

## Tenderness analysis and consumer sensory evaluation of fresh meat

S. Ricardo-Rodrigues<sup>1\*</sup>, A. C. Agulheiro-Santos<sup>1,2</sup>, S. Temporão<sup>3</sup>, M. Laranjo<sup>1</sup>, M. E. Potes<sup>1,4</sup>, M. Elias<sup>1,2</sup>

<sup>1</sup>ICAAM (Instituto de Ciências Agrárias e Ambientais Mediterrânicas), IIFA (Instituto de Investigação e Formação Avançada), Universidade de Évora, Pólo da Mitra, Ap. 94, 7002-554 Évora, Portugal.

<sup>2</sup>Departamento de Fitotecnia, Escola de Ciências e Tecnologia, Universidade de Évora, Pólo da Mitra, Ap. 94, 7006554 Évora, Portugal.

<sup>3</sup>Aluna de licenciatura em Bioquímica pela Universidade de Évora no ano lectivo 2018/19.

<sup>4</sup>Departamento de Medicina Veterinária, Escola de Ciências e Tecnologia, Universidade de Évora, Pólo da Mitra, Ap. 94, 7006-554 Évora, Portugal.

Email: sirr@uevora.pt

During the purchase of the meat there are three attributes, among others, that are usually taken into account: the appearance, the colour and the presumed tenderness of the meat, assumed from the beef cuts that had been chosen. After that, while the meat is eaten the most determining attribute is tenderness. The present study aims to establish an index for the differentiation between hard and tender beef of commercial origin. Different beef cuts (“chã de fora<sup>a</sup>”, “rabadilha<sup>b</sup>”, “lombo<sup>c</sup>” e “vazia<sup>d</sup>”) were considered for this study being simultaneously by consumers using a hedonic scale and at the same time by instrumental tests, for tenderness evaluation through (Warner-Bratzler shear force and texture profile analysis-TPA). For about 250 consumers were asked about the frequency and mode of consumption of beef, and what their palatability for beef. Four samples were given, corresponding to the muscles described, in order to the consumer assess which tenderness category was most appropriate for each sample considering an affective acceptance test through a 5-category hedonic scale (Very Hard, Hard, Ideal Tenderness, Tender and Very Tender). It was found that “chã de fora”, “vazia” and “rabadilha” were rated mainly as Hard and Ideal Tender. The highest evaluation was found in “lombo”, which is always rated as tender. The “lombo” is found to be significantly tenderer than the remaining beef cuts considering instrumental evaluation, which is in agreement with the assessment made by the consumers. The compression force was higher when testing “chã de fora” beef cut, however the results of the shear force for this same cut beef are identical to those of the “rabadilha” and “vazia”. This observation can emphasize the importance of the probe used in the test and the fibers direction to understand the tenderness of the meat. The results showed that a tender meat should have shear force values between 15 and 32 N and compression force between 11 and 20N, while a hard meat should have shear force greater than 37 N and compression force greater than 30N.

<sup>a</sup>“Chã de fora” is the muscular part that covers the outer thigh and extends through the posterior region to the level of the tendon of the muscles that are inserted in the calcaneus. <sup>b</sup>“Rabadilha” is the muscular part that surrounds the lateral and anterior faces of the femur, until the kneecap. <sup>c</sup>“Lombo” is the muscle part taken from the ventral face of the roast beef, and includes the portion inserted into the iliac bone. <sup>d</sup>“Vazia” is the muscular piece that fills the vertebral drip of the spinal portion.

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