

PRODUCTION AND FREEZE-DRYING OF YOGURT ENRICHED WITH BLUEBERRY POMACE

Laura Jūrienė¹, Austėja Kacucevičiūtė¹

¹Kaunas University of Technology
laura.jurienne@ktu.lt

The growing demand for functional foods has increased interest in incorporating plant-based by-products into dairy products. Blueberry (*Vaccinium myrtillus* L.) pomace is a valuable source of dietary fiber and phenolic compounds, making it a promising ingredient for yogurt enrichment. The aim of this study was to evaluate the effect of blueberry pomace (1%, 2%, and 4%) on the physicochemical, structural, antioxidant, and sensory properties of yogurt, as well as to assess the impact of freeze-drying on product acceptability.

Yogurt samples were prepared using 3.5% fat milk and thermophilic starter cultures. After fermentation, sugar and blueberry pomace were incorporated at different concentrations. The products were analyzed for pH, color, syneresis, particle size distribution, total phenolic content, and antioxidant activity (ABTS and CUPRAC methods). Freeze-dried samples were evaluated by sensory analysis.

Results showed that increasing pomace concentration reduced pH and lightness while significantly increasing total phenolic content and antioxidant activity. The yogurt with 4% pomace exhibited the highest phenolic content (573.97 µg GAE/g) and antioxidant activity, up to 40 times higher than the control. However, higher pomace concentrations increased syneresis and structural heterogeneity. Sensory evaluation indicated that freeze-dried yogurt with 4% pomace was the most acceptable to consumers.

The study demonstrates that blueberry pomace can be successfully used to produce functional yogurt with enhanced antioxidant properties, contributing to both product innovation and sustainable utilization of fruit processing by-products.