

## **Abstract**

The subject of this dissertation was the evaluation of the applicability of organic whey in the production of organic functional foods and the determination of the impact of whey type, origin of the dairy raw material, and the addition of selected organic plant-derived ingredients on the properties of the resulting products. Organic whey, as a by-product of the dairy industry, constitutes a valuable technological raw material owing to the presence of high-biological-value proteins, lactose, minerals, and bioactive compounds, and its valorisation is consistent with the principles of sustainable food processing and the circular economy.

In the first stage of the study, fermented beverages were formulated on the basis of organic goat and cow whey, in both acid and sweet forms, enriched with organic sea buckthorn or rosehip juice. Their physicochemical and rheological properties, as well as microbiological quality, were evaluated. In the subsequent stage, the fatty acid profile, the content of selected mineral components, total polyphenol content, and antioxidant activity were determined. It was demonstrated that both the type of whey and the applied fruit juice significantly modified the chemical composition and bioactive potential of the beverages, with the highest antioxidant activity observed in variants containing rosehip juice. In the third stage, the suitability of organic whey was verified in the technology of fermented raw-ripened meat snacks of human-grade quality, enriched with rosehip powder, sea buckthorn, rosemary essential oil, lion's mane mushroom extract, and CBD oil. The physicochemical and textural properties, basic chemical composition, and microbiological safety of these products were assessed. The results confirmed that organic whey can be effectively utilised as a functional raw material both in fermented whey beverages and in raw-ripened meat snacks. The combination of organic whey, fermentation, and organic plant-derived ingredients rich in natural bioactive compounds was identified as a promising direction for the development of innovative organic functional foods.

**Keywords:** organic whey; functional food; organic fruit juices and powders; fermented whey beverages; raw-ripened meat snacks.