QUALITY AND SENSORY ASPECTS IN WILD BOAR MEAT AND COMPARISON TO PORK MEAT

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I. INTRODUCTION

Wild boar meat is seen as a delicacy and a special product appreciated by many consumers. However, the variations in meat quality might be high due to the fact that the animals have a quite variation in diet depending on the area and over the year [1]. Other aspects affecting general meat quality and sensory aspects are age and gender of the animals [2]. Mature boars could develop so called boar taint, an unpleasant odour caused by androstenone and skatole, and other compounds [3]. The aim of this study was therefore to evaluate central quality and sensory aspects in wild boar meat in comparison to pork.

II. MATERIALS AND METHODS

For evaluation of technological meat quality, shoulder muscle (*M. triceps brachii*) from 17 wild boars were obtained from a game handling facility in south of Sweden. Additional muscles from three domestic pigs were obtained from a commercial abattoir. Meat was stored at -20°C until used for analysis. Ultimate pH was measured after thawing. For sensory evaluation, samples from three wild boars and from one domestic pig were used. The whole shoulder muscle from each animal was minced, vacuum-packed, and heated in water bath until the core temperature was 67°C. The samples were served to the panellists on paper plates. Crackers and water were available to clean the palette. The first part of the evaluation was carried out as a preference test comparing two samples in six combinations. In a second step overall acceptability for each of the four samples was evaluated using a scale from 1 (dislike) to 7 (like most) [4]. The panel consisted of ten randomly invited persons (5 men and 5 women). Colour, lipid content and fatty acid (FA) composition in the same muscle were evaluated as describe by [4]. For technological meat quality and lipid composition the mixed procedure in SAS was used and sensory data was analysed with the GLM procedure.

III. RESULTS AND DISCUSSION

The ultimate pH of wild boar was significantly higher than in domestic pig and is most probably a result of higher activity of the animals before slaughter resulting in lower amounts of available glycogen. Further, the wild boar meat was darker, more reddish and less yellowish compared to pig meat. Higher contents of carotenoids for example could increase yellowness in the meat, while higher activity will increase red muscle fibre proportion and myoglobin content and thereby increase the muscles redness [6]. As corn, rich in zeaxanthin is used for bait for wild boars in Sweden, this could be the reason for the higher b*-values in our study. Wild boars had a tendency towards higher muscle fat content and significant higher amounts of n-3 FA compared to the pigs (Table 1), which is in line with previous findings [7]. On the other hand, the wild boars also showed substantially higher proportions of 18:2 n-6, probably due to bait feeding with corn which is rich in this FA, which is however less favourable from a human nutritional point of view [8]. No differences were found when comparing the same parameters between male and female animals from wild boar, indicating no need to have separate processing or marketing strategies for meat from animals of different gender.

Table 1. Technological quality traits, total lipid content (g/100 tissue) and fatty acid content (g/100 total identified FA) in meat from wild boar and domestic pig

Trait	Wild boar male (n=9)	Wild boar sow (n=8)	Pig (n=3)	SEM	P-value
Ultimate pH	5.70[a]	5.64[a]	5.50[b]	0.03	0.006
*L**	32.3[b]	31.3[b]	47.2[a]	1.19	<0.001
*a**	15.2[a]	15.4[a]	2.36[b]	0.96	<0.001
*b**	19.3[b]	18.9[b]	22.7[a]	0.84	0.028
Total lipid	4.08	5.42	2.92	0.73	0.101
n-6	21.0[a]	18.1[a]	11.0[b]	2.00	0.020
n-3	1.96[a]	1.69[a]	0.31[b]	0.26	0.003

SEM= standard error of the mean; *L**= lightness; *a**= redness; *b**= yellowness; Different superscript letters in a row indicate significant difference ($P < 0.05$).

The results of the sensory evaluation shows that wild boar gilt received the highest grade for 'overall liking', compared meat from pigs. Wild boar sow had intermediate scores, while wild boar male had similar scores as meat from pig. Colour impression values were highest for wild boar gilts and lowest for meat from pig, while wild boar male and sow had similar intermediate values that also differ significantly from both wild boar gilt and pig. For the other parameters aroma, taste, tenderness and juiciness no differences were found by the panellists.

Table 2. Results of sensory analyses comparing meat from wild boar and domestic pig

Trait	Wild boar male	Wild boar sow	Wild boar gilt	Pig	SEM	P-value
Overall liking	4.30[b]	4.80[ab]	5.90[a]	3.90[b]	0.77	0.031
Colour	1.40[b]	1.00[b]	2.30[c]	0.10[a]	0.22	<0.001
Aroma	0.50[a]	0.70[a]	0.60[a]	1.20[a]	0.27	0.287
Taste	1.60[a]	0.70[a]	1.80[a]	0.60[a]	0.33	0.025
Tenderness	0.70[a]	0.90[a]	1.00[a]	0.90[a]	0.26	0.869
Juiciness	0.90[a]	0.90[a]	1.00[a]	1.60[a]	0.27	0.245

Overall liking on a scale from 1 (lowest) to 7 (highest). For other parameters, all samples were set against each other in pairs of two and the score is an average of how many times a sample was preferred over the compared sample. SEM= standard error of the mean; Different superscript letters in a row indicate significant difference ($P < 0.05$).

IV. CONCLUSION

The results indicate an effect of the used bait on the meat composition of wild boar resulting in relatively high n-6 contents. Based on the sensory evaluation, meat from younger animals could be sold in different cuts directly while meat from older animals might be more suitable for production of sausage. However, in this study only a limited number of animals and a small number of panellists were included, hence there is a need of further evaluation of meat quality and consumer preferences on a larger scale to be able to estimate the variation and suggest marketing strategies.

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