*In situ* authentication of Iberian pork meat using Near infrared spectroscopy

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Iberian pork meat, which is considered a seasonal product, has exceptional organoleptic, sensory and nutritional characteristics, making it a gourmet product. The high prices and consumers’ demand are the main incentive for the Iberian pork products being exposed to frauds and mislabelling. This problematic raises the need to search analytical alternatives that enable to guarantee the integrity of the Iberian pork meat in a fast and non-destructive way. The author´s group has developed extensive research aimed to provide industry, producers and consumers with an analytical method based on Near Infrared Spectroscopy (NIRS) to guarantee the labelling of Iberian pork products. The aim of this work is to evaluate the viability of a low-cost and portable NIR sensor to guarantee the authenticity and integrity of Iberian pork meat both in terms of breed purity and freshness. To achieve this, fresh and frozen-thawed Iberian pork tenderloins from pure and cross-bred animals were analysed using the MicroNIRTM Pro 1700, which works in reflectance mode in the spectral range 908 – 1676 nm. Different models were developed using partial least squares discriminant analysis (PLS-DA) to classify Iberian tenderloins according to freshness and breed purity. These results confirmed that NIR spectroscopy provides a reliable method to guarantee, *in situ,* the integrity of each individual piece of Iberian pork meat, opening new opportunities of control at the different points of the meat production process and increasing the sampling capability.

**Keywords:** Iberian pork meat, portable NIR sensor, integrity authentication, fresh meat authentication, breed purity.

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