

F.20. RESEARCH ON DETERMINING THE QUALITATIVE PROPERTIES OF MEAT SNACKS WITH VEGETABLE ADDITIONS

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Abstract. The incorporation of fruit-processing by-products into meat product technology represents an innovative strategy for developing foods with added nutritional value and for the sustainable utilization of agri-food resources. Sea buckthorn (*Hippophae rhamnoides* L.) pomace, rich in carotenoids, organic acids, dietary fiber, and polyphenolic compounds with antioxidant

activity, constitutes a by-product with high potential for integration into meat processing technology. The aim of this study was to evaluate the effect of sea buckthorn pomace powder (SBPP) at concentrations of 0.75%, 1.25%, and 2.5% (w/w) on the physicochemical parameters and microbiological safety of fermented-dehydrated chicken meat snacks, in comparison with the control sample (CS). The products were fermented at $25 \pm 1^\circ\text{C}$ for 12 hours and dehydrated at $50 \pm 5^\circ\text{C}$ for 6 hours, after which they were subjected to analyses in accordance with ISO and AOAC standards. The results revealed significant changes in physicochemical indicators as a function of SBPP concentration. Moisture content decreased from 15.79% in the control sample to 7.93% in the sample with 2.5% SBPP, an effect attributed to the high dietary fiber content of the pomace, which promotes water removal during dehydration. Water activity (a_w) decreased from 0.455 to 0.358, indicating enhanced microbiological stability and effective inhibition of microbial growth – values consistent with those reported in the literature for low-moisture meat products. The absence of coliforms, moulds, yeasts, and *Salmonella* spp. across all samples confirmed the microbiological safety of the products obtained. Ash content increased slightly, from 8.36% to 9.09%, reflecting the mineral contribution of SBPP, which is rich in potassium, calcium, magnesium, and iron. Fat content showed an increase from 12.96% to 15.52%, associated with the presence of residual lipids in the pomace, including unsaturated fatty acids. Protein content remained relatively stable (58.31–61.75%), indicating that SBPP incorporation did not significantly affect the protein fraction of the meat snacks. pH values decreased from 6.16 to 5.65, reflecting the moderate acidifying effect of the natural organic acids present in sea buckthorn (citric, malic, and quinic acids), which favorably contributes to the microbiological stability of the final product. The peroxide value (1.60–1.70 meq O_2/kg) remained constant across all substitution levels, suggesting that SBPP did not promote lipid oxidation and exerted a protective antioxidant effect through its bioactive constituents. Color parameter analysis revealed a progressive shift from orange to light brown with increasing SBPP concentration. The findings demonstrate that sea buckthorn pomace powder can be employed as a clean-label functional ingredient to improve the storage stability, nutritional profile, and physicochemical characteristics of meat snacks. The valorization of this agri-food by-product in technological formulations represents a sustainable solution with concrete potential for industrial implementation within the framework of the circular economy.

Keywords: antioxidant activity; bioactive compounds; circular economy; food safety; pomace; sustainable valorization.

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