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IMPROVING SAUSAGE QUALITY WITH BUCKWHEAT FLOUR

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Abstract: In the context of continuous progress in the food industry, achieving high-quality finished products is no longer just an objective but has become a necessity for consumers and to meet market expectations. The technological, chemical, and biochemical processes applied to raw materials for their transformation into quality finished products inevitably lead to substantial changes in their chemical composition, directly affecting their nutritional value. Plant-based raw materials are used in the production of functional, dietary, and prophylactic foods for children, and one of the options is buckwheat flour. Buckwheat is rich in vitamins, minerals, and starch, and it is notable for its protein and fiber content compared to wheat. It also has a protein structure with high biological value and is gluten-free. This study examines the use of buckwheat flour in meat products, focusing on its impact on the physico-chemical, technological, and organoleptic properties of sausages. Therefore, the partial replacement of pork fat with plant-based protein can be recommended for producing healthier sausages with a balanced fatty acid profile and optimal sensory properties.

Keywords: buckwheat flour, chemical composition, food industry, meat products, nutritive value, sausages

• Introduction

In the context of modern nutrition, meat products enriched with plant-based ingredients have become increasingly popular, with a notable rise in their consumption in recent years. Buckwheat is nutritionally valuable due to its high content of vitamins, minerals, and starch. Recent studies suggest that buckwheat is a rich source of antioxidants, including polyphenols.

• Material and method

For the preparation of experimental sausage samples, the following raw materials were used: lean pork, pork belly, and buckwheat flour. Additional ingredients were included in the experimental recipes: salt, granulated sugar, fresh garlic, black pepper, and ground allspice. All raw materials were purchased from the food market in Iaşi. Studies on the physicochemical and organoleptic characteristics of sausage-type meat products were conducted according to standard methods. The Food Check automatic analyzer was used to determine the protein, fat, water, and NaCl content.. Different amounts of buckwheat flour were added to the analyzed samples: Sample 1 - 20g; Sample 2 - 40g; Sample 3 - 60g; Sample 4 - 80g; Sample 5 - 100g.



Fig. 1 Fresh buckwheat sausages subjected to analysis

• Results and discussions

Table 1
Organoleptic evaluation of experimental
sausage variants subjected to thermal
treatment

Sample variants	Overall assessment	Color	Smell	Texture	Taste	Juiciness
Control sample	exceptional	attractive	fresh	tender	delicious	juicy
Sample no. 1	good	specific	unnoticeable	good enough	tasty	juicy
Sample no. 2	very good	specific	inherent to meat products	very good	sufficiently tasty	juicy
Sample no. 3	exceptional	attractive	inherent to meat products	homogeneous	extremely tasty	juicy
Sample no. 4	satisfactory	dark	insufficiently meaty	acceptable	not tasty enough	bland
Sample no. 5	unacceptable	unsatisfactory/too dark	not meat smell	unacceptable	tastes like buckwheat flour	dry

Table 2
Physico-chemical properties of the experimental
samples

Sample variants	Parameters analyzed according to the STAS admissibility conditiond for fresh sausages			
	Lipid(%) Max. 35%	Protein (%) Min. 9%	Water(%) Max. 63%	NaCl(%) Max. 3%
Control sample	28	16	60	2
Simple no. 1	29,95	15.71	49.14	2.20
Simple no. 2	30.01	15.80	49.20	1,99
Simple no. 3	30.05	15.98	49.49	1.94
Simple no. 4	30.10	16.10	49.57	2.11
Simple no. 5	30.20	16.15	50.02	1.95

•Conclusions

The physicochemical and technological properties of the minced meat system are correlated with the organoleptic characteristics of the experimental product. In the sausage samples produced, the appearance, color, smell, aroma, texture, taste, and juiciness were assessed. Based on the overall organoleptic evaluation, it was found that adding buckwheat flour in amounts of up to 40-60g does not negatively impact the organoleptic quality of the sausages. Therefore, it was concluded that incorporating 60g of buckwheat flour into the minced meat has a positive effect on the physicochemical, technological, and sensory attributes of the sausages.

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