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The effect of addition of selenium to a milk diet of calves on the meat quality

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INTRODUCTION

Selenium is very important antioxidant. Selenium deficiency is becoming increasingly linked to higher levels of cancer, heart disease and even miscarriages. The aim of our work was to study the effect of addition of selenium (selenium yeast) to a milk replacer on quality of the calves meat.

METHODOLOGY

The experiment was conducted on 18 Holstein bulls at average age of 20 days and weight of 50 kg. All animals were fed by milk replacer (0.4 kg with 3 l water) twice a day and a concentrate mixