

Inclusion of olive pomace in the finishing diet of pigs. Effect on nutritional quality of meat

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Objectives: The meat industry is undergoing significant transformations as a consequence of continuous technological innovations and changes in consumer demands, mainly related to the search for a healthier food [1]. In this regard, the nutritive value of pork meat depends on its fat content and fatty acid composition, which is in turn influenced by the animals' diet [2]. An alternative to improve the fatty acid profile in monogastric animals is to modify the source of fat consumed by the animal. Among the most economic and widely used sources are seed oils, through oils rich in unsaturated fatty acids [3]. Their byproducts are also a potential source of nutrients, so they could be used in animal feed. Their incorporation in the feeding of pigs would allow to reduce production costs and bring a product with healthier fat. Therefore, the main objective of this study was to evaluate the effect of the addition of organic olive pomace in the finishing diet of pigs on the nutritional quality of meat.

Materials and Methods: For this study, fifty-seven pigs reared in extensive were used. All animals were fed on the own resources present in the plot and supplemented with feed (control and replaced with organic olive pomace at three levels, 2, 4 and 6% three months before slaughter). The animals were slaughtered at 9 months by electrical stunning and exsanguination. After the refrigeration period (24 h at 4 °C), meat samples were obtained from *longissimus dorsi* muscle. The fatty acids [4] and chemical composition were measured using normalized procedures [5]. Data were examined using a one-way ANOVA analysis. Duncan's test was used for the determination of the differences between least squares means ($P < 0.05$).

Results and Discussion: Fat content and composition of fatty acids are important factors in evaluating the nutritional quality of meat. Moisture was the only parameter of the proximate composition that showed significant differences between the batches evaluated, being control samples the ones that showed the highest values. In the case of fat, protein and ash, the values were slightly higher in the animals fed with olive pomace with mean values of 3.30%, 22.95% and 1.18%, respectively. The incorporation of olive pomace also resulted in an improvement of fatty acid profile, showing a high content of MUFAs and a reduced content of SFAs. These effects were more marked as the level of dietary olive pomace increased (38.27 vs. 35.36% and 51.57 vs. 55.01% for SFA and MUFA contents of control and samples with 6% olive pomace, respectively). Similar results were found by other authors in pigs fed with increasing levels of olive cake [3,6]. The $n-6/n-3$ ratio was highly influenced by the fatty acid composition of the diet of the animals. The obtained results exceed in all cases the nutritional recommendations for human diet ($n-6/n-3 < 4.0$).

Conclusions: Although the inclusion of olive pomace had a limited effect on the chemical composition, its use improved the fatty acid profile. The content of SFA was reduced and that of MUFA increased, highlighting the proportion of oleic acid, which is also desirable from the point of view of consumer health. Acknowledgements: This study was funded by Xunta de Galicia (grant number: FEADER 2020/012A). Authors are members of the HealthyMeat network, funded by CYTED (ref. 119RT0568). Thanks to GAIN (Axencia Galega de Innovación) for supporting this research (grant number IN607A2019/01).

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