

## **Effect of dry-cured ham composition on X-ray multi energy spectra**

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### **Abstract**

X-rays have been extensively used for food product inspection and over the last years particularly for the compositional analysis of minced and entire pieces of meat. Differential attenuation of X-rays with different incident energies (dual energy devices) improves the compositional prediction of foods with respect to single energy systems. Recent developments of multi energy detectors which accurately measure the energy of each transmitted photon and reconstruct the energy spectra have opened a wide range of possibilities. The aim of the present work was to study the effect on the energy spectra (energy bands and ratios) of sliced dry-cured ham with different salt contents when using an X-ray multi energy detector. The effect of emission conditions, samples composition (fat and water contents) and thickness variations were also investigated. Results show that X-ray multi energy spectrometry can detect variations of salt content in sliced dry-cured ham when emitting at both 50 and 80 keV. Low energy bands of the spectra obtained at 80 keV were those that best explained salt content variations in samples of variable composition. Therefore, it can be concluded that this technology could be useful for on-line prediction of salt content in sliced drycured ham packages after constructing robust predictive models.