Evaluation of different cooking methods to deal with boar taint in fresh meat

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Boar taint – Meat Quality

Boar taint is a distinctive and unpleasant odour and taste of pork and pork products (Bonneau, 1982)

It affects sensory quality and consumers may reject tainted meat (Font i Furnols, 2012; Panella-Riera *et al.* 2012)
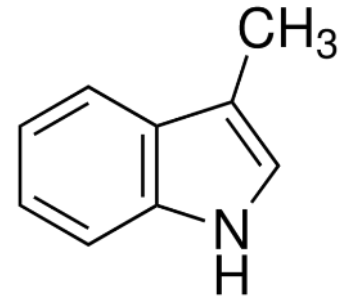
Boar taint – Compounds

Androstenone (Patterson, 1968):

- Pheromone produced in the testes

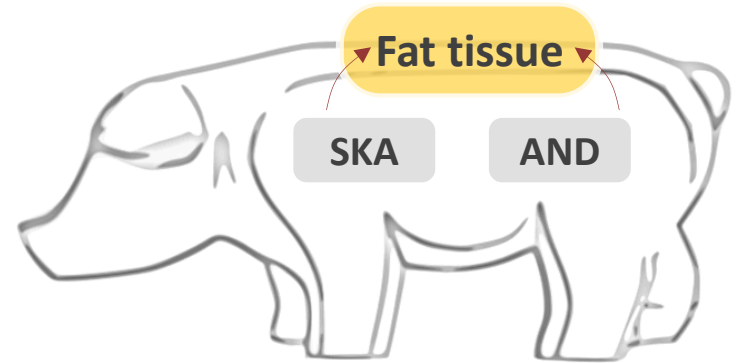- Mostly urine-like odour

- Anosmia
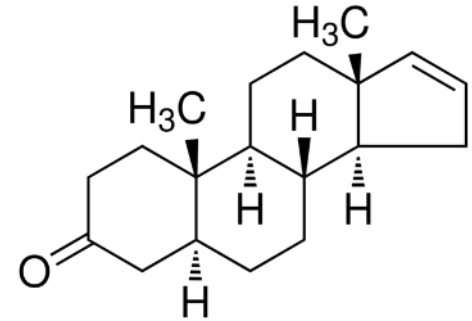
Skatole (Vold, 1970):

- Breakdown product of tryptophan

- Faecal-like, naphthalene odour

Boar taint – Entire male pigs

- AND and SKA are accumulated in fat

- Entire male > castrated
(Lundström, 2009)

- **Prevalence of boar taint** in Spanish farms (n=903)
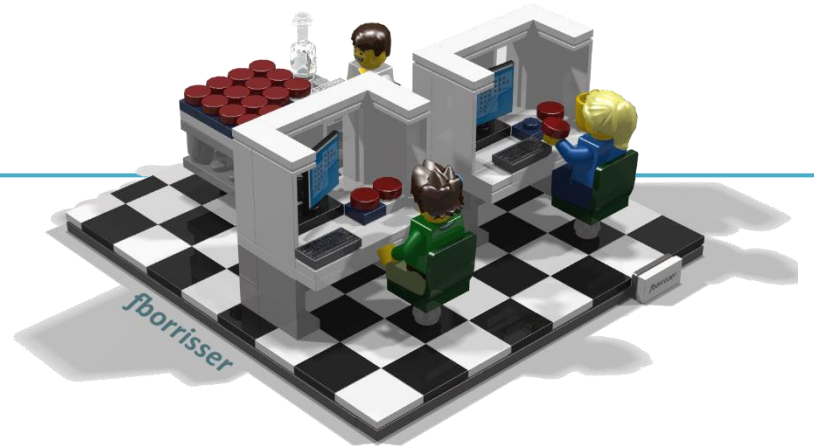(Borrisser-Pairó, 2016)

10.2%

>1.0 ppm AND in fat

and/or

>0.2 ppm SKA in fat

Since a percentage of meat from entire male pigs presents high levels of boar taint, and some consumers may reject tainted meat….

