

## Effect of breed on meat quality parameters of Navarre autochthonous foals

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**Introduction:** Nowadays, consumers are more health conscious and show an increasing interest in the ecological footprint of their food choices. In this context, horsemeat plays a significant role, since not only it is considered a “healthy” meat, but it also presents a relevant environmental potential (Belaunzaran et al., 2015). Horsemeat production in fact favours the conservation of natural resources, the reduction of greenhouse gases and the preservation of local breeds (Belaunzaran et al., 2015). However, horsemeat quality can be affected by several factors, as breed among others (Franco et al., 2013). Hence, our study aimed to evaluate the effect of breed on chemical composition and texture parameters of foal meat from two endangered autochthonous Navarre breeds (Burguete vs. Jaca Navarra).

**Materials and methods:** In this work, ten Burguete (BU) and ten Jaca Navarra (JN) foals were used. All animals were raised at pasture and finished indoors (divided according to the breed). Both groups were supplemented with silage and an organic fodder, where silage formed the major part of the diet. At a mean age of 21 months, animals were slaughtered following the current EU regulations (EC, 2009). The loin (thoracic and lumbar longissimus dorsi muscle) of each left half carcass was analyzed 4 days post mortem. Chemical composition, cooking loss and texture (Warner-Bratzler test - WB) were measured according to Maggiolino et al. (2019). Data were analysed using a one-way ANOVA and a level of significance of  $P < 0.05$ .

**Results:** No significant differences were observed in moisture and protein content ( $P > 0.05$ ). These results agree with data reported by foal meat (Lorenzo et al., 2014). On the other hand, breed significantly ( $P < 0.05$ ) affected the intramuscular fat percentage. In particular, BU foals had higher values (4.30%) compared to JN group (3.37%). BU intramuscular fat percentage is consistent with the data found by (Sarriés et al. (2005) for concentrate-fed horses. Regarding the ash content, JN animals showed a greater amount ( $P < 0.001$ ) than BU ones. A breed effect was also observed in cooking loss percentages ( $P < 0.05$ ), where JN samples (28.19%) obtained the highest values compared to BU ones (24.64%). These data were higher than those found by Domínguez et al. (2018) in foal meat. As a consequence, regarding texture parameters, JN samples revealed to be tougher than BU one, though without significant differences ( $P > 0.05$ ). Nevertheless, according to the classification proposed by Belew et al. (2003), meat from both groups could be considered as “tender” ( $31.4 \text{ N} < \text{WB shear force} < 38.2 \text{ N}$ ).

**Conclusions:** In conclusion, breed affected some parameters of meat quality, where JN meat showed to be leaner, with a higher mineral content and low cooking loss. Thus, this study allows obtaining more accurate results about these breeds in danger of extinction. Moreover, the scarce information about JN foals makes this work useful to valorise and characterize this still unpopular meat.

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