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Texture evaluation through Texture Profile Analysis of Cachena meat, a portuguese cattle breed

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INTRODUCTION

Texture is an attribute that determines meat quality evaluation by consumers. Cachena's animals are small and the meat is known by its excellent characteristics of texture and flavour.

This cattle breed is part of the Portuguese genetic heritage, very interesting for the south Alentejo, a poor agricultural region of Portugal, due to the high rusticity of these animals. The determination of the factors that affect meat tenderness of Cachena is of extreme importance for the producers, and for consumers.

The main goal of GOCACHENA project is understanding the relation among genetics, feeding, age and weight of animals, with the quality, mainly tenderness, of this exquisite meat. This research work is part of the refereed project and obtained on preliminary results useful for the persecution of the main goals.

OBJECTIVES

The goal of this trial is to understand what TPA parameters better describe textural characteristics of Cachena meat from *Longissimus dorsi* muscle, and to look for differences between two different usual meat presentation: sliced and entire muscle.

MATERIAL AND METHODS

Beef cut	- *Longissimus dorsi* muscle	Storage conditions: 2ºC and analysis 72h after slaughter
Sample preparation	- Sliced (aging 2, 5, 8 days)	- Entire pieces (aging 2, 8, 10 days)
Texture analysis	- Texture Profile Analysis (TPA)	
Statistical analysis	Statistica v.12 software	ANOVA and Tukey's HSD test (P<0.05)

Cachena animal

LD muscle

Texture Profile Analyse

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RESULTS AND DISCUSSION

Slices pieces:

Aging	Tenderness (N)	Springiness (mm)	Chewiness (J)
2 days	15.41 ± 5.28	0.64 ± 0.11	6.17 ± 2.48
5 days	16.31 ± 8.90	0.61 ± 0.09	6.16 ± 3.64
8 days	13.91 ± 6.23	0.62 ± 0.11	5.42 ± 2.65

There aren't significant differences for Tenderness, Springiness and Chewiness for sliced meat, however a slight decrease was noticeable.

Entire pieces:

Different letters indicate statistically differences between aging days (p < 0.05; Tukey HSD).

Aging	Tenderness (N)	Springiness (mm)	Chewiness (J)
2 days	10.38 ± 5.43	**0.53 ± 0.09 a**	3.76 ± 2.31
8 days	9.74 ± 4.13	**0.55 ± 0.10 ab**	3.51 ± 1.78
10 days	11.00 ± 5.10	**0.58 ± 0.12 b**	4.09 ± 2.28

The values of tenderness unexpectedly increase slightly.

The results shown the only significant diference was found in the values of SPRINGINESS

Differences between entire pieces and slices:

There is a great heterogeneity of Tenderness, Springiness and Chewiness values between entire pieces and slices, which varies according to the animal.

It should be noted that the preliminary results obtained do not show that the differences may be related to weight or age.

The dramatic heterogeneity in the meat of animals may be caused by genetic factors. This statement confirms the necessity of deep studies of this breed.

CONCLUSIONS

Springiness, considering the other parameters obtained through TPA, is the one that exhibited better sensitivity to texture differences.

Other methods, such as Shear test should be tried.

The differences found in meat textural characteristics should be deeply studied considering genetic factors, which confirms the necessity of more studies

Like GO-CACHENA project