

## Characterization of fat from boars with a wide range of androstenone and skatole levels

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**Introduction:** It is well known that entire male pigs may develop a distinctive and unpleasant odor related to the accumulation of androstenone (AND) and skatole (SKA), known as boar taint. It is usually measured in the subcutaneous adipose tissue. Levels of AND can vary with the genotype, and levels of SKA depend mainly on feeding and management practices. Mörlein & Tholen (2015) did not find a relationship between AND and SKA and fatty acid composition evaluating fat from pigs of the same genotype and fed the same diet. The present study aims to go further and elucidate if this relationship is found when animals from different genotypes and management conditions are considered.

**Material and methods:** A total of 89 fat samples from 5 genotypes and management conditions, with a wide range of AND (from 0.39 to 9.53 ppm) and SKA (from 0.02 to 0.84 ppm) were pre-selected with the Human Nose methodology carried out by 3 trained panelists (Mathur et al., 2012) from January 2019 to November 2020. The adipose backfat tissue sample was analyzed to determine the androstenone and skatole levels by means of stable isotope dilution analysis using HS-SPME-GC/MS (Elfi Analytic, DE). Fatty acid profile was determined by CG-FID (AOCS Ce 2-66/ Ce 1-62). A principal component analysis was performed with the FACTOR procedure of SAS (v.9.4) in the correlation matrix.

**Results:** The first and second principal components explained 46.0% and 14.6% of the variation accounted for, respectively. Polyunsaturated fatty acids (PUFA) were mostly positively correlated with the first axis and monounsaturated fatty acids (MUFA) with the second axis, both being uncorrelated between them. Saturated fatty acids (SFA) were negatively correlated with both axes. AND and SKA were close and situated in the negative hand side of the first axis and in the positive hand side of the second one. However, the correlations with the axes are not very high. Similar to the results of Mörlein and Tholen (2015), samples with high levels of AND and SKA (higher than 1 and 0.2 ppm, respectively) were related to higher levels of MUFA and SFA and lower levels of PUFA. On the other side, samples with low levels of both compounds were related to high levels of PUFA and low levels of SFA. Finally, samples with high AND and low SKA levels cannot be separated by the first two principal components.

**Conclusions:** Results confirmed that the relationship between levels of AND and SKA of fat from pigs from different genotypes and management conditions and the fatty acid composition of the subcutaneous fat is weak.

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### Literature:

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