University of Belgrade
Faculty of Agriculture

The 3rd International UNIFood Conference

UNIFood2024 Conference

Book of Abstracts

Belgrade, June 28-29, 2024.

UNIFood2024 Conference - Book of Abstract

The 3rd International UNIFood Conference – UNIFood2024

Publisher

University of Belgrade - Faculty of Agriculture
6 Nemanjina street
11080 Zemun - Belgrade

For Publisher
Prof. Dr Dušan Živković, Dean
University of Belgrade
Faculty of Agriculture

Editors

Prof. Dr Mirjana Pešić

Prof. Dr Slađana Stanojević

Cover Design Layout, technical preparation, typesetting

Ivana Isaković

Print run

20 copies

Printing house

Faculty of Agriculture, Nemanjina 6, 11080 Belgrade

***ISBN:* 978-86-7834-438-1**

Belgrade, 2024.

ENHANCING HONEY QUALITY CONTROL USING VIBRATIONAL SPECTROSCOPY TECHNIQUES

***Ofélia Anjos*[1,2,3], *Vanessa B. Paula*[3], *Raquel P.F. Guiné*[4], *Letícia M. Estevinho*[3,4]**

[1]*CERNAS-IPCB, Research Centre for Natural Resources, Environment and Society, Polytechnic Institute of Castelo Branco, Castelo Branco, Portugal*

[2]*Centre of Plant Biotechnology of Beira Interior, Castelo Branco, Portugal*

[3]*CIMO, Mountain Research Center, Polytechnic Institute of Bragança, Bragança, Portugal*

[4]*SusTEC, Associate Laboratory for Sustainability and Technology in Mountains Regions,*

Polytechnic Institute of Bragança, Campus de Santa Apolonia, 5300-253 Bragança, Portugal.

[*]*Corresponding author: ofelia@ipcb.pt*

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

Acknowledgements: This work was supported by Foundation for Science and Technology (FCT, Portugal) for their financial support through national funds FCT/MCTES (PIDDAC) to CERNAS-IPCB, UIDB/00681/2020 (DOI: 10.54499/UIDP/00681/2020); CIMO (UIDB/00690/2020 andUIDP/00690/2020) and SusTEC (LA/P/0007/2021).

CIP - Каталогизација у публикацији Народна библиотека Србије, Београд

663/664(048)

INTERNATIONAL UNIFood Conference (3 ; 2024 ; Beograd)
Book of Abstracts : The 3rd International UNIFood Conference, UNIFood2024 Conference, Belgrade, June 28-29, 2024. / [editors Mirjana Pešić, Slađana Stanojević].
- Belgrade : University, Faculty of Agriculture, 2024 (Beograd : Faculty of Agriculture).
- 165 str. ; 30 cm

Tiraž 20.

ISBN 978-86-7834-438-1

a) Храна -- Апстракти

COBISS.SR-ID 147592713