Characteristics of bellies from immunocastrated and entire female and castrated male duroc pigs

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Introduction: Belly is an important cut of pig carcasses and its characteristics may influence on processing and consumer acceptability. In Duroc genotype, fatness and quality are important and, for this purpose, castration is performed in males (Font-i-Furnols et al., 2012). Castration is also an option in females. Immunocastration is a feasible and more friendly alternative both, in males and females.

The objective of this work is to evaluate the characteristics of the bellies from Duroc pigs of different sexual types (surgically castrated males-CM, entire females-EF and immunocastrated females-IF).

Materials and Methods: For this purpose, 36 bellies (4.8±0.5 kg) from pure Duroc pigs were collected at the cutting plant, 12 of each sexual type: CM, EF and IF. Immunocastration vaccines were applied at 132 and 159 days, and pigs were slaughtered at 235 days. The flop distance and the angle measured skin side down using the bar-suspension method were determined as a measure of firmness. Also, two trained technicians applied pressure with a finger in the centre of the belly and scored firmness in a scale from 1(very firm) to 5 (very soft). The average of the scores were obtained. Fat content of the deboned bellies was determined by computed tomography, considering the volume associated to the Hounsfields values between -149 and -1 with respect to the total volume (between Hounsfields values -149 and +100). Fatty acids and iodine value (IV) were determined in the subcutaneous fat of the central part of the belly by gas chromatography (Sandler and Karo, 1992) and IV was determined according to AOCS modified equation proposed by Lo Fiego et al. (2016). Analysis of variance included sex type as fixed effect and belly weight as covariate.

Results: The weight of the bellies was not significantly different between sexual types. Flop distance and angle were significantly ($P<0.05$) higher in CM than EF, IF being in between. Firmness score measured by pressure with a finger was significantly higher (less firm) in EF and IF than CM. Fat content was higher ($P=0.002$) in CM than EF and IF (65.5% vs 59.8% and 60.3%, respectively). Pérez-Ciria et al. (2021) found higher fat thickness at the loin and ham levels in carcasses from Duroc × (Landrace × Large White) IF than those from EF. Moreover, Font-i-Furnols et al. (2012) found no significant differences in lean content of carcasses from CM and EF from pure Duroc. SFA and MUFA, w3 and IV were not significantly different among sexual types. PUFA, w6 and the ration w6/w3 were significantly higher in EF than CM, being intermediate in IF. These differences were not found between CM and EF by Font-i-Furnols et al. (2012).

Conclusions: In the conditions of the present experiment, immunocastration of females does not significantly change the belly characteristics compared to those from EF. However, in some characteristics, like firmness and polyunsaturated composition they are closer to bellies from CM than those from EF.

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