‘Cachena’, a bovine rustic Portuguese extensively reared autochthonous breed: meat texture analysis

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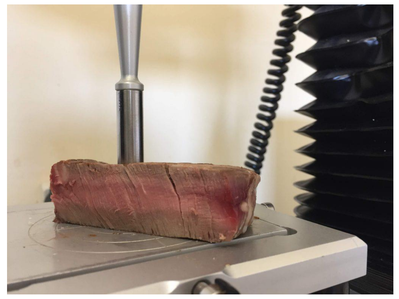
INTRODUCTION

‘Cachena’ is one of the world’s smallest bovine breeds. Extremely rustic and wild, they are extensively reared, and fed with natural pastures in South Alentejo, a very poor agricultural region of Portugal, and is considered as a part of genetic heritage of Portugal.

‘Cachena’s meat is tender, juicy, low-fat, and highly appreciated due to the association of animal, *terroir* and producer, balanced by the ecosystem’s sustainability. However, the best meat cuts are small, which may condition its consumption. Moreover, the different tenderness of these noble meat cuts between distinct animals, has been reported by retailers as a major problem to consumption and a reason for complaints.

MATERIALS AND METHODS

ANIMALS	Group A – 16 animals 9-17 months old and 140-225 kg LW Group B - 16 animals 17-20 months old and 260-335 kg LW
MEAT CUTS	*Longissimus dorsi* (LD) *Psoas major* (PM)
PHYSICOCHEMICAL ANALYSIS	pH a_W
TEXTURE ANALYSIS	Texture Profile Analysis (TPA) Warner-Bratzler shear force (WBSF)
SENSORY EVALUATION	Trained Panel – quantitative descriptive analysis
STATISTICAL ANALYSIS	Statistica TM v.12.0:ANOVA; Tukey’s HSD test (P<0,05)



OBJECTIVE

To analyse the relationship between the weight of *Longissimus dorsi* (LD) and *Psoas major* (PM) and their sensory attributes.

RESULTS AND DISCUSSION

Fresh weights (Kg) of the two muscles from the two groups of animals (mean ± sd)

MUSCLES	GROUP A	GROUP B
LD	5.608 ± 0.652	7.003 ± 0.878
PM	1.563 ± 0.157	2.225 ± 0.356

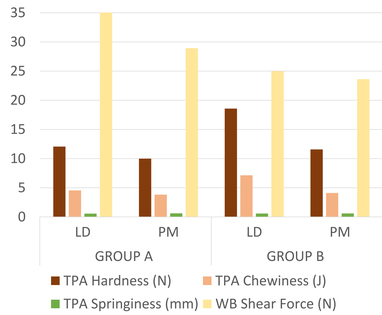
The fresh weight of these muscles increases significantly (P<0.001) with the animals’ age

pH and a_W of the meat cuts of the two groups of animals (mean ± sd)

	GROUP A	GROUP B
pH	5.844 ± 0.210	5.864 ± 0.250
a_W	0.983 ± 0.004	0.960 ± 0.007

Unlike pH, a_W revealed significantly diferences (P<0.001) between the two groups. These diferences are due to the higher water content in the meat of younger animals

TPA and WBSF of LD and PM muscles for the two animal groups (mean ± sd)

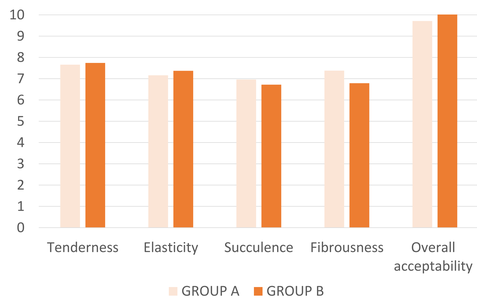


The meat of group A is generally tender (P<0.001) and easier to chew (P<0.001) than the meat from group B. PM meat samples were generally tender and easier to chew, which may be due to the structure of the *Psoas major* (PM) muscle that has more type I fibres characterized by smaller diameter when compared to other fibres.

Shear force values were significantly higher for group A (P<0.001), and inversely related with TPA hardness and chewiness values.

Sensory evaluation

Although with no significant differences between the two groups, panellists found group A meat samples to be slightly more tender than group B samples, confirming the results obtained in the TPA. The higher succulence values in group A samples might be related with the higher a_W values observed for group A meat cuts. it must be highlighted that a maximum score of 15 was possible for the “Overall acceptability” sensory attribute. Therefore, considering the values generally given by panellists to all meat samples, it is possible to conclude ‘Cachena’ meat was highly appreciated.



CONCLUSIONS

In the present study, we observed some differences in the quality attributes of meat samples from different muscles and coming from animals with different ages and live weights at slaughter. These differences, although statistically significant, were not very expressive. Taking the overall preference of panellists into account, it might be acceptable to commercialise larger meat cuts from older animals, with the consequent higher income for the producers of ‘Cachena’ animals.

Grupo Operacional QualBovCachena

http://www.qualbovcachena.uevora.pt/

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