

did not show significant differences during the stored times, due to high variability of the data. Significant positive correlations ($p < .05$) were found between the content of arachidonic, linoleic acid and the accumulation of HNE in L and M meat for B group. Therefore, the meat exposed to breaking of cold chain indicate an acceleration of lipid and protein oxidation, resulting in the accumulation of toxic substances harmful for health. Higher lipid oxidation are associated with higher amount of polyunsaturated fatty acids, making void the qualitative improvements of the beef meat.

O014

Comparison of oxidative status and antioxidant compounds of pig meat from Italian autochthonous pig Suino Nero Lucano and a modern crossbred pig before and after cooking

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The aim of this study was to evaluate oxidative status and antioxidative compounds of meat from Suino Nero Lucano (SNL) and a modern crossbred (CG) pig, before and after cooking. This study was carried out on 30 castrated male pigs purebred SNL pigs and 30 CG pigs ((Landrace x Large White ♀) x Landrace ♂). At about 90 days of age, they were located in the same farm, raised under a semi-wild system and fed with the same diet until their slaughter. SNL were slaughtered at a live weight of about 140 kg and 540 days of age and CG pigs at 160 kg of live weight and 480 days of age. *longissimus dorsi* (LD) muscle, was removed from each carcass. From each of the LD muscle samples, two pieces (150 g) were cut from the central portion, and distributed in two groups (raw and cooked). Cooking process ($75 \pm 3^\circ\text{C}$ at the center of the muscles) was performed in a convection-steam oven. All raw and cooked meat samples were analyzed for chemical composition (AOAC, 1995), vitamin E, creatine, carnosine and creatinine content (HPLC method) phenols (Folin-Ciocalteu method), thiols content (Ellman's method), and superoxide dismutase activity (spectrophotometric assay). Data were analyzed according to GLM procedure (SAS Institute, 1996). SNL raw meat showed higher fat content and lower protein content (23.63 vs 22.53% DM and 72.58 vs 73.84% DM, respectively; $p < .001$), higher vitamin E (2.75 vs 2.57 ug/g, respectively; $p < .001$), bioactive peptides (406.73 vs 347.63, 433.67 vs 347.91, 8.44 vs 7.26 mg/100 g, for creatine, carnosine and creatinine, respectively; $p < .001$), total phenols (133.62 vs 122.39 mg gallic acid/100 g; $p < .001$) and thiols

(88.24 vs 73.59 nmol SH groups/mg protein; $p < .001$) content than CG raw meat. The cooking process has lead to a loss of all considered parameters ($p < .05$), except for creatinine content due to the conversion of creatine into creatinine during cooking process. CG cooked meat presented a higher creatinine content (11.79 vs 14.30 mg/100 g, respectively; $p < .001$). SNL cooked meat showed a higher vitamin E (2.17 vs 2.01 ug/g, respectively; $p < .001$), creatine and carnosine (205.53 vs 180.51, 234.96 vs 182.86 mg/100g, respectively; $p < .001$), total phenols (79.51 vs 71.39 mg gallic acid/100g; $p < .001$), and thiols (51.45 vs 39.82 nmol SH groups/mg protein, respectively; $p < .001$) content, indicating a better oxidative stability and a higher antioxidant capacity.

O015

Wet aging effect on beef meat physical traits

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The aim of this work was to study the evolution of meat quality traits during wet aging. Two hundred and two samples of *longissimus lumborum* muscle belonging to four genotypes (Limousine, Charolaise, Romagnola and crossbreed) were randomly sampled at the same slaughterhouse from April 2015 to June 2016. Slaughter age ranged from 11 to 30 months, while carcass weight ranged from 147 to 482 kg. *longissimus lumborum* was collected from the right half-carcass the day after slaughtering and 4 steaks were obtained by hand cutting. One steak was analysed the same day of sampling (day 1), the remaining three steaks were vacuum packaged and stored at 4°C to perform wet aging at three different aging period (4, 9 and 14 days). Determinations carried out at each time were: pH, moisture, colour parameters L^* , a^* and b^* , with Minolta chromameter CR200, finally TPA analysis were performed using a Zwick/Roell Z2.5 instrument. Data were analysed using the 'lsmeans' package of R software. Statistical model included the fixed effects of breed (4 levels), day (4 levels) and the covariate effects of carcass weight and slaughter age. Due to the difference height of the steaks this measure was included as covariate for TPA traits. Results show that pH did not change significantly during the aging period, on the contrary L^* (from 41.86 to 43.13), a^* (from 21.78 to 20.49) and b^* (from 6.45 to 7.16) changed significantly. Moisture was also significantly affected by the aging period (from 73.71% to 72.99%) as well as the TPA

parameters: hardness (from 1.79 N to 0.99 N), gumminess (from 0.7 N to 0.43 N) and chewiness (from 5.06 J to 3.09 J) decreased significantly with the aging period, while cohesiveness and springiness remained constant. In conclusion, wet aging could be considered a good alternative to dry aging; changes in meat colour, although statistically significant, are negligible, and loss of water during aging is contained.

Vacuum packaging does not influence negatively meat tenderization process as confirmed by the reduction of hardness, gumminess and chewiness.

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