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**«Промисловість та крафт для HoReCa
в туризмі: досвід, проблеми, інновації»**

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45. USE OF APPLESAUCE IN THE PRODUCTION OF MEAT SNACKS

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Introduction. The increasing consumer demand for healthier and more sustainable food options has encouraged the development of functional meat products. Among the promising approaches is the integration of fruit-based ingredients into meat matrices to improve nutritional profiles, enhance shelf-life, and reduce synthetic additives. Applesauce, derived from processed apples, contains essential nutrients including dietary fiber, polyphenols, and organic acids, which exhibit antioxidative, antimicrobial, and textural benefits. Incorporation of applesauce in meat products aligns with the clean label movement and supports the utilization of fruit processing by-products. Research shows that such integration can improve sensory acceptability and functional quality of processed meats. Moreover, applesauce acts as a natural humectant and fat replacer, aiding in moisture retention and caloric reduction. The current study aims to explore the functional and technological impact of applesauce on the physicochemical, sensory, and microbiological properties of dried chicken-based meat snacks. This investigation contributes to the development of hybrid food systems that balance health, sustainability, and palatability.

Materials and Methods. Three formulations of meat snacks were prepared using ground chicken breast as the base ingredient. Applesauce (unsweetened, pH ~3.6), soy protein isolate, and sunflower oil were incorporated at varying levels to replace part of the water and fat content. Sample A contained 15% applesauce; Sample B, 25%; and Sample C, 35%. A control sample (0% applesauce) was also prepared. All ingredients were homogenized using a bowl chopper, then formed into strips and dehydrated in a convection dryer at 60 °C for 6 hours until reaching moisture levels below 12%. Water activity (a_w), pH, moisture content, shear force, and color (CIE $L^*a^*b^*$) were measured. Microbiological stability was assessed through aerobic plate counts and yeast/mold enumeration over a 14-day refrigerated storage. Sensory evaluation was conducted by a semi-trained panel (n=12) using a 9-point hedonic scale. Statistical analysis was performed using ANOVA with Tukey's post hoc test to determine significant differences ($p < 0.05$). Instrumental texture analysis was carried out using a TA.XTplus texture analyzer fitted with a blade set to assess chewiness and firmness. Color was determined using a Minolta chromameter, and water-holding capacity was assessed via centrifugation. Fat content was measured using Soxhlet extraction, and ash content was determined gravimetrically after incineration at 550 °C.

Results. All applesauce-enriched samples demonstrated improved moisture retention, with

Sample C showing the highest water content and lowest water activity, enhancing shelf-life potential. Shear force analysis revealed a reduction in hardness proportional to the amount of applesauce, indicating softer texture and easier mastication. Color evaluation indicated that higher applesauce concentrations produced lighter (higher L*) and more yellow (higher b*) shades, which were positively received in sensory analysis.

The pH of the samples decreased slightly with increasing applesauce levels, contributing to improved microbial stability. Sensory panelists rated Sample B highest overall, citing optimal balance of sweetness, texture, and aroma. Microbial counts remained within acceptable ranges across all samples, but Sample C showed the lowest growth rate of spoilage organisms during storage. Nutritional analysis revealed that applesauce addition reduced total fat by up to 18% compared to the control, due to partial fat replacement. Protein content remained statistically similar across all samples, suggesting that applesauce did not dilute the protein matrix. Ash and fiber content increased slightly with higher applesauce levels, reflecting the mineral and pectin contribution of the fruit component. Overall, applesauce improved the health profile, safety, and consumer acceptability of the meat snacks without compromising technological feasibility.

Conclusion. The integration of applesauce into dried meat snacks proves to be a promising strategy for enhancing product quality and nutritional value. Functional benefits such as improved water retention, lower fat content, better texture, and increased microbial stability were observed. Sensory preferences indicated that moderate levels of applesauce (20–25%) yield the most favorable outcomes. Applesauce serves as a natural ingredient that supports clean label goals and sustainability through upcycled fruit applications. This research underlines the potential of fruit-meat hybrid products in meeting modern dietary and ecological demands. Further studies are recommended to explore the impact of different apple varieties and processing techniques on product characteristics and consumer response.

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