

Accepted Manuscript

Innovative photonic system in radiofrequency and microwave range to determine chicken meat quality

Maria Victoria Traffano-Schiffo, Marta Castro-Giraldez, Ricardo J. Colom, Pedro J. Fito



PII: S0260-8774(18)30279-6

DOI: [10.1016/j.jfoodeng.2018.06.029](https://doi.org/10.1016/j.jfoodeng.2018.06.029)

Reference: JFOE 9312

To appear in: *Journal of Food Engineering*

Received Date: 30 January 2018

Revised Date: 15 June 2018

Accepted Date: 26 June 2018

Please cite this article as: Traffano-Schiffo, M.V., Castro-Giraldez, M., Colom, R.J., Fito, P.J., Innovative photonic system in radiofrequency and microwave range to determine chicken meat quality, *Journal of Food Engineering* (2018), doi: 10.1016/j.jfoodeng.2018.06.029.

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.

1 **INNOVATIVE PHOTONIC SYSTEM IN RADIOFREQUENCY AND MICROWAVE**
2 **RANGE TO DETERMINE CHICKEN MEAT QUALITY**

3 **Maria Victoria Traffano-Schiffo^a, Marta Castro-Giraldez^a, Ricardo J. Colom^b & Pedro**
4 **J. Fito^{a,*}**

5 ^a Instituto Universitario de Ingeniería de Alimentos para el Desarrollo, Universitat Politècnica
6 de València, Camino de Vera s/n, 46022 Valencia, Spain.

7 ^b Instituto de Instrumentación para Imagen Molecular, Universitat Politècnica de València,
8 Camino de Vera s/n, 46022 Valencia, Spain.

9 *author for correspondence: pedfisu@tal.upv.es

10 **ABSTRACT**

11 Nowadays, one of the most important challenges of poultry industry is to determine
12 individually the meat quality class (pale, soft and exudative, normal and dark, firm and dry
13 meats) by non-invasive, accurate and fast technique. For this purpose, dielectric spectra in
14 radiofrequency and microwave ranges were studied. In radiofrequency range, the permittivity
15 was measured by a non-destructive sensor conformed by three points with blunt-ended
16 electrodes connected to an *Agilent* 4294A impedance analyser, and in microwave range an
17 *Agilent* 85070E open-ended coaxial probe connected to an *Agilent* E8362B Vector Network
18 Analyser were used. This work demonstrates the direct relation between the pH evolution and
19 the dielectric constant at α -dispersion, and also, that the main structural proteins degradation
20 has direct relation with the dielectric constant at β -dispersion, being possible to segregate
21 meat depending on the level of protein degradation. Finally, this paper ends with a
22 classification model for quality poultry meat based on a photonic analysis at radiofrequency
23 range by using the Traffano-Schiffo model.

24 **Keywords:** poultry meat, quality, permittivity, radiofrequency, microwave, dispersion.

25 **1. Introduction**

Download English Version:

<https://daneshyari.com/en/article/6664371>

Download Persian Version:

<https://daneshyari.com/article/6664371>

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