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SOME KINDS OF MEAT RAW MATERIALS AS A FACTOR OF PEOPLE HEALTH IMPROVEMENT

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Background

The level of morbidity of population is largely determined by food quality, the content of the whole complex of the nec ingredients, accounting for the normal vital functions of the organism. Hence, some diseases can be avoided of prevented ow use of special foods, containing substances of the specific functional action. Among widely spread diseases induced by defici of some ingredients on foods, are iron deficiency anemia, osteoporosis, diabetes, obesity, etc.

Objective

The objective of the work was the development of curative and preventive products with the meat raw materials, especially bl slaughter animals.

Methods

Curative and preventive products based on blood of slaughter animals and vegetable raw materials were developed at VNIIMP the method of thermomechanical treatment.

Results and discussion

Chemical composition of the developed products is presented in Table 1.

Tab

Indices	Product of antianemic effect	Product of multipurpose effect
Moisture	6.00-6.30	4.70-6.00
Fat	0.60-0.90	0.50-0.60
Ash	1.00-1.40	1.30-1.40
Protein	14.20-16.20	16.00-17.00
Starch	50.20-56.60	70.00-71.50
Fiber	0.10-0.20	1.60-1.80
Other carbohydrates	18.60-27.90	2.00-4.90

The products are balanced over amino acid composition, and their biological value is not less than 80%. The content of heavy and microelements in the developed products is much less than the limit concentrations, established by hygiene requirements quality and safety of foods. Pecticides and organochloric substances were not revealed.

Microbiological investigations have shown that in spite of short time treatment the offered technological regimes ensure inact of pathogenic microflora and obtaining of wholesome product.

Results of clinical investigations of the antianemic product, conducted on women at the age 20-30 years old, sufferin deficiency are presented in Table 2.

Indices of iron metabolism in the women examined

Index	Initial	After treatment	P
Concentration of hemoglobin in blood, g/dm^3	109.3±2.1	122.3±4.5	<0.001
Concentration of iron in blood serum, μmol/ dm^3	12.92±0.71	14.40±0.57	>0.05
General iron-binding capacity of blood serum, μmol/dm^3	79.8±4.42	75.4±3.01	>0.05
Coefficient of saturation of transferrin, %	18.4±3.42	19.2±1.07	>0.05
Concentration of ferritin in blood serum, ng/ sm^3	17.2±0.91	21.7±1.1	<0.001

Table 3 shows results of clinical tests of curative and preventive product of multipurpose effect.

The investigations have shown that initial hematological and biochemical indices of iron metabolism indicated the presence pronounced iron deficiency in women. Special attention should be paid to the level of ferritin in blood serum, which accor current ideas indicates the reserves of this element in the organism.

After 25 days of regular taking this antianemic product there was a dynamics of hematologic and biochemical indices metabolism. The concentration of hemoglobin in blood and ferritin in its serum was distinctly increased. However there confident change of other serum indices characterizing iron metabolism: its concentration in blood serum and the coeffic saturation of transferrin actually did not change.

Table 3

Change of body weight, glucose in the blood and blood pressure during dietary therapy using curative and preventive product of multipurpose effect.

Groups of patients	Mass (kg)			Blood pressure (mm. Hg. column)			Glucose, mmol/dm3					
							in blood serum			in capillary blood		
	at the beginning of invest.	at the end of invest.	change, % from initial	at the beginning of invest.	at the end of invest.	change, % from initial	at the beginning of invest.	at the end of invest.	change, % from initial	at the beginning of invest.	at the end of invest.	change, % from initial
1.	90.4±4.56	86.0±3.99	-5	144.0±7.18 87.0±3.34	132.5±4.6 78.5±1.3	-8 -10	8.34±1.05	7.26±0.67	-13	7.58±0.52	6.61±0.53	-13
2.	105.5±8.23	97.2±6.74	-8	145.5±8.38 77.5±1.53	130.0±3.16 66.5±3.44	-11 -10	7.78±1.01	7.52±0.96	-3	8.72±2.39	7.78±1.11	-11
3.	96.1±9.08	90.6±7.3	-6	141.0±5.85 89.5±3.53	128.5±2.36 79.0±1.24	-9 -12	7.0±0.54	6.7±0.39	-4	6.86±0.18	5.86±0.23	-15
4.	81.6±4.8	78.6±4.1	-3.7	145.2±3.67 90.6±3.01	139.1±4.05 78.6±3.01	-10 -13	8.92±1.57	7.34±1.67	-18	8.07±1.23	6.01±0.73	-25

During four-week uptake of the product of multipurpose effect there were no unfavorable effects on the studied parameters. The total level of protein in blood serum did not change. The content of glucose in blood serum in diabetes patients decreased in all the groups. A correction of the indices of lipid metabolism disorders was noted. Thus, the level of cholesterol decreased in all the cases. There was a trend to decrease in the content of triglycerides. There were no deviations from normal values of functional state of liver of the patients.

The patients of all the groups having hypertension had a reduction of blood pressure by 8-13% from the initial value.

Conclusions

The results of the investigations show that the products developed with the blood of slaughter animals subjected to treatment according to the proposed technology were equally well endured by the patients having different diseases of internal organs, helped to improve biochemical indices of iron metabolism in the organism, recovering of disorders of functions of large intestines, correction of carbohydrate, lipid metabolism and blood pressure. Any negative side effects when using these products were not revealed. All this allowed us to consider that they can be successfully used in rational and curative and preventive treatment. Being manufactured from the raw materials of natural origin these foods don't cause side effects and can be used for prolonged periods of time in dietetic, curative and preventive treatment at 100-200 g per day for the product of antianemic effect and 100 g per day for the product of multipurpose effect.

Reference

1. Faivishevsky M. L., Lisina T. N., Mescheryakova V. A., Plotnikova O. A. New products based on slaughter animals blood. Achievements of science and technique. 1995, No. 5, pp. 37-38.
2. Mescheryakova V. A., Plotnikova O. A., Yatsyshina T. A., Sharafetdinov H. H., Faivishevsky M. L., Lisina T. N. New extrusion products in dietetic therapy of some diseases of internal organs. Voprosy pitania, 1995, No. 5, pp. 31-33.
3. Lisina T. N. To develop technology of the product of antianemic action with the use of the blood of slaughter animals. Thesis for the Candidate of technical sciences, M., 1998.
4. Faivishevsky M. L., Lisina T. N. Intensive method of obtaining of combined products of curative and preventive effect // Materials of international scientific-practical conference "Food, ecology, man", M., Moscow state academy of applied biotechnology, 1995.
5. Faivishevsky M. L., Lisina T. N., Stepanov V. I. Use of animal proteins for obtaining products with antianemic properties // Reserves of increase of foods production on the basis of rational use of meat raw materials: collection of scientific papers of VNIIMP. – M., 1992, pp. 15-24.
6. Faivishevsky M. L., Lisina T. N. Extrugem – new product of antianemic effect //Myasnaya promyshlennost, 1994, No. 2, pp. 23-24.