

CHEMICAL AND PHYSICAL CHARACTERISTICS OF *M. PSOAS MAIOR* FROM ALENTEJANO PIGS AT A VARIOUS LIVE WEIGHTS

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The present study was carried out to investigate the evolution of biochemical composition and physical traits of the chemical composition and physical characteristics of muscle *Psoas major* (PM adipose during growth. Pigs were fed a commercial diet (15% CP; 3100 kcal DE) offered at 85 % of *ad libitum*, and slaughtered at 70, 80, 90, 100 and 110kg LW. The left side of each carcass was submitted to a 24h chilling, followed by commercial cuts and sample collection of the muscle PM. These samples were vacuum packaged and stored (-30° C) until analysis. Moisture (Portuguese Norm 1614), total protein (Portuguese Norm 1612), and neutral and polar lipids Marmer and Maxwell, 1991 were analyzed. The myoglobin content was calculated according to Hornsey, 19. Total hydroxyprolin was analyzed Woessner Jr., J.F. (1961) and multiplied by 7.14 Etherington, D.J., & Sims, T.J. (1981) to obtain the total collagen content of samples. The pH values were measured following the Portuguese Norm 3441 and the water-holding capacity (WHC) was measured as water losses following the method described by Goutefongea, 1966. Colour CIE L* (lightness), a* (redness), and b* (yellowness) were determined with a Chromameter (CR-200, Minolta Camera Co. Ltd, Japan). Hue angle and chroma values were obtained from the values a* and b*. An ANOVA was carried out and the comparison of means was made by the SNK test. The correlations between the variables studied were determined by the Pearson coefficient. SPSS statistical software was used.

The slaughter weight affected greatly the amount of neutral lipids (P=0,001) (+3,88%, between 70 and 110kg lw) and in less extend the amount of moister and protein (-2,91% and -1,03%, respectively). The amount of polar lipids and myoglobin increased significantly 0,31% (P=0,007) and 43,11ppm (P=0,033), respectively, but the increase of the collagen amount was affected significantly. The colour of *m psoas major* wasn't in generally affected by the weigh at slaughter. The pH value show significant differences but the trend wasn't related with the slaughter weight since the intermediary group showed the lower values. Finally, for the water-holding capacity was observed the same patron of variation as observed for pH showing the intermediary groups the lower water capacity as well as the pH. In conclusion, the gross chemical composition was greatly and significantly affected by the weight at slaughter but the physical characteristics weren't affected.

Key words: meat, Alentejano pig, slaughter weight

Table 1. Chemical and physical characteristics of *m. psoas maior* from Alentejano pigs at a various live weights

Slaughter weight groups	70	80	90	100	110	Signif.
Moisture (g/100g)	71,77 ± 0,38 ^a	71,58 ± 07,3 ^b	71,93 ± 0,57 ^b	70,31 ± 0,46 ^b	68,86 ± 0,50 ^b	,003
Protein (g/100g)	20,51 ± 0,35 ^a	20,56 ± 0,21 ^b	19,72 ± 0,19 ^b	19,52 ± 0,30 ^b	19,48 ± 0,39 ^b	,034
Neutral lipids (g/100g)	4,87 ± 0,45 ^a	5,02 ± 0,80 ^b	5,38 ± 0,72 ^b	7,04 ± 0,54 ^b	8,75 ± 0,55 ^b	,001
Polar lipids (g/100g)	1,13 ± 0,06 ^a	1,00 ± 0,09 ^a	1,19 ± 0,10 ^a	1,41 ± 0,06 ^a	1,44 ± 0,11 ^a	,007
Myoglobin (mg/g)	141,58 ± 8,92 ^a	134,64 ± 3,58 ^a	136,27 ± 9,86 ^a	151,98 ± 16,78 ^a	184,69 ± 9,05 ^a	,033
Total collagen (mg/g dry matter)	11,38 ± 0,18	11,32 ± 0,11	10,04 ± 0,07	11,67 ± 0,05	13,26 ± 0,10	,379
pH	5,64 ± 0,02 ^a	5,63 ± 0,02	5,52 ± 0,04 ^b	5,52 ± 0,07 ^{bc}	5,73 ± 0,02 ^{bc}	,009
Water-holding capacity	18,25 ± 1,28 ^a	16,61 ± 2,52 ^b	22,73 ± 1,10 ^b	20,68 ± 1,54 ^b	14,56 ± 1,31 ^b	,017
Lightness (Cie L*)	37,51 ± 0,76 ^a	38,05 ± 1,59 ^b	37,64 ± 1,09 ^b	39,55 ± 0,51 ^b	38,43 ± 0,93 ^b	,592
Redness (Cie a*)	19,43 ± 0,88 ^a	18,15 ± 0,72 ^b	19,53 ± 0,96 ^b	20,66 ± 0,58 ^b	20,42 ± 0,42 ^b	,102
Yellowness (Cie b*)	9,16 ± 0,50 ^a	6,16 ± 0,51 ^b	8,15 ± 0,45 ^b	9,39 ± 0,49 ^b	9,03 ± 0,97 ^b	,014
Hue angle (H°)	25,21 ± 0,37 ^a	18,96 ± 2,15 ^b	22,44 ± 1,23 ^b	24,52 ± 1,42 ^b	23,66 ± 2,17 ^b	,091
Chroma (C)	21,48 ± 1,00 ^a	19,21 ± 0,53 ^b	21,18 ± 0,90 ^{ab}	22,73 ± 0,50 ^b	22,39 ± 0,66 ^b	,023

Means within the same line with same letter were not significantly different (P>0,05)