Liquid-phase microextraction methods, which provide rapid, convenient, and high-throughput approaches to sample preparation, can be improved by modification. An example of their significant and diverse advantages is the addition of surfactants: the surface of a solid substrate or a capillary is modified at first, and then micelles are formed, which define different equilibria for chromatographic separation.

Many non-toxic, biodegradable and environmentally safe surfactants are readily available, and the most commonly used organic surfactants have little ecotoxicity [2]. They also make it possible to reduce the proportion of organic solvent in the mobile phase.

The separation that uses water or a buffered aqueous solution containing a surfactant is a good example of green chromatographic analysis, because it eliminates the use of organic solvents [3].

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IMPROVING THE TECHNOLOGY OF MEAT SLICED SEMI-FINISHED PRODUCTS BY USING HYDROCOLLOID ADDITIVES OF PLANT ORIGIN

The analysis of national and foreign literature shows the relevance of improving the technology of meat sliced semi-finished products by introducing plant-based additives into their composition in order to make fuller use of raw material resources in the industry and expand the use of non-traditional raw materials [1; 2].

The expediency of studying this problem is also determined by the need to provide the population with high-quality food products having a balanced composition of nutrients and biologically active substances.

It is well known that meat products are an important constituent part of the human diet. Their nutritional value is primarily determined by the quantity and quality of proteins, as well as by the fats, macro- and microelements contained in these products which are essential for normal human life, along with a number of vitamins and other nutrients that together ensure high taste and digestibility of products.

Currently, the deficit of animal proteins in the human diet has led to the intensive development of new trends in meat product technology, involving the optimal combination of meat and vegetable food components in order to obtain high-quality food products which are balanced in terms of their biological value.

The aim of the study is academic substantiation and improvement of the technology of meat sliced semi-finished products by using hydrocolloid additives of plant origin. The object of research is the technology of meat sliced semi-finished products with the use of hydrocolloid additives of plant origin. The subject of the study is calcium alginate gels, model minced meat masses and sliced semi-finished products based on them.

The following research methods were used: physicochemical, structural-mechanical, organoleptic, as well as mathematical processing of experimental data using modern measuring instruments and techniques.

The use of hydrocolloids of plant origin allows expanding the use of raw materials for meat products and stabilizing the quality of finished products.

For the first time, on the basis of theoretical and experimental studies, the possibility of improving the technology of sliced meat semi-finished products by using hydrocolloid additives of plant origin has been substantiated.

The parameters for the preparation of calcium alginate gels by hydration have beenjustified. It has been determined that the optimal ratio of sodium alginate to calcium gluconate of 7.5:0.35 at a hydromodulus of 1:12 ensures the stability of the heat-resistant gel structure. The replacement of 7.5 % of meat raw materials with calcium alginate gels has been academically substantiated on the basis of improving the functional, technological, structural and mechanical properties of minced masses.

New recipes of sliced semi-finished products based on minced masses have been developed. The existing technology of sliced semi-finished products with the use of hydrocolloid additives of plant origin has been improved.

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INNOVATIONS IN PHYSICAL THERAPY FOR CHRONIC PAIN TREATMENT

Innovative technologies have advanced significantly in the rehabilitation environment. Rehabilitation professionals are often involved in testing, developing, and modifying new and existing technologies alongside engineering and development teams [3]. These innovations can improve rehabilitation, prevent decline and regression, track change, and help maintain a healthy lifestyle. The ultimate goal of innovative technologies is to improve the quality of life of people with complex injuries and illnesses.

Large-scale changes are taking place with the emergence of new innovative technologies and methods in the field of rehabilitation, which will significantly improve the rehabilitation process in the future.

The technological process has led the way to more accurate, efficient and personalized rehabilitation programs. Robotics has already been created that has improved the work of therapists for the recovery of patients [5]. Virtual realityhas also been introduced in the field of rehabilitation, which allows patients to make the therapy process more effective for their injuries. Virtual reality therapy may help patients with phantom limb pain in the early postoperative period [4].

Physical rehabilitation after injuries can be quite lengthy for patients. In addition, often performing basic exercises can be difficult even from a psychological point of view. That is why physiotherapists decided to use virtual reality experiences with gamification elements. Such VR applications allow patients to be more relaxed during procedures, perform more exercises and feel less discomfort during training [1].