Effect of Additive Treatment on Meat Quality

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Introduction Major components of meat quality are physico-chemical properties (including visual appearance and tenderness) and dietetic properties (i.e. fat content and fatty acid composition) (Razminowicz *et al*., 2004). Physico-chemical and technological properties of meat are influenced by feeding system, feeds quality and various feeds additives (Brzoska *et al*., 1999). The aim of the present study was compare the influence of untreated, inoculated and chemically-treated legume-grass silage on carcass composition and physico-chemical properties of meat when fed to fattening bulls.

Materials and methods Roundbale silage of a second cut red clover-dominated sward was produced. Unwilted herbage was baled at 180 g DM/kg fresh matter. Every third bale was left untreated (C), treated with inoculant Feedtech[TM] (10^5 cfu/g fresh herbage) (I) or treated with a formic acid-based silage additive AIV-2000 (6 l/t fresh herbage) (A). Fifteen Lithuanian Black-and-White bulls on average 312 (±13) kg initial weight were used in factorial designed production experiment with 3 silages and 3 blocks in 126-d experimental period. Silages were offered *ad libitum* in two daily feeds on an individual bull basis. All animals received some quality of concentrate feed (2.24 kg/d) offered 2 times per day. At the end of the trial, (n=3 from each group) bulls were slaughtered for control data. The morphological composition of carcass was calculated by weighing bones, tendons and meat separately, and by dividing these weights by the chilled carcass weight.

Results The I and A bulls tended to have higher carcass yield compared with C group. The meat:bone ratio in I and A groups was numerically higher than that in the C group (Table 1). The chemical composition of ground meat and *M. longissimus dorsi* showed no significant differences between the groups. In I and A groups, the pH values of the *M. longissimus dorsi* was 0.41 (P<0.001) and 0.31 (P<0.001) unit lower, water binding capacity 0.05 and 0.13% higher, cooking losses 0.73 and 0.1% lower and protein value index 0.22 (P<0.025) and 0.15 unit higher in comparison with the C group (Figure 1).

Table 1 Control slaughter data

	Control	Inoculant	Acid
LW gain (kg/d)	1.12 ±0.07	1.214±0.09	1.206±0.04
Final weight (kg)	488.3±16	461.7±15.9	460.0±18.0
Carcass weight (kg)	249.2±11.4	238.9±9.3	235.4±9.1
Killing out (%)	51.00±0.6	51.74±0.5	51.20±1.0
AFY (%)	2.00±0.1	2.05±0.1	2.09±0.1
Muscles and fat (%)	78.83±0.3	80.27±0.9	79.87±0.5
Bones (%)	18.68±0.3	17.78±0.9	18.14±0.6
Tendons (%)	1.95±0.1	1.96±0.1	2.00±0.0
M S	4.22±0.5	4.51±0.4	4.40±0.3

LW- livewieght, AFY-abdominal fat yield, MS- muscling score

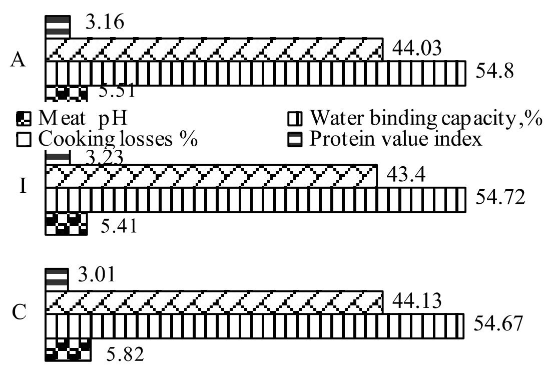

Figure 1 Physico-chemical indicators of *Musculus longissimus dorsi*

Conclusions Inoculant and chemical additive did not affect the chemical composition of ground meat and *M. longissimus dorsi*, however the nutritive value and cooking loss, pH, water binding capacity of these muscles tended to be higher.

References

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