



13-14 November 2025

ANALYTICAL STUDY ON THE INFLUENCE OF MEAT MIXTURE ON THE QUALITY OF SMOKED SAUSAGES

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Abstract: *This study aims to analyze the processing and quality characteristics of smoked sausages formulated from a balanced recipe using different proportions of meat mixtures consisting of pork, beef and mutton. Furthermore, it evaluates the influence of meat composition on product quality through sensory and physicochemical analyses. The findings indicate that the composition of the meat mixture plays a significant role in determining physicochemical and sensory quality.*

Keywords: *sausages; smoked sausages; meat mixture sausages; pork, beef and mutton sausages.*

• Introduction

In Central and Eastern Europe, smoked sausages have gained a special status, being associated with rural traditions and household customs passed down from generation to generation. In Romania, they are part of the national gastronomic identity, varying according to region, spices used, smoking technique, and the blend of meats employed.

This study examines the processing and quality characteristics of raw (unsmoked) and smoked sausages made with varying proportions of pork, beef, and mutton. It focuses on how meat composition influences product quality based on sensory and physicochemical analyses, providing insights into the impact of different meat combinations on the technological and sensory attributes of smoked sausages.

• Material and method

Three experimental batches of sausages were prepared using different proportions of pork, beef, and mutton to evaluate the influence of meat composition on product quality in both raw (unsmoked) and smoked forms. The sensory quality of raw (unsmoked) and smoked sausages was evaluated based on external appearance, cross-sectional appearance, color, consistency, aroma, and overall taste. The evaluation panel consisted of 10 trained assessors with experience in meat product analysis, aged between 25 and 55 years. A 5-point hedonic scale was used, where 5 = excellent and 1 = unsatisfactory. The results were statistically compiled and analyzed by calculating the arithmetic mean for each parameter.

The main physicochemical characteristics reflected the composition and technological quality of the product, including moisture, fat, ash, salt content, and pH.

Each sample of sausages was subjected to both physicochemical and sensory analyses, first in its raw state (before smoking) and subsequently after the smoking process, in order to evaluate how the different meat compositions influenced the quality characteristics and sensory attributes of the final sausages.

• Results and discussions

The evaluation results highlight differences between the raw (unsmoked) and smoked sausage samples, both from a sensory and physicochemical point of view. Smoking significantly enhanced the overall quality profile of the products.

The moisture content decreased significantly after smoking (from 62.80% to 55.47%), which is a natural result of the dehydration process caused by heat and smoke exposure. This reduction contributes to improved texture, flavor concentration, and shelf-life.

The fat content increased slightly (from 26.17% to 28.70%), which is consistent with the loss of water during smoking, leading to a relative concentration of lipids in the final product.

The ash content also increased moderately (from 3.18% to 3.45%), indicating a higher concentration of mineral substances due to water loss and salt penetration during processing.

The NaCl content was slightly higher in the smoked samples (2.10%) compared to the raw ones (1.90%), which can be explained by the redistribution and diffusion of salt during the thermal treatment and smoking process.

The pH value decreased slightly after smoking (from 5.80 to 5.68), suggesting the development of mildly acidic conditions. This change may result from the formation of organic acids during the smoking and partial fermentation process, which helps improve microbial stability and flavor development.

• Conclusions

The conducted study examined the influence of the proportions of different types of meat - pork, beef, and mutton - on the quality of smoked sausages, by assessing both physicochemical and sensory parameters.

The results confirm that both the composition of the meat mixture and the smoking process have a significant influence on the physicochemical and sensory characteristics of the sausages. Smoking not only improves flavor and texture but also enhances shelf stability through moisture reduction and pH adjustment. Among the tested formulations, the variant containing 25% mutton provided the most balanced functional and sensory profile, ensuring optimal technological performance and high consumer acceptability.

Acknowledgement: This study was funded by the University of Life Sciences "King Mihai I" from Timisoara".