P30. Use of a portable NIR spectrometer for the classification of fresh pork meat according to diet

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Near Infrared Spectroscopy has emerged as a promising tool in the meat industry, as it allows improving efficiency in the production chain, guaranteeing the authenticity and traceability of meat products. Most research in the pig sector has focused on authenticity in the Iberian pork meat sector. Thus, it has been successfully used to differentiate the 100% Iberian breed vs Duroc crosses or feed vs montanera diets (Horcada et al., 2020). However, work on white pigs is scarcer and focuses on classifying according to breed and predicting compositional parameters related to meat quality.

The present study aims to classify white pig meat according to the inclusion of vegetable by-products in the diet. For this purpose, a total of 100 white pork loins from two trials were analysed. In both trials, the controls were fed with conventional feed, while in the first trial the second batch was fed with citrus by-products and in the second trial with carob by-products. The portable equipment used was the MicroNIR 1700, in reflectance mode with measurement in the spectral range of 908-1676 nm. The spectrum was recorded by direct application of the probe on minced meat of the *Longissimus dorsi* muscle (T7-T9). The OPLS-DA discriminant method was applied using both raw spectra and those treated with scatter treatments (SNV, Detrend and both) combined with the first and second derivative and smoothing. The goodness-of-fit of the model was determined as a function of the % success in classification according to diet. The model that provided the best classification results was SNV+Detrend with the second derivative with 90% success in calibration and 55% in validation. The results obtained suggest that portable equipment could be a viable alternative for classification, but the sample set needs to be expanded to improve the results.

Keywords: pork meat, classification, SIMCA software, NIRS, portable spectrometer

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References

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