

Slaughter weight and beef cut effect on the tenderness of Cachena meat

RICARDO RODRIGUES S. (1), POTES M. (1,2), AGULHEIRO SANTOS A. (1,3), LARANJO M. (1), ELIAS M. (1,3)

1 1 MED-Mediterranean Institute for Agriculture, Environment and Development & CHANGE Global Change and Sustainability Institute, Institute for Advanced Studies and Research, Universidade de ora, Po da Mitra, Ap. 94, 7006-554 ora, Portugal, ora, Portugal

2 2 Departamento de Medicina Veterinária, Escola de Ciências e Tecnologia, Universidade de ora, Po da Mitra, Ap. 94, 7006-554 ora, Portugal, ora, Portugal

3 3 Departamento de Fitotecnia, Escola de Ciências e Tecnologia, Universidade de ora, Po da Mitra, Ap. 94, 7006-554 ora, Portugal, ora, Portugal

Consumers consider three attributes when buying meat: appearance, colour and supposed tenderness. After purchase, while consuming, the most important attribute is tenderness. Consumers are willing to pay a higher price for beef that is guaranteed to be tender. Cachena is a cattle breed 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. Cachena's meat is known by its excellent characteristics of texture and flavor. This study aims to evaluate the effect of slaughter weight and beef cut on Cachena's meat tenderness. Texture was evaluated by a compression double cycle test named texture profile analysis (TPA) and Warner-Bratzler shear force (WBSF) of the muscles Longissimus dorsi (LD) and Psoas major (GP) of two groups of animals of different weights. The light animal group consisted of 16 animals with live weights between 142-225 kg, and the heavy animal of 16 animals with live weights between 272-335 kg. Sensory attributes were assessed by a trained panel through a quantitative descriptive analysis of the LD muscle. Results were analysed with Statistica v.12 software using ANOVA and Tukey's HSD test ($P < 0.05$). Meat tenderness was influenced by slaughter weight and meat cut. There were significant differences in meat tenderness between animal groups, light animals have more tender meat than heavy animals, according with TPA results ($11.12 \text{ N} \pm 4.57$ and $15.17 \text{ N} \pm 7.22$, respectively). However, considering WBSF results, the LD showed higher shear forces compared to the GP muscle, which may be related to more connective tissue in light animals. Regarding meat cuts, LD meat ($15.70 \text{ N} \pm 7.83$) is less tender than GP meat ($10.92 \text{ N} \pm 3.21$), according to TPA results. These results were in accordance with those from WBSF, because it is necessary to apply greater shear force to LD than to GP meat.

Regarding the sensory analysis, the tasters consider that the heavy animals have tender meat, which is in line with the WBSF results. The sensorial evaluation is therefore better predicted by shear force results than by the firmness, as force required for compression, as is usually assumed.