



Concentrations of androstenone and skatole in neck fat and meat cuts:

Are these concentrations correlated to sensory attributes?

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INTRODUCTION

Boar taint is an unpleasant and unwanted flavour/odour that develops in some entire male pigs. The presence of the compounds skatole and androstenone are mainly responsible for the development of boar taint. In order to perform reliable sorting of the carcasses as well as optimizing the use of meat from entire male pigs it is of the utmost importance to know the distribution of flavour compounds in the carcass.

AIM

The aim of this study was to:

- measure the concentrations of skatole and androstenone in neck fat and in the two cuts shoulder and loin
- investigate a possible correlation between the concentrations in neck fat and in the cuts
- link the concentrations of boar taint compounds to the sensory characteristics of the cooked meat

PIGS AND MEAT

Shoulder and loin from 15 pigs were used, 14 entire males and 1 castrate. The distribution of skatole and androstenone in the neck fat of these 15 pigs is shown in Figure 1.

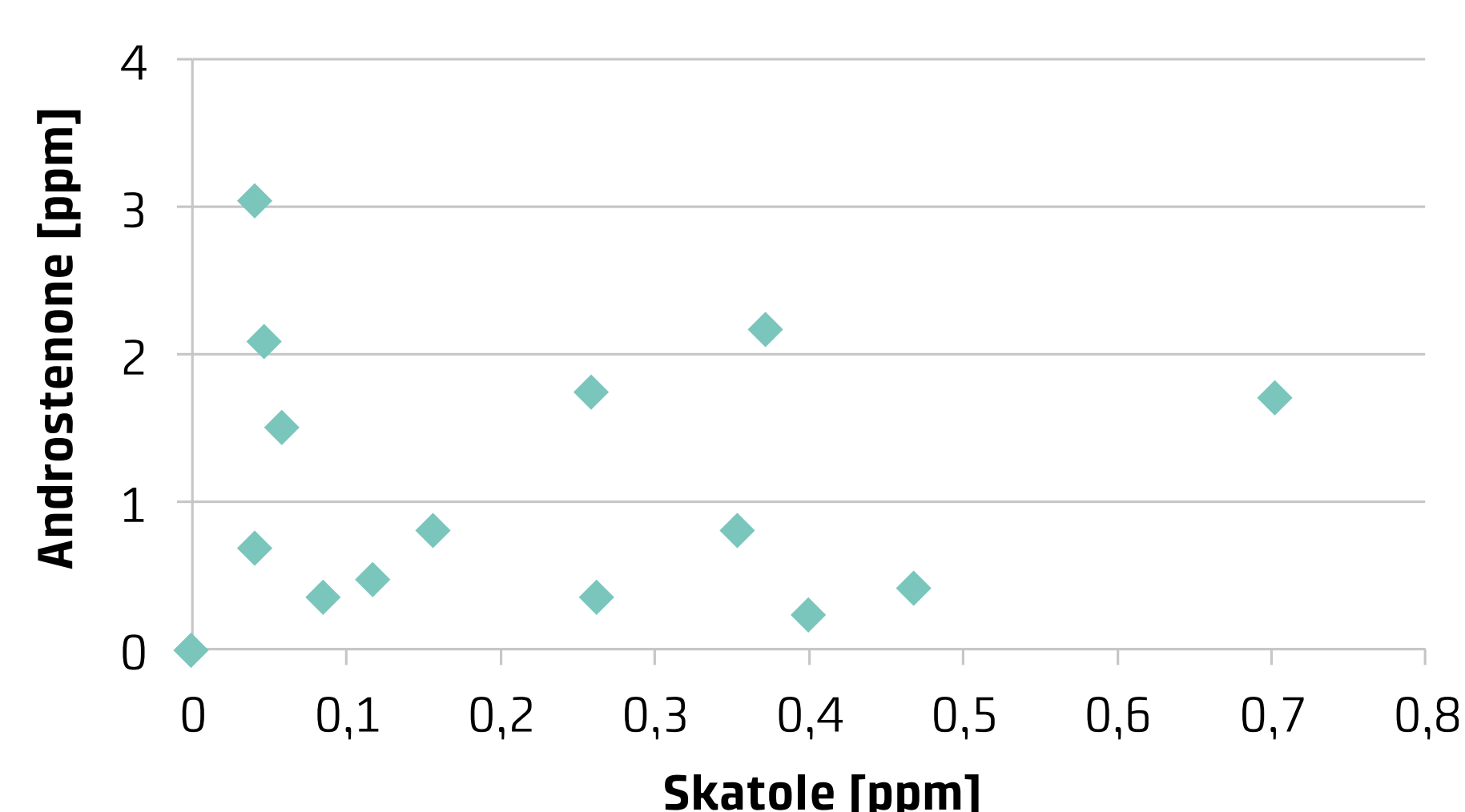


Figure 1.
The content of skatole and androstenone in neck fat from the 15 pigs.

CONCLUSION

It can be concluded that:

- the concentrations of skatole in both shoulder and loin were highly correlated to the content of skatole in the neck fat.
- the concentrations of skatole in the neck fat had a significant effect on the boar taint related sensory attributes in both shoulder and loin.
- the correlations between concentrations of androstenone in the neck fat and in the cuts were not as clear as for skatole, neither was the correlation to the boar taint related sensory attributes.

RESULTS

Skatole and androstenone

The measurement of skatole concentrations in both shoulder and loin revealed highly significant correlations to the concentration in the neck fat. Pearson's correlation coefficients for skatole in neck fat and in the cuts were 0.97 ($P < 0.0001$) for minced shoulder and 0.91 ($P < 0.0001$) for the loin. For several samples, it was not possible to quantitate the content of androstenone.

Pearson's correlation coefficient between the concentration of androstenone in the neck fat and in the minced shoulder was 0.67 ($P = 0.009$). The coefficient was not calculated for the loin due to very few data.

Table 2. Intensity of "boar taint flavour" in cooked shoulder (minced patties) and loin (chops) assessed by nine trained assessors. S=Skatole, A=Androstenone.

PIG NO.	S (NECK FAT)	A (NECK FAT)	SHOULDER	LOIN
CASTRATE	0.00	0.00	0.3	2.0
11	0.04	0.68	4.2	1.6
19	0.04	3.03	6.8	4.8
22	0.05	2.09	5.1	7.2
4	0.06	1.51	5.3	4.7
10	0.09	0.36	3.9	3.5
30	0.12	0.48	4.9	0.0
15	0.15	0.82	5.7	3.8
51	0.26	1.73	5.9	5.3
52	0.26	0.34	6.5	7.4
14	0.35	0.78	8.6	6.7
38	0.37	2.18	10.3	10.2
48	0.40	0.25	9.0	7.2
47	0.47	0.43	6.7	6.7
50	0.70	1.72	10.8	10.3

There is no scientific based "cut off level" for when an attribute is intense enough to be perceived as clear or distinct. However if this average intensity level is set to four, it can be seen from Table 2, that almost all samples of the shoulder had boar taint flavour. The fat content was on average 14 %. The loin, with a fat content of 1-3%, had ten out of thirteen samples assessed as boar tainted flavour. This means that the low fat content in the loin does not exclude boar taint flavour.



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