Abstract Submission

Dairy and Food

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Characterization And Differentiation Of Pdo Dried-Cured Hams By Ft-Nir

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What is your preferred presentation method?: Poster presentation

Abstract Body: Authenticity of meat products, including geographic origin declaration, has already been addressed by different approaches; however, meat ingredients used in food preparation have been weakly investigated. This is the case of PDO dried-cured hams used as ingredients in fresh filled pasta and other gastronomic formulations, leading to a recognised surplus value of the preparation itself.

The present work aimed at characterizing by NIR spectroscopy two of the most representative Italian PDO dry-cured hams (Parma and San Daniele) in order to discover misleading declarations.

To the purpose, 82 samples, provided by the two Consortia over the period 2014-2015 and obtained from just as many pig thighs, were analysed by the spectroscopic non-targeted technique. Hams were mechanically deboned and manually sectioned at about 8 cm from the femoral head. Two slices of 5 mm were obtained from the derived portion, ground and then analysed in replicates. Spectra were collected in the 12,500-4,000 cm^{-1} range (16 cm^{-1} resolution; 64 scans for sample and background) in diffusive reflection by a FT-NIR spectrometer (MPA, Bruker Optics) equipped with an integrating sphere.

The averaged dataset was split into a calibration set and three different test sets each containing 30% of the global data. After SNV pre-treatment and feature selection by SELECT algorithm, two different classification techniques (LDA, SIMCA) were performed with V-PARVUS. LDA models showed 100% correct classification rates in calibration, cross-validation and prediction, no matter the test set used. SIMCA models gave excellent values of specificity in prediction (higher than 90%) and a good sensitivity (76.3% as average of the three test sets).

In conclusion, the present approach allowed the discrimination of the two main Italian PDO dried-cured hams; in particular, SIMCA results lay the groundwork for protection from counterfeiting of PDO ingredients in processed products.

Keywords: Authenticity, Dried-cured ham, FT-NIR, LDA, SIMCA