Aim of the study

To assess two cooking strategies comparing the <u>acceptability</u> of meat from <u>Entire</u> and <u>Castrated</u> male pigs:
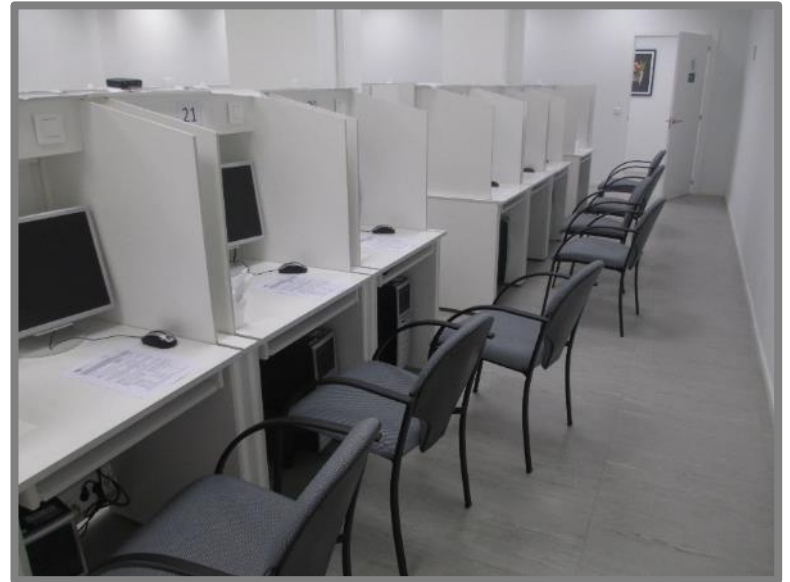
- Vacuum cooking (sous vide)
- Fried/breaded

Methodology – Consumers and sessions

In Madrid (Spain):

- Both genders

- Regular pork consumers

- Age: 19-71

- 7 sessions

- 20-22 consumers/session

150 consumers

Methodology – Loin samples

Boar Meat (BM)

- High AND

  (2.1 ± 0.12 µg/g fat tissue)

  Low/medium SKA

  (0.1 ± 0.04 µg/g fat tissue)

Castrated Meat (CM)

