NEW PRODUCTS IN DISEASE-PREVETIVE DIEAT

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INTRODUCTION

Specific features of processing of agricultural animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the production of various secondary professional animals are connected with the professional animals are connec products. Among them blood takes a special place. It is a unique product, to which composition go proteins, vitally important mineral substances, vitamins. Its composition is heterogeneous and consists of blood forming elements and a liquid part - plasmi According to the protein content it is similar to muscle tissue. Protein complex of blood includes a large number of amino acids iron in the organically bound form. Thanks to this iron digestibility is about 2 fold higher than that of meat and meat products a more than 4 fold exceeds this index in vegetables, fruits, bakery products. Hemoglobin is the constituent of blood erythrocites and mass share is 30-41 %. Hem bindings ensure not only its attachment to the protein part of a molecule but prevents iron fro oxidation. Owing to high mass share of iron in hem (about 9 %), hemoglobin has a high food and biological value [1, 2].

Limited application of blood and blood forming elements is explained by brightly pronounced red colour and characteris odour, which give to the finished specific organoleptic indices. Large amounts of unused blood of cattle open wide perspectives creating various deseave - preventive products, technological forms, necessary for heath maintanence of population at anaemia.

At present time more than half of population suffer from iron-dependent anaemia. Iron deficit is extremely vivid in the organism in growth peiod and sexual maturity of teenagers.

The main components of blood and its fractions are protein substances. They perform energy and plastic functions in human organism. Amino acids which are necessary for growth of tissue proteins are taken into the human organism mainly with animal proteins. In this connection complete proteins, to which plasma proteins of blood refer, are necessary. They are easly digest even by a weakened organism. The main fractions of plasma proteins are serum albumins, serum globulins, The rest part include nitrogenous extractive substance and extractive substances without nitrogen, lipids and mineral substances [3].

Thus, potential possiblities of use of blood fractions in food and disease preventive products are great, but unfortunately not fully realized. Besides, the perspective of non-traditional and original products from blood and its fractions which we combine reducing and high consumer qualities, are not still evaluated.

MATERIALS AND METHODS

Food blood forming elements obtained from cattle slaughter with the observance of all necessary rules of the vetering inspection were the objects of the study. Plasma and the cattle blood formig elements have been used after the prelimina stabilisation by sodium pyrophosphate. Besides the cattle blood plasma has been used in the production conditions after the blood collecting by separation of the whole stabilized blood on the separator BCA - 3 taking into account the present technologic instructions.

The assortment of the proteinases has been composed of the industrial enzymatic preparations of the animal and microbi origin: protosubtilene D20x, megaterine D20x, pepsin.

Organoleptic indices of the blood plasma and finished products, appearance, clearness and colour have been determined visually in the passing light pouring plasma and the finished product in the tube (2/3 of the height).

Ash mass share was determined by burning in the oven.

Fat mass share was determined refractometrically by the method [4] on the refractometer IRF-4546. This method is based the extraction of fat from the product by the low volatile solvent (α -monobromnaftalene).

pH value was determined by the potentiometric method on the device pH-121 according to instruction.

Mass share of the protein - photometrically with the simple ashing according to the method of Kjeldahl.

The content of metals - on the atom-absobtion spectrophotometer C-115M.

Amino acid content was determined on the aminoanalyser T-339 (Chehia).

RESULTS AND DISCUSSION

In the practical technology of blood using hemolysis is the integral part. Nowadays erytrocites capsules are destroyed acquecous hemolysis (dilutio by water 1:2). Other ways of cell capsules destruction known as well, e.g. with the help of enzymet and chemical reagents (ethanol, acids). However, for practical application summerized data, the development and production special enzymatic preparations are requiered. All this is connected with rather expensive material expenditures. As the result studies it has been established, that it is expedient to communicate the result. studies it has been estalished, that it is expedient to carry out hemolysis of cattle blood with the help of hydrochloric acid for 500 and hemolysis of blood forming elements. for 10 min At a line of the state of and hemolysis of blood forming elements - for 10 min. At such conditions even youg cells of erythrocites are destroyed, but pH 6-7 necessary for most food and disease-preventive products is saved.

Proceeding from the known formulations and production technology of children hematogen there have been developed bilded blood for the products in which formulations are included blood for the products of the product finished products, in which formulations are included blood forming elementes, sugar, preservative agents, mixture of vegetable animal fats, aromatizes. Heat treatment applied in the technology allows to desroy porfirine rings of the hem pigments. At ^{gl} tritment iron comes into unbound form and becomes more accessible at absorbtion by digestive organs.

The technology of obtaining half-finished products includes blood collection and its division into fractions, hemolysis etion of cell capsules, evaporation up to 35.40 % content of d destruction of cell capsules, evaporation up to 35-40 % content of dry solids, making formulation, coking, aromatization pasterization, cooling and packaging.

It is recommended to carry out evaparation under vacuum at the temperature not higher than 40 °C in order to previation of he blood proteins. Further postaurization or the second secon coagulation of he blood proteins. Further pasteurization ensures the microflora distruction. Study of the half-finished products the presence of microorganisms showed the following: coliform bacteria, sporeforming microorganisms, spores were not revealed Study of microorganisms growth dynamics allows to recommend to store half finished for during microorganisms. Study of microorganisms growth dynamics allows to recommend to store half-finished products for a month at 0-4 °C and using vacuum packaging - over 1 month. using vacuum packaging - over 1 month.

