

When hydration of 1 part of soy isolate with 4—5 parts water concentration of protein in the system is 14—18%, which corresponds to the average level of protein in the meat and the best coupling-elastic and plastic properties of the gels are observed. Thus, the directed usage of protein containing plant supplements in the preparation of meat is able to: normalize overall chemical and amino acid composition, to compensate for deviations in high functional and technological properties main raw material, to ensure involvement in food production with indirect kinds of protein contained raw materials, improve the quality characteristics of the finished product, reduce the costs of manufactured products.

Despite the great interest and gained positive experience of using foreign soy protein preparations to produce various meat products, in our country there are some difficulties in the implementation of research results because of the economic situation. Thereby, intensive research is being carried out on finding new sources of domestic produced plant protein, including special interest to legumes because of significant protein content, their balance and functional characteristics.

**KEY WORDS:** *plant origin protein preparations, soy proteins, quality, functional properties, meat system*

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### **OPTIMIZATION OF MEAT CARCASSES COOLING**

Resources- and energy-savings problems solving during the cooling process of the oversize meat products is based on the lack of reliable information about dependence of heat removing intensity and meat product shrinkage subject to technological parameters of air and other factors. Scientific researches about the increase in cooling processing efficiency of meat products were not introduced in the production processes in most cases, as the optimization and efficiency criteria have been changed overall and for each producer in particular.

One carried out experimental and planned researches in laboratory conditions to prepare recommendations for the optimal conditions of traditional and new methods for beef carcasses cooling. A sample carved out from a hip of beef carcasses and heat-and-moister proofed from all sides except the surface with surface film was chosen as a physical model of carcass. Two parameters — average density of mass flow from the surface during the time of processing and energetic or technical-economic parameter — were chosen as optimization criteria. The last one consists of the three dimensionless components as depreciation and maintenance, bleeding and cooling of the air, cooling of the carcasses (considering external heat input). Temperature, speed and relative humidity of cooled air in each experiment were maintained at constant level. One carried out full factorial experiment. For the first criteria minimum amount of meat shrinkage took place at speed of  $W_{opt}=1.56\text{m/s}$  and air temperature  $t_{opt} = -5.2^{\circ}\text{C}$ , for the second — technical-economic expenses were minimal giving the terms of optimal speed  $W_{opt}=1.66\text{ m/s}$  and temperature  $t_{opt} = -3.9^{\circ}\text{C}$ .

One also worked out recommendations for carrying out of current method of cooling: initial speed of 3...3.5 m/s, temperature  $-4...-6^{\circ}\text{C}$  with a further slow change for these indicators to 0.2m/s and  $0^{\circ}\text{C}$ .

**KEY WORDS:** *beef, pork, parameters, cooling*