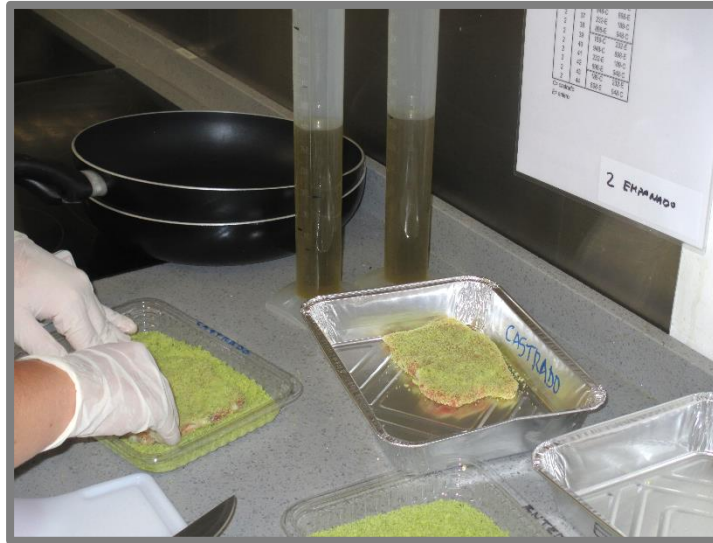- No detectable levels of AND and SKA

Methodology – Vacuum cooking
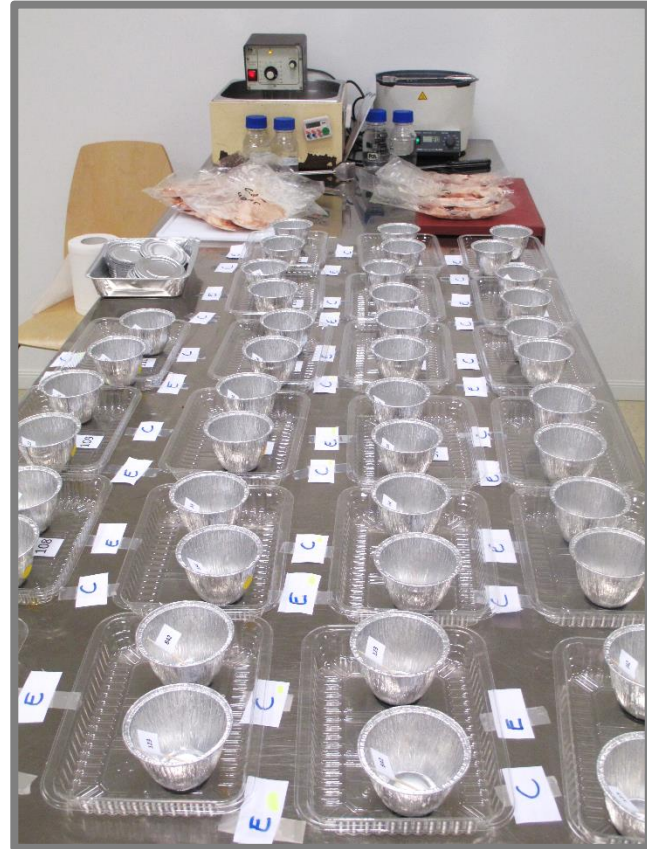
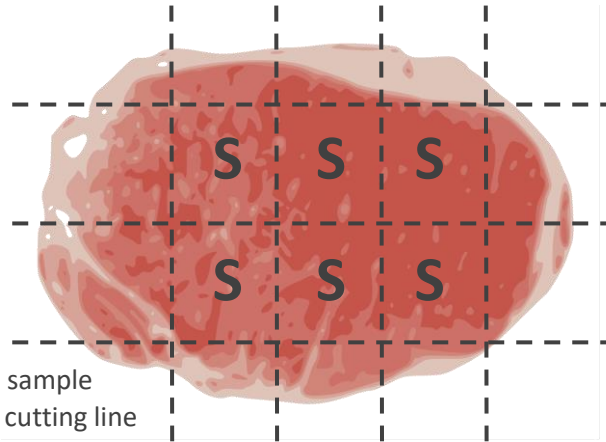Vacuum bags in a water bath until core T 72ºC + 1 min

Methodology – Fried/breaded

With garlic and parsley in olive oil
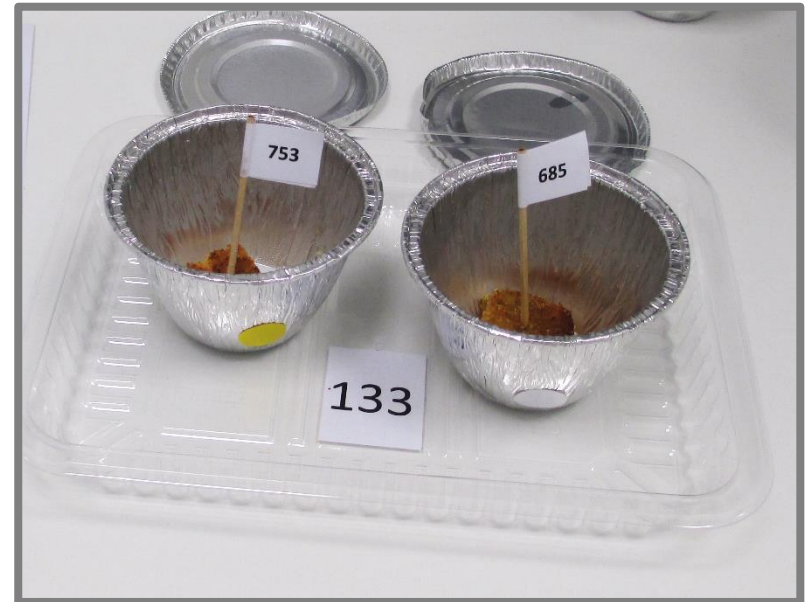
Methodology – Sample serving

S: sample
--- cutting line

Methodology – Sample serving

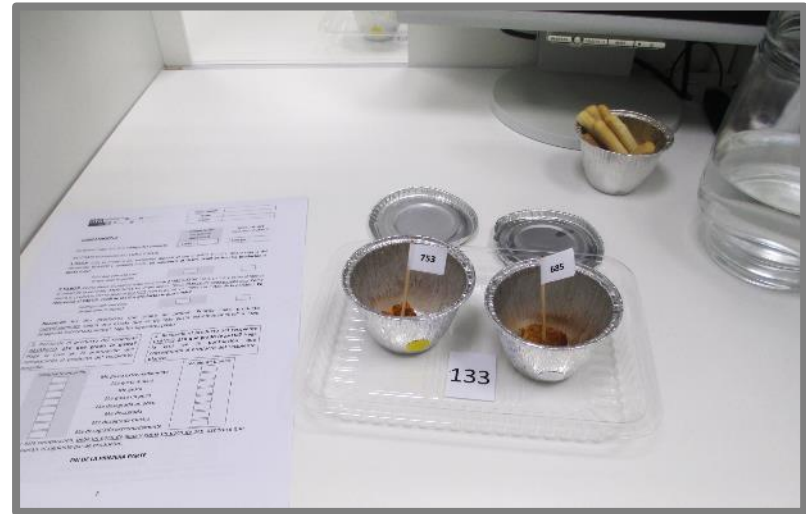**Pair comparisons:**

Vacuum cooking BM vs CM   Fried/breaded BM vs CM

Methodology – Sample evaluation

- Which sample do you prefer? BM vs CM

Product	Yellow cup sample		White cup sample	
	Code	753	Code	685
Odour	☒		☐	
Taste	☐		☒	

