

Effect of finishing diet on fatty acid profile of Jaca Navarra foals

Aurora Cittadini¹, M. Victoria Sarriés¹, Mirian Pateiro², Laura Purriños², José M. Lorenzo²

¹ ISFOOD. Universidad Pública de Navarra, Pamplona, Spain

² Centro Tecnológico de la Carne de Galicia, Ourense, Spain

Introduction: At the present time, there is an increasing demand for environmental and health-friendly products. Meat is in the spotlight due to its high amount of fat, mostly saturated fatty acids (SFA) and other compounds that can damage human health. Conversely, literature affirmed that foal meat can be claimed as “dietetic” thanks to its “healthy” fatty acids (FA) profile and excellent nutritional value. In addition, it is well known the key role of equine production from an environmental standpoint (Belaunzaran et al., 2015). The Jaca Navarra is an autochthonous breed (Navarre, Spain) and limited information is available about its meat characteristics. Moreover, it has been recognised that the feeding strategies can affect the meat quality (Domínguez et al., 2018). Hence, the present study aimed to assess the effect of the finishing diet on fatty acids profile of Jaca Navarra foals.

Materials and methods: The study was carried out with twenty-four Jaca Navarra foals. Animals were raised under an extensive system (about 5 months) and successively, they were submitted to two dietary regimes identified as diet 1 (D1) and diet 2 (D2) during 3-4 months. In the D1 group, twelve foals were supplemented with conventional concentrates (11 kg/foal/day) and straw (2.5 kg/foal/day). Whereas, in D2 group, twelve foals were supplemented with silage (5-6 kg/foal/day) and an organic fodder (4 kg/foal/day). Foals were slaughtered at about 21 months of age, according to the current EU regulations (EC, 2009). The longissimus dorsi muscle was obtained from the left half of each carcass (4 days post mortem) and fatty acid methyl esters were determined according to Barros et al. (2020). One-way ANOVA was employed for statistical analysis and differences were considered significant if $P < 0.05$.

Results: Statistical analysis showed that finishing diet significantly affected the fatty acids (FA) profile. In particular, D2 group reported the lowest ($P < 0.05$) saturated (SFA) (32.33 vs. 34.45 g/100 g fat for D2 and D1 foals, respectively) and monounsaturated fatty acids (MUFA) content (33.06 vs. 38.15 g/100 g fat for D2 and D1 foals, respectively). Conversely, D2 foals reported greater values of polyunsaturated fatty acids (PUFA), although without significant differences ($P > 0.05$). However, in both groups MUFA represented the predominant fraction, followed by SFA and PUFA (MUFA > SFA > PUFA). D2 group also presented the highest ($P < 0.001$) omega-3 content, with values of 5.37 g/100 g fat vs. 3.62 g/100 g fat for D1 group. Finally, it is worth noting that diet 2 improved health indices according to the health recommendations described by Barros et al (2020).

Conclusions: From the results, we can conclude that the finishing diet influenced the foal meat nutritional profile, where D2 foals showed an ameliorate FA profile. Nevertheless, further studies are necessary to improve the handling and meat quality of these endangered equids.

Acknowledgements and Financial support statement: This research was funded by Interreg V SUDOE, through OPEN2PRESERVE project, grant number SOE2/P5/E0804. Acknowledgements to Universidad Pública de Navarra for granting Aurora Cittadini with a predoctoral scholarship (Resolution 787/2019). José M. Lorenzo is member of the HealthyMeat network, funded by CYTED (ref. 119RT0568). The authors wish to thank the technical staff of the Institute for Agri-food and Technology and Infrastructures of Navarre (INTIASA) for the management of the animals and for the foal samples supplied for this research.

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