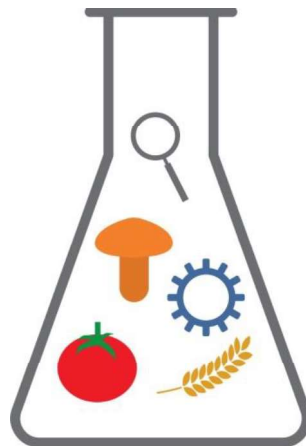




**University of Belgrade
Faculty of Agriculture**

The 3rd International UNIFood Conference
UNIFood2024 Conference

Book of Abstracts



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ENHANCING HONEY QUALITY CONTROL USING VIBRATIONAL SPECTROSCOPY TECHNIQUES

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Ensuring the quality of honey is vital for consumer safety, product authenticity, and maintaining its market value. Given honey's economic importance, developing a rapid and cost-effective method to certify its quality is essential. Fourier-transform infrared spectroscopy with Attenuated Total Reflection (FTIR-ATR) and FT-RAMAN techniques have been extensively used in food analysis, particularly for honey. This study aims to compare the effectiveness of these two techniques in the quality control of honey.

Calibration models were performed using Partial Least Squares Regression models for the parameters of total acidity, reducing sugars, hydroxymethylfurfural (HMF), electrical conductivity, ash content, proline content, diastase index, total flavonoids and phenolic compounds content.

The calibration models for each parameter demonstrated determination coefficients greater than 0.965 for FTIR-ATR and greater than 0.983 for FT-RAMAN. The residual prediction deviation (RPD) values were higher than 5.5 for FTIR-ATR and higher than 7.6 for FT-RAMAN. Although both techniques provided excellent results, it can be concluded that FT-RAMAN is a more accurate technique compared to FTIR-ATR for the evaluation of the physicochemical characteristics of honey.

Keywords: FT-Raman, FTIR-ATR, honey, chemical composition, quality control

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