

Summary

The increasing consumer expectations regarding the safety and health quality of food encourage the modern meat industry to seek natural functional additives as an alternative to conventional preservatives, such as nitrates. Particular attention is given to by-products of the fruit and vegetable industry, rich in bioactive compounds, including natural antioxidants, which can effectively support the oxidative and microbiological stability of meat products, while aligning with the trend of producing food with enhanced nutritional and health-promoting value. The aim of this doctoral dissertation was to determine the impact of adding freeze-dried tomato pomace on the quality of dry fermented sausages with a reduced content of nitrogen compounds. The conducted research included analyses of physicochemical, microbiological, sensory changes, as well as the nutritional value of dry fermented sausages with the addition of various amounts of freeze-dried tomato pomace (0.5% - 2.5%) both after the production process and during refrigerated storage. The results confirmed that the addition of tomato pomace increased the antioxidant potential of the products, improved their color and microbiological quality and limited the formation of harmful biogenic amines (BA). A positive effect on oxidative stability and the possibility of extending the shelf life was also observed. Using larger amounts of the additive contributed to improving the nutritional value and reducing the release of iron from heme, which influenced the delay of lipid oxidation processes. Additionally, it was found that freeze-dried tomato pomace beneficially affects the sensory profile of the produced sausages, intensifying desirable aromatic compounds, which may contribute to increased overall consumer acceptance. In summary, the obtained results indicate that freeze-dried tomato pomace can be a natural additive enabling the reduction of nitrogen compounds in the production of dry fermented sausages, while maintaining high quality, safety, and health-promoting properties of the final products.

Keywords: dry fermented sausages, tomato pomace, antioxidant properties, nitrates.