

CURATIVE AND PREVENTIVE MEAT PRODUCTS WITH RADIO-PROTECTION PROPERTIES

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The ecological situation in vast spaces of Russia, the Ukraine, Byelorussia became very seriously complicated in consequence of the accident at the Chernobyl nuclear powerstation. Higher irradiation levels, the availability of radionuclides and other factors can provoke many dangerous for human life diseases.

At present it's generally recognized that the efficiency of medicinal and therapeutical treatment and prophylaxis of the consequences of irradiation in low and moderate doses can be increased to a considerable extent due to a special diet. However, the deficiency of some nutrients (vitamins, mineral substances, polysaccharides and other biologically active ingredients) in food products results in increasing the cell sensitivity in the organism to the radiation, carcinogens and leads to a higher risk of diseases.

Therefore, medical scientific research organizations are carrying out extensive investigations on the localization of consequences of the Chernobyl accident as well as those of technogenic activities of men, these investigations being aimed at the development of specialized therapeutic-prophylactic food products. The All-Russian Meat Research Institute also carries out such investigations.

The main source of macronutritive properties of products to be developed is meat raw materials, but their formulations include carriers of radio-resistant properties and flavourings.

As biologically active substances serve vitamins, minerals, food fibers, hydrobionts, alginates, etc.

The development of such products is realized on the basis of medico-biological requirements to be approved by the Institute of Nutrition of the Russian Academy of Medical Sciences (RAMS).

Food and nutritive values of the products (canned meats and meat half-finished products) to be developed and the efficiency of their radioprotective properties were tested in animals (rats) and volunteers (first of all, in liquidators of the Chernobyl accident) at the clinic of the Institute of Nutrition of RAMS, at the Sechenov Medical Academy as well as at the Biophysics Institute of the Russian Academy of Sciences.

These products were characterized by a high food and biological value: protein efficiency ratio was 2,68-2,76 %; protein digestibility coefficient - 94,2-95,6 %.

The anti-radiation efficiency of these products was studied by means of internal and external irradiating animals with radioisotopes of strontium-90 and caesium-137.

It was established that decreasing the mass of animals under test was less expressed and its normalization was coming in more earlier terms as compared with control animals. The content of form elements of perypheral and red blood (leucocytes, erythrocytes, haemoglobin, etc.) in rats irradiated with strontium-90 was significantly higher than in rats of the control group. The accumulation of strontium-90 isotopes in the skeleton of animals under test was reduced more than twice; the caesium 137 concentration in organs of the same animals decreased by 58-62 %.

The results of investigations showed that the consumption of specialized products facilitated the evacuation of radionuclides from the organism and, consequently, led to decreasing a danger of lethal outcome.

At the All-Russian Meat Research Institute investigations are still in progress; their objective is to look for new biologically active substances for creating a new generation of products with radioresistant properties - multicomponent products based on a computer optimization of their formulations.

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