

Id: 1428

Key: 000877800A

Themes: Food technology, Meat Quality and Products

Presentation: Oral Communication

Title: FT-NIRS predictive ability for meat quality characteristics of Tuscan pork seasoned products

Author's: Alessandro Crovetto<sup>1</sup>; Francesco Sirtori<sup>1</sup>; Chiara Aquilani<sup>1</sup>; Oreste Franci<sup>1</sup>; Riccardo Bozzi<sup>1</sup>

Affiliation's: 1 - DISPAA – Animal Science Section, University of Firenze

Keyword's: NIRS, seasoned products, meat quality, prediction

### **Abstract**

Chemical composition of meat cured products is important for its nutritional value, technological, and sensory quality. Conventional chemical analyses are time-consuming, expensive, and destructive. Advantages of NIR spectroscopy are its speed, simplicity, low-cost and the possibility to determine a large number of different parameters simultaneously in a large number of samples. This technology could be used to produce a nutritional label for each product adding value to high market price niche products. The aim of this study is to assess the ability of near infrared spectroscopy to predict chemical composition of Tuscan seasoned pig products. One hundred and two seasoned products were sampled (43 "cuore di spalla", 26 Prosciutto Toscano PDO and 33 "capocollo") and the following chemical components were determined: protein, intramuscular fat, ashes, saturated fatty acid, monounsaturated fatty acid, polyunsaturated fatty acid, omega-3 and omega-6 fatty acids. NIR spectra were acquired using a Thermo-Fisher Antaris II instrument; spectral data processing was performed by using TQ Analyst 8.6.12 software. Partial least squares (PLS) regression was applied in the calibration and the validation models; the models were fully cross-validated using the "leave-one-out" method. Calibration and cross validation models were developed for each product individually and grouping all the available data. Calibration correlation coefficients showed satisfying values (minimum  $R^2=0.73$ ), while cross-validation correlation coefficients, despite being generally acceptable, showed lower values (minimum  $R^2=0.42$ ). The highest  $R^2$  was found for fat content (correlation  $R^2= 0.96$ , cross-validation  $R^2= 0.95$ ). The use of grouped data improved the predictive ability of FT-NIR; minimum  $R^2$  were 0.93 and 0.85 in calibration and cross-validation respectively. Our results, even if obtained on a reduced sample, showed how FT-NIRS could be used in routine analyses of pig seasoned products