

SAUSAGES WITH FOOD INGREDIENTS FROM PLANT MATERIAL

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Abstract -This paper describes the technology of sausages with natural flavors and spicy aromatic food ingredients and vegetable crops. Qualitative indicators of the amino acid, fatty acid, mineral and vitamin composition of cooked sausages with taste and-spicy aromatic ingredients and vegetables have been researched. This developed technology and formulation allows to get a product that contains a full-digestible and easily consuming proteins, and makes it reasonable to recommend this technological solutions to produce products of a functional purpose. The developed product can be regarded as a valuable source of intake of vitamin A, β carotene, E, C by the addition of vegetable raw materials and spicy and aromatic ingredients. Also an increase of the amount of unsaturated fatty acids C18: 1, C18: 2, C18:3.

According to the research, by adding these ingredients into food we obtain products with a value of water activity 0.0030-0.0038 units which is lower compared to the control. Thus cooked sausages with food ingredients stay fresh up to 18-22 days.

Keywords-cooked sausage, with tasty and spicy aromatic ingredients, vegetable raw materials

I. INTRODUCTION

Today, share of functional products of total food production in the world is less than 10%. However, the global market of functional foods rapidly develops and increases by 10-15% every year. In 2000, the market share was \$34.2 billion, in 2008 it reached approximately \$ 67.8 billion. Almost 40% of the market belongs to US functional foods, 25% - Japan, more than 30% - Central European countries, including Germany, Britain and France. Kazakhstan market of healthy foods is currently developing dynamically both by domestically produced and imported products. In our country, scientists of leading research institutes and universities actively work on creating of functional products. [1]. Trend of a healthy lifestyle and the pursuit of well-being is growing which leads to higher demand of healthy and organic food ingredients. In the global food industry ingredients are used not only for technological production of food and beverages to improve their flavor and nutritional properties, safety, improve the appearance, but also to meet the

demand for "healthy" foods with low-calorie, low-sugar and fat, with high functionality. Consumers now are more concerned about what they consume as food, pay higher attention to products components on the labels and tend to choose high-quality GMO-free food [2].

II. MATERIALS AND METHODS

There were held a research on the development of sausages technology using food ingredients from plant material in the laboratory, of processing technology and storage of crop production. A boiled sausage developed by technical specification 10.02.01.03 was taken as a check product [3]. Recipes of sausages using food ingredients from plant material (taste and spicy aroma - cumin, ginger, turmeric, cardamom, cinnamon, coriander, allspice, black pepper, vegetables - onions, beets, carrots, pumpkin and wheat germ) were made for the production of sausages. According to the sensory results sausage with a 15% emulsion of taste and spicy aromatic ingredients instead of raw meat was chosen [4]. Studies on the determination of vitamin, amino acid and mineral composition was determined by gas chromatography Shimadzu GC-2010 series and liquid chromatography Shimadzu LC-2010 series. The water activity was investigated on the instrument developed by academician of NAS RK U.Ch. Chomanov. [5].

III. RESULTS AND DISCUSSION

To determine the quality indicators amino acid, fatty acid, mineral and vitamin composition of cooked sausages with taste and-spicy aromatic ingredients and vegetable crops have been studied (Figure 1, 2, 3, 4).

