Low intramuscular fat (but high in PUFA) content in cooked cured pork ham decreased Maillard reaction volatiles and pleasing aroma attributes

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Abstract

The influence of intramuscular fat content (high – HI versus low – LI) and fatty acid composition on pork cooked cured ham flavour was analysed by gas chromatography–olfactometry using nasal impact frequency (GC–O/NIF) and quantitative descriptive analysis (QDA). Potential relationships were studied by principal component analysis (PCA). Sixteen and fourteen odourants were identified by GC–O/NIF in LI and HI cooked hams, respectively. The two ham types differed in lipid oxidation odourants: polyunsaturated fatty acid (PUFA) derivatives hexanal, 1-octen-3-one and (E,E)-2,4-decadienal were higher in LI ham; while monounsaturated fatty acid (MUFA) derivative decanal was higher in HI. HI samples resulted in higher values for odour-active aroma compounds from Maillard reaction, which are related to roast flavour and a higher overall flavour liking. In summary, our results suggest that Maillard derived odour-active aroma compounds were partially inhibited in LI samples (high in PUFA), resulting in lower positive sensory ratings.