Correlations between Different Devices for Pork Meat Texture Analysis

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Background: Predicting meat tenderness is a subject of big interest in meat science. Of the available methods, the most widely used has been Warner-Bratzler Shear Force (WBSF) although Slice Shear Force (SSF) is currently the method recommended by the National Cattlemen's Beef Association. Newer options include the blunt MORS (Meul-lenet- Owens Razor) test, which is claimed to be the fastest, most accurate and simplest for measuring poultry tenderness. However, this method has not been used for pork. Therefore, the aim of this work was to study the feasibility of using BMORS device for the pork meat texture evaluation and to determine the correlations between the parameters obtained with the different devices.

Methods: Pork loin samples between T9 and T13 (L. thoracis), 25 from 50% Iberian x Duroc and 17 from 100% Iberian animals, were analysed with SSF, WBSF and BMORS immediately after grilling (hot samples). WBSF and BMORS were also measured on cold samples that were cooked in a water bath and allowed to cool for 6 hours at 4°C. Shear force (N) and shear energy under maximum force (N x mm) values were recorded.

Results: The results showed that the number of outliers was lower for the BMORS, while the coefficient of variation were higher for the SSF method. Significant differences were only observed between 100% and 50% Iberian samples for WB and BMORS shear force and shear energy determined on hot samples. Pearson's coefficients revealed that SSF showed a significant correlation with WBSF both hot and cold samples while BMORS shear force determined on cold samples showed a correlation with WBSF measured on hot samples, together with a significant correlation between shear energy determined on cold samples by WB and BMORS. Besides this, a correlation between WBSF and SSF and between WBSF and BMORS determined on hot samples were also obtained for the shear energy.

Conclusions: A good correlation was observed between WBSF and SSF for shear force, while BMORS showed significant correlations mainly for shear energy.

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