RELATION BETWEEN HAIR CORTISOL CONCENTRATION AND MEAT QUALITY

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Currently, consumers' concerns about their own health and animal welfare are in crescendo. For this reason, it is necessary to direct the cattle fattening period towards systems that seek the highest level of animal welfare and the highest quality of meat possible. This work aims to evaluate the relationship between the cortisol in hair (used as a welfare indicator) and the fatty acid content (used as an indicator for meat quality) depending on the forage provided during the fattening period. The study animals consisted of ten Bos Taurus cattle aged 7 months, during the 4 months of the fattening phase, five of them were fed with straw and concentrate, and the other five received hay and concentrate. Animals fed ad libitum. Both diets were isoproteic and isoenergetic. The racial phenotype (meat breeds of French origin) and weaning age (7 months) of the two groups were identical. In addition, the weights at the entrance (mean 249.25 ± 6.71 kg) and the exit (mean 379.4 ± 45.22 kg) of the feedlot were similar, with no significant differences. Two hair samples were taken from the scapular region of each animal (beginning and final of the fattening), with the aim of quantifying the variation in hair cortisol concentration during the feedlot period. After slaughter, samples of *longissimus thoracis* were collected to carry out a meat quality analysis, where fatty acids (conjugated linoleic acid (CLA), ratio omega 6/omega 3 (ω6/ω3)), fat, moisture, and protein were determined. We used R Studio for the statistical analysis. A decrease in cortisol levels was observed during the fattening period in both groups, but was slightly higher ($p = 0.798$) in the animals fed with straw and concentrate (mean 0.12 ± 0,25), specifically 0.03 pg/mg more than in the hay group (mean 0.24 ± 0,16). In the meat analysis, the proportion of protein, moisture, and fat, were similar in both feedlots. Conjugated linoleic acid (CLA) concentration in the samples from the straw group was (0.54 ± 0.093 %), compared to the (0.43 ± 0.072 %) found in the meat corresponding to the hay group ($p = 0.559$). In addition, the ratio omega 6 / omega 3 (ω6/ω3) of the straw and hay lots stood at (5.93 ± 0.63) and (7.77 ± 1.41), respectively ($p = 0.461$). Results of the present study suggest a positive relationship between the animal welfare indicator hair cortisol and meat quality parameters. However, more research work is necessary to develop nutritional handling strategies aimed at maximizing meat quality while ensuring animal welfare.