SENSORY CHARACTERIZATION OF LOINS FROM ENTIRE MALE, EARLY AND LATE IMMUNOCASTRATED PIGS

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I. INTRODUCTION

Surgical castration is widely used in pig production to avoid boar taint, an unpleasant odour and flavour that occurs in the meat of some entire male pigs. It is mainly due to two compounds, androstenone with a urine-like odour and skatole with a faecal-like odour [1]. Immunocastration is an alternative to surgical castration and consists of the administration of at least two doses of a vaccine that immunises against gonadotropin-releasing factor (GnRF) and suppresses testicular activity. The timing of each dose might affect animal performance, carcass and meat quality characteristics [2]. In general, the carcasses of entire male pigs were leaner and had a higher shear force than those of immunocastrated pigs, and their fatty acid composition was also different All this, together with the suppression of the testicular activity, may influence the sensory characteristics of the pork. The aim of the present work is to sensory characterize pork from entire male (EM) and from early (EIC) and late immunocastrated (LIC).

II. MATERIALS AND METHODS

The loins of 37 pigs were obtained near the last rib. Eleven loins were from EM pigs, 12 from EIC pigs and 14 from LIC pigs. Immunocastration was performed with Improvac® (Zoetis, Madrid, Spain) in two doses. In EIC, the first dose (V1) was administered 13 weeks before slaughter and the second dose (V2) 5 weeks later, i.e. 8 weeks before slaughter. In LIC, V1 was administered 8 weeks before slaughter and V2 4 weeks later, i.e. 4 weeks before slaughter.

Two 1.5 cm thick loin slices with approximately 1 mm of subcutaneous fat were obtained from each pig. Each slice was cut into 5 pieces of 1 cm thickness perpendicular to the subcutaneous fat. The pieces were individually wrapped in aluminium foil and coded. They were then cooked in a preheated oven at 200°C for 10 minutes to reach a core temperature of 72°C. After cooking, they were kept warm until evaluation.

Sensory characterisation was carried out by 10 trained panellists in 11 sessions of 3 or 4 samples each. The order of presentation of the samples was **designed** to avoid the first sample and the carry-over effect. Attributes were selected in the training sessions from a list of attributes already used in other work. The attributes were rated on a continuous 10-point scale from 0 (low intensity) to 10 (high intensity).

III. RESULTS AND DISCUSSION

Figure 1a shows the odour and flavour scores by treatment. The greatest differences were found in the odour (O) and flavor (F) of the boar taint, which was significantly higher in meat from EM than in meat from EIC and LIC, which is consistent with several studies [1,2,3]. The boar odour of meat from EIC was significantly higher than that of meat from LIC (1.88 vs. 1.51). In agreement with this result, Zoels et al [2] reported higher androstenone and skatole levels in EIC pigs than in LIC pigs. Although the abnormal odour was very low, it was higher in LIC than in EIC, with EM in between. However, the abnormal flavour was not significantly different between the groups. EM meat had a higher pig odour and a lower pork odour and flavour. In terms of texture characteristics (Figure 1b), EM meat was harder, which is consistent with Font i Furnols et al [1]. However, in contrast to the earlier work [1], no

differences in juiciness were found between the sexes, which is consistent with the meta-analysis by Pauly et al [3]. Meat from EM also showed higher fibrosity and chewiness than meat from LIC and EIC. The crumbliness was higher in meat from EIC than in meat from LIC and EM.



Figure 1. Odour and flavour (a) and texture (b) sensory attributes for loin from entire male (EM), early (EIC) and late (LIC) immunocastrated pigs (* after the attribute name indicate significant differences P<0.05).

IV. CONCLUSION

Under the conditions of the present study, immunocastration, both early and late, reduces the odour and flavour of boar taint in pork loin. The reduction in boar odour is slightly greater in loins from late immunocastrated pigs than in early immunocastrated pigs. Meat from entire male pigs is harder, more fibrous and less chewy than meat from immunocastrated pigs.

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