

Accepted Manuscript

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PII: S0956-7135(18)30026-4

DOI: [10.1016/j.foodcont.2018.01.020](https://doi.org/10.1016/j.foodcont.2018.01.020)

Reference: JFCO 5951

To appear in: *Food Control*



Please cite this article as: E. Fulladosa, A. Austrich, I. Muñoz, L. Guerrero, J. Benedito, J.M. Lorenzo, P. Gou, Texture characterization of dry-cured ham using multi energy X-ray analysis, *Food Control* (2018), doi: 10.1016/j.foodcont.2018.01.020

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Abstract – Multi energy X-ray sensors are able to differentiate and quantify X-rays of different energies. In contrast to conventional sensors, which simply record the overall energy of the X-rays whatever the energy of x-rays is, multi energy sensors provides a spectrum of the X-rays energies, which may be differently attenuated. In this study, the feasibility of this technology to detect changes in dry-cured ham slices after inducing proteolysis was evaluated. Effect of salt and water contents on the attenuation was also studied. In addition, the classification of commercial samples according to their proteolysis index was assessed. Results showed a decrease of attenuation for increasing proteolysis induction times ($p < 0.01$) for all the regions of the spectrum (energy bands), but not with the same intensity, at any of the analysed acquisition conditions. Salt and water contents produced a significant ($p < 0.01$) effect on the attenuation. Influence of salt content was higher than that of water content, and both affected the prediction of the proteolysis index. Classification score of commercial samples exhibited a limited discrimination capacity, showing the need for more sophisticated data analysis.

Key Words – non-destructive, quality evaluation, proteolysis, spectrometry

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