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Recommended fat components allow to enrich half-finished products by polyunsaturated fatty acids, phosphatides, fat-^{soluble} vitamins, stearines, un order to avoid product burning to the walls of cooking apparatus. The application of aromatizers ensures the fruit or coffee odour of the product and eliminates the specific odour of a the half-finished product.

The developed half-finished products contain a considerable part of the protein, including all essential amino acids adequate to the demands of FAO/WHO to the ideal quantity of the protein, which opens new aspects of application of the protein resources in the formation of the prot the formulations of original products characterized by easily digestible forms of healthy components available to different social and physicles. physiological groups of population. Food half-finished products may be applied for the production of special products,

recommended for inluding in the diet at the deficit of iron, realized in the form of protein pastes, confectionary products, additives. In appearance it is a pasty of the chocolate colour. Consistency - homogenous and pasty. It has the odour of the aromatizer, In appearance it is a pasty of the chocolate colour. Consistency - nomogenous and pasty. It has the outer of the half-flayour characteristic to the given half-finised product. The yield of finished products - 85 %. Proteins digestability of the half-finished finished products is 95 %. Energy value - 1419 kj. Half-finished product contains: moisture - 32-35, protein - 20-22, fat - 16-18, ash - 0.2-0.3 0,20,3, carbohydrates - 25-30 %, the half-finished product includes a considerable amount of easily digestable forms of the most important mineral substances: iron - 75-180 mg%, copper - 166-184, zinc - 0,41 mkg%.

Reological study of the half-finised product showed thet according to its qualities it is similar to masses used in confectionery Reological study of the half-finised product showed thet according to its quanties it is similar to masses used its blood forming industry fo the production of sweets. Half-finished products made on the basis of blood of agricultural animals and its blood forming element to the production of sweets. Half-finished products made on the basis of blood of agricultural animals and its blood forming elements may be used as additives to confectinery products (namely-sweets, biscuits, honey-cakes) imitating chocolate masses, for the product: production of children delicacy and ensures both pursposeful change of its food properties and disease-preventive ones.

Ways of using of blood plasma for food purposes are diverse. But most technologies of obtaining food products from plasma Ways of using of blood plasma for food purposes are diverse. But most technologies of obtaining too perturbed and drying. Proceed perations connected with the removal of moisture: ultrafiltration, thickening, evaparating, crioconcentration and drying. Proceeding from the chemical composition of blood, plasma (92 %) is connected with large consumption of energy, equipment etc. [5]. That is why, in our opinion, it is expedient to use blood plasma in the liquid state.

Plasma may be used for the production of various drinks.

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We have carried out studies on the technology development of obtaining drinks from blood plasma of the agricultural animals. To organoleptic indices of drinks without alcohol we refer appearance, clearness, colour, taste, aroma. Blood plasma has a light value light yellow colour, but is not sufficiently clear. That is why we dilute plasma with water in ratio 1:1. Besides plasma becomes clear enough enough and it is not noticed the considerable decrease of dry substances observed at large dilution. The range of dry substances content in a disk raw materials used for its production and its content in finished products may vary considerably. It depends on the type of a drink, raw materials used for its production and its intention. ^{intention}, l.g. Ionic drinks contain about 2-3 % dry substances. From this point of view blood plasma with dry mass. dry mass share 8 % (when diluted 1:1-4) suits best of all to the types of proteins and

With the aim of enriching drinks by easily digestable forms of proteins and decreasing share of highmolecula compounds in the product we have conducted aimed enzymatic treatment of blood plasma in oder to obtain the hidrolysate of the given composition.

Fermentation in the optimum, for complex proteinase, conditions allowed to obtain the hydrolysate with the degry of protein ^{destructuretion} on 75-80 % in addition peptide fractions and aminoacids were accumulating in the reactionary medium. Hydrolysis time was 1,5-2,0 h. Enzyme inactivation was carried out simultaneouly with pasteurization at 60 °C for 15-20 min. In order to avoid denaturation was carried out simultaneouly with pasteurization at 60 °C for 15-20 min. In order to avoid denaturation of the remainder proteins we put sugar before pasteurisation. Finished product is a transparent (clear) liquid without sediment ^{sed}iment and other admixtures, colour, taste, aroma is characteristic to fillers used. The drink obtained is a high calorie product on the basis the basis of blood plasma characterized by a high biological value which allows to recommend it for desease-preventive nutrition. The developd technology is principally a new trend in the blood plasma use for food aims.

CONCLUSION

The development of meat industry in socia-production aspect is aimed at maximum meeting the consumer's needs and the ^{production} of high quality products of new generation, safe ecologically, successful and usefull in medico- biological, respect. Blood forming at forming elements possess undoubtelly some merits. Therefore the widening of the application sphere of this valuable raw material is one of the o_{n_e} of the actual tasks of the meat industry at the present time. Non-rational use of blood points out the necessity of maximum use of this value of the actual tasks of the meat industry at the present time. Non-rational use of blood points out the necessity of maximum use of this valuable source of the protein with good food and technological propertes. The manufacture of the developed half-finished products products and drinks on the basis of blood plasma will allow to use secondary raw material more rationally, to organize complex wastelland wastelless technologies at the meat plants, to widen the present assortment of products having desease-preventive properties, to increase efficiency and production profitablenness.

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