



**МІНІСТЕРСТВО ОСВІТИ І
НАУКИ УКРАЇНИ**

**НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ
ХАРЧОВИХ ТЕХНОЛОГІЙ**

ПРОГРАМА ТА МАТЕРІАЛИ

ТРЕТЬОЇ МІЖНАРОДНОЇ НАУКОВО-ТЕХНІЧНОЇ КОНФЕРЕНЦІЇ

***“Технічні науки:
стан, досягнення і перспективи
розвитку м'ясної, олієжирової
та молочної галузей”***

25-26 березня 2014 р.

Київ НУХТ 2014

13. GERODIETIC MEAT PRODUCTS TECHNOLOGY ENRICHED WITH CALCIUM

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At the end of the twentieth and the beginning of twenty first centuries the scientists of economically developed countries and countries that are developing became interested in gerontology (the study of the aging processes and factors which determine life expectancy of the people of advanced age, in particular the problem of nutrition in old age). 25 % of citizens of Ukraine are pensioners, and 20 % are more than 50 years old. Ukraine is on the eleventh place in the world among the countries with the share of citizens older than 65 years (Belarus - 23 place, Russia — 27). Statistics shows that the percentage of people of advanced age in Ukraine is 20,5 %. The Institute of Gerontology of the Academy of Medical Science of Ukraine predicts that in 2015 it will be 22 %, in 2026 — 26 %, 2050 — 38 %.

Main factors which cause fast ageing are: a) social: low level of income; lack of knowledge about basic characteristics of food products; insufficient level of medical aid; low level of social protection of citizens, and chronic stress; b) ecological: contamination of water, soil, air, and food products; c) incorrect way of life: bad habits; defective nutrition; insufficient afferent activity; incorrect work and rest regime; d) infections.

Conducted investigations in Ukraine show that daily ration of different groups of people consists of comparatively cheap high carbohydrate products (bread, macaroni products, potatoes), as a result organism lacks essential micro and macroelements, polyunsaturated fat acids, anti-oxidizing vitamins (A, C, E).

The urgent problem of present time is a deficiency of calcium in daily ration, that is why different scientists are looking for ways to enrich food products with calcium.

Meat is perspective in production of gerodietic products, as much as this is the main source of protein for human's organism. That is why the aim of our investigation was to study the possibilities of using mineral protein fortifier gerodietic (MPFG) in tech-

nology of boiled sausages, investigating microstructure of model sausage meat and finished sausage products. For production of sausages the receipt of boiled sausage «Stolova» is used in accordance with DSTU 4436:2005. In created receipts we substituted 5 to 20 % of 1st sort beef with a MPFG. The modeling of receipt components and its percentage was made with a help of a computer program BIO.1.

We have investigate the microstructure of sausages with different amount of the MPFG. The investigation of biological tissues is more specific in comparison to native tissues, because we investigate the tissues that underwent mechanical and thermal processing. For histological investigations the samples of sausage products with dimensions 10 x 5 x 4 mm. and model sausage meat were fixed in 2.5 % of gluteraldehyde on phosphate buffer (pH — 7.4), samples were content for 24 hours in 4 °C. Then pieces were washed in phosphate buffer (pH — 7.3) for two hours. After this they were immersed into osmium fixator for additional fixation for two hours. Then the pieces of tissue are washed in 0,1M of phosphate buffer (pH — 7.3) for one hour. The next stage is to dehydrate the tissues in spirits of different strength (50%, 70%, 80%, 90% and the absolute spirit for 10 min. in each), then goes the mixture of spirit and acetone (3 : 1, 2 : 1, 1 : 1, 1 : 2, 1 : 3 — 15 min. each). After the samples are washed, they are processed under Laft method, the samples were poured with Epon - 812. The cuts were made on ultramicrotome by aimed microtoming. Before colouring, the object-plate with the cut was kept in thermostat in 45-50 °C for better fixation on the object-plate. For colouring was used the 0.1 % mixture of toluidine blue. Morphometric analysis was done with the light optical microscope “MBI-15”.

Conclusion. The results of previous physicochemical and organoleptic investigations showed that MPFG can be used in the food industry. The investigation of the microstructure of sausage meat and finished boiled sausages produced using model receipts, shows that addition more than 15 % of MPFG to the content of the product results in powdery structure of finished sausages.

It is proved that the optimal amount of the MPFG in finished product is 10 %.