

Accepted Manuscript

Analytical Methods

Application of ftir-atr spectroscopy to the quantification of sugar in honey

Ofélia Anjos, Maria Graça Campos, Pablo Contreras Ruiz, Paulo Antunes

PII: S0308-8146(14)01186-8

DOI: <http://dx.doi.org/10.1016/j.foodchem.2014.07.138>

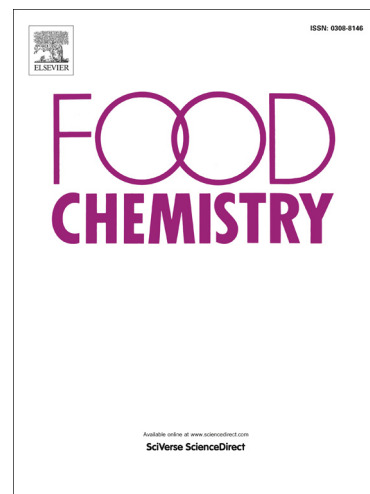
Reference: FOCH 16204

To appear in: *Food Chemistry*

Received Date: 6 January 2014

Revised Date: 22 June 2014

Accepted Date: 30 July 2014



Please cite this article as: Anjos, O., Campos, M.G., Ruiz, P.C., Antunes, P., Application of ftir-atr spectroscopy to the quantification of sugar in honey, *Food Chemistry* (2014), doi: <http://dx.doi.org/10.1016/j.foodchem.2014.07.138>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

APPLICATION OF FTIR-ATR SPECTROSCOPY TO THE QUANTIFICATION OF SUGAR IN HONEY

Ofélia Anjos^{1,2*}, Maria Graça Campos³, Pablo Contreras Ruiz¹, Paulo Antunes⁴

¹IPCB/ESA – Instituto Politécnico de Castelo Branco, Escola Superior Agrária, 6001-909 Castelo Branco, Portugal

²CEF, Universidade de Lisboa, ISA, Tapada da Ajuda, 1349-017 Lisboa, Portugal.

³Drug Discovery Group, Center for Pharmaceutical Studies, Faculty of Pharmacy, University of Coimbra, Health Sciences Campus, Azinhaga de Santa Comba, 3000-548 Coimbra, Portugal

⁴CATAA – Associação Centro Apoio Tecnológico Agro-Alimentar de Castelo Branco

*corresponding author: ofelia@ipcb.pt

Abstract

A Fourier transform infrared spectroscopic method with attenuated total reflectance (FTIR-ATR) and partial least squares (PLS) regression model for the prediction of sugar content in honey samples was calculated.

Standards of trehalose, glucose, fructose, sucrose, melezitose, turanose and maltose were used to identify and quantify the individual sugar components in 63 honey samples by HPAEC-IPAD.

Fructose and glucose are the highest sugars in honey with an average value of 36% and 26% respectively.

The 1stDer spectra with MSC or SLS in the wave number range from 1500 to 750 cm⁻¹ provide the best calibration model with a r² of 86.60 and 86.01 with RPD of 2.6 and 2.55, respectively for fructose and glucose.

For turanose and melezitose good models were also found.

The FTIR-ATR showed to be a good methodology to quantify the main sugar content in honey and easily adapted to routine analysis.

Key words: Honey sugars, Fructose, Glucose, HPAEC-IPAD, FTIR-ATR, Validation

Download English Version:

<https://daneshyari.com/en/article/7595316>

Download Persian Version:

<https://daneshyari.com/article/7595316>

[Daneshyari.com](https://daneshyari.com)