83rd International Scientific Conference of the University of Latvia 2025

Contribution ID: **4** Type: **not specified**

EFFECT OF DRYING TEMPERATURE ON THE ANTHOCYANIN PROFILE OF SELECTED BERRY PRESS RESIDUES

Thursday, 10 April 2025 13:35 (20 minutes)

Natural pigments as an alternative to synthetic dyes are gaining importance due to the potential health risks associated with synthetic colorants. The research investigates the impact of drying temperature on the total anthocyanin content, total phenolic content, and DPPH activity of various berry press residues. In this study, berry press residue samples were subjected to different drying temperatures (30℃, 45℃, 60℃, 75℃, and 90℃) using conventional and vacuum drying methods. The dried samples were subsequently ground and extracted using an acidified ethanol solution. Anthocyanin content was measured by the differential pH method proposed by Giusti & Wrolstad (2001)1, while total phenolic content and DPPH antioxidant capacity were analysed using spectrophotometric techniques using calibration curve (Fig. 1.).
The results indicated that drying temperature significantly influenced the stability and retention of anthocyanins in the berry press residues. Lower drying temperatures (30℃ and 45℃), preserved higher levels of anthocyanins and phenolic compounds, where degradation was more pronounced. The anthocyanin content in chokeberries was found to be approximately two times lower at 90℃ compared to 30℃. The vacuum drying method demonstrated improved pigment retention across all temperature ranges compared to conventional drying. These findings highlight the potential of low-temperature vacuum drying as a preferable method for preserving anthocyanins in berry press residues. The study provides valuable insights for developing stable, natural colorants suitable for various industrial applications. Future research may focus on refining drying parameters and investigating the stability of these natural pigments in finished food products.

References:

[1] Giusti, M. M.; Wrolstad, R. E. Characterization and Measurement of Anthocyanins by UV-Visible Spectroscopy. Curr. Protoc. Food Anal. Chem. 2001, 00 (1), F1.2.1-F1.2.13. https://doi.org/10.1002/0471142913.faf0102s00.

Primary author: GRICENKO, Taisija

Co-authors: ZOMMERE, Alise; KVIESIS, Jorens; KLAVINS, Linards

Presenter: GRICENKO, Taisija