Potential of two dielectric spectroscopy techniques and chemometric analyses for detection of adulteration in grape syrup

Mojtaba Naderi-Boldaji, Puneet Mishra, Morteza Ahmadpour-Samani, Mahdi Ghasemi-Varnamkhasti, Davoud Ghanbarian, Zahra Izadi

PII: S0263-2241(18)30541-4
DOI: https://doi.org/10.1016/j.measurement.2018.06.015
Reference: MEASUR 5632

To appear in: *Measurement*

Received Date: 12 March 2018
Revised Date: 8 June 2018
Accepted Date: 10 June 2018

Please cite this article as: M. Naderi-Boldaji, P. Mishra, M. Ahmadpour-Samani, M. Ghasemi-Varnamkhasti, D. Ghanbarian, Z. Izadi, Potential of two dielectric spectroscopy techniques and chemometric analyses for detection of adulteration in grape syrup, *Measurement* (2018), doi: https://doi.org/10.1016/j.measurement.2018.06.015

Potential of two dielectric spectroscopy techniques and chemometric analyses for detection of adulteration in grape syrup

Mojtaba Naderi-Boldaji [1], Puneet Mishra [2], Morteza Ahmadpour-Samani [1], Mahdi Ghasemi-Varnamkhasti [1*], Davoud Ghanbarian [1], Zahra Izadi [1]

[1]Department of Mechanical Engineering of Biosystems, Shahrekord University, PO Box 115, Shahrekord 88186-34141, Iran

[2] Department of Rural Engineering, Universidad Politecnica de Madrid (UPM), 28040, Madrid, Spain

***Corresponding author: M. Ghasemi-Varnamkhasti (ghasemymahdi@gmail.com)**

Abstract

Food adulteration is a widespread illegitimate procedure involving contamination of food with chemical and physical substances. The adulterated food products are not only of decreased quality but also may cause pathogenic effects that jeopardize the human health. Adulteration of liquid foods is majorly performed for economic gains by utilizing cheap adulterants which do not necessarily change the color, taste and appearance of the food to be easily detectable by human senses. In the present study, two different dielectric spectroscopy sensors (parallel plate capacitor (PPC) and cylindrical stub resonator (CSR)) were examined and compared for detection of adulteration in grape syrup. The aim was to address which sensor could be a more precise