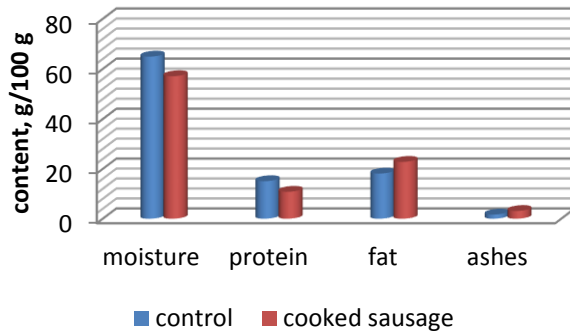


Figure1 - Chemical composition of cooked sausages with food ingredients

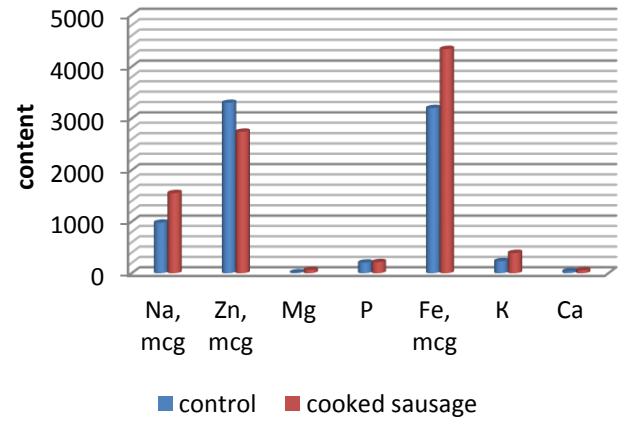


Figure 4 -The mineral composition of cooked sausages

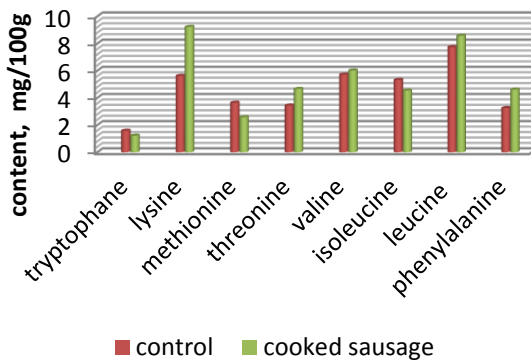


Figure 2 -The content of essential amino acids boiled sausages

Analysis of the amino acid composition shows the rich set of essential amino acids in proteins prototypes of new boiled sausages using food ingredients from plant material. They are characterized by an increase in lysine, threonine, valine, leucine and phenylalanine(Figure 2). Biological value of cooked sausages confirmed PUFA content, minerals and vitamins(Figures3, 4and 5).

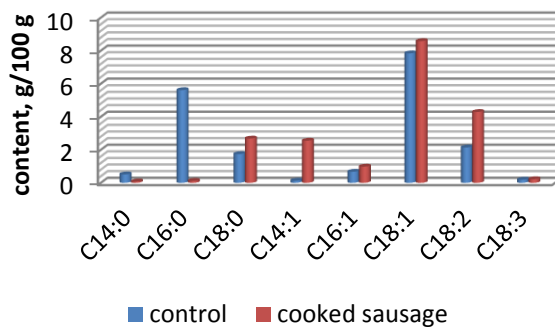


Figure 3 -Fatty acid composition in cooked smoked and cooked sausages

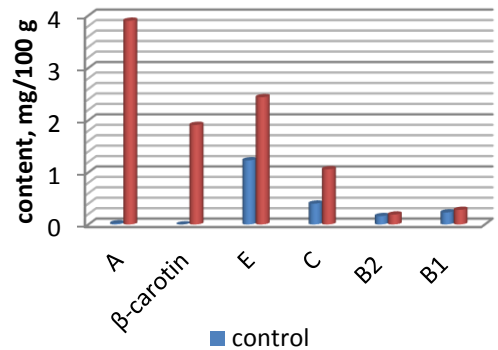


Figure 5 -Vitamin composition of cooked sausages

These studies show that the developed technology and formulation allow to obtain a product containing the full digestible proteins, which gives reason to recommend technological solutions developed for the production of a functional purpose. The developed product can be regarded as a valuable source of intake of vitamin A, β carotene, E, C by the addition of vegetable raw materials and taste spicy and aromatic ingredients. And increase of the amount of unsaturated fatty acids C18:1, C18:2, C18:3.

In developed sausages thermodynamic water activity during storage was investigated (Figure 6). The optimal storage time of sausages largest water activity.

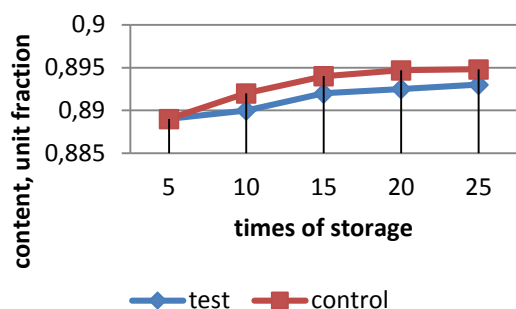


Figure 6 - Change the water activity of sausages in storage

The studies showed that long-term storage of cooked sausages water activity increased from 0.889 to 0.893. According to the results, adding food ingredients allowed to obtain products with a value of water activity 0,0030-0,0038 units. lower compared to the control. Thus the shelf life of cooked sausages with food ingredients is 18-22 days.

IV. CONCLUSION

Analysis of the results showed that the use of food ingredients, taste and spicy aromatic ingredients and vegetable raw materials will enrich the finished products ballast carbohydrates, water-soluble vitamins, minerals and other biologically active substances, as well as ensures the safety of products during storage.

V. REFERENCES

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