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Urinary signature of pig carcasses with boar taint by liquid chromatography-high-resolution mass spectrometry

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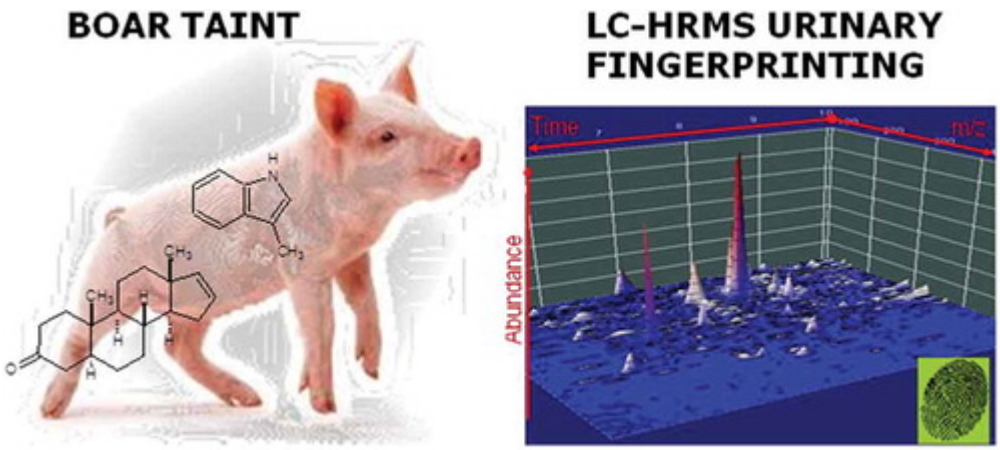
ABSTRACT

Boar taint is an offensive odour that can occur while cooking pork or pork products and is identified in some uncastrated male pigs that have reached puberty. It is widely held that boar taint is the result of the accumulation in back fat of two malodorous compounds: androstenone and skatole. The purpose of this study is to assess a mass spectrometry-based metabolomics strategy to investigate the metabolic profile of urine samples from pig carcasses presenting low (untainted) and high (tainted) levels of androstenone and skatole in back fat. Urine samples were analysed by LC-ESI(+)-HRMS. Discrimination between tainted and untainted animals was observed by the application of multivariate statistical analysis, which allowed candidate urinary biomarkers to be

highlighted. These urinary metabolites were positively correlated to androstenone and skatole levels in back fat. Therefore, the study suggests that the measurement of these urinary metabolites might provide information with regard to androstenone and skatole levels in live pigs.

GRAPHICAL ABSTRACT



KEYWORDS:

Metabolomics | boar taint | urinary profile | biomarkers | LC-HRMS

Disclosure statement

No potential conflict of interest was reported by the authors.

Supplementary material

Supplemental data for this article can be accessed here.

Additional information

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