Methodology – Evaluation

- Odour and taste liking (9-point Likert scale)

Yellow cup sample			White cup sample	
9		Like extremly		9
8		Like Very much		8
7		Like moderately	✗	7
6	✗	Like slightly		6
4		Dislike slightly		4
3		Dislike moderately		3
2		Dislike very much		2
1		Dislike extremly		1

Middle point (5) was not given as an option

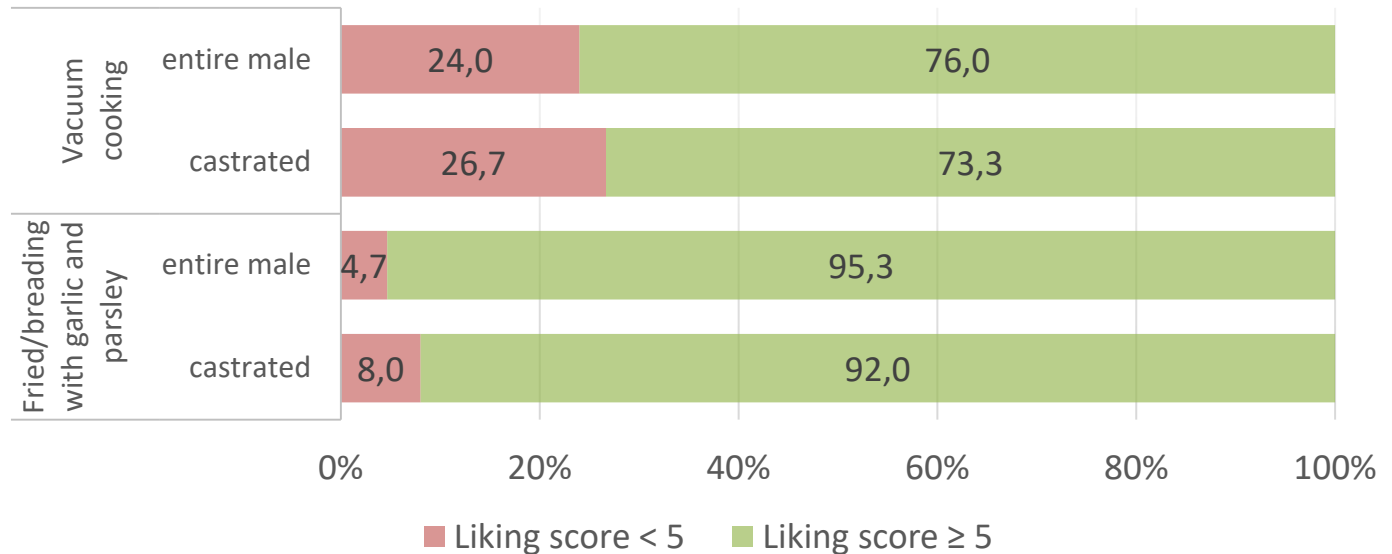# Results - Preference

- Which sample do you prefer? BM vs CM

Cooking mehtod	Type of meat		Odour preference	Taste preference
Vacuum cooking	CM	**100 %**	51	52
	BM		49	48
Fried/breaded	CM		49	49
	BM		51	51

Results - Odour and taste liking

- Consumer scoring ≥5 in the Likert scale

		Liking score < 5	Liking score ≥ 5
Vacuum cooking	entire male	24,0	76,0
	castrated	26,7	73,3
Fried/breading with garlic and parsley	entire male	4,7	95,3
	castrated	8,0	92,0

■ Liking score < 5   ■ Liking score ≥ 5

Conclusions

We studied 2 different cooking methods to mask boar taint in meat:

- No differences in odour and flavour preferences between BM and CM with the masking strategies

- No differences in the overall liking between BM and CM

- Vacuum cooking and frying/breading with garlic and parsley were useful to mask androstenone in loin

More research…

- **An fast/online system to classify meat with boar taint**

- **Masking strategies for both AND and SKA**

Moltes gràcies / Thanks for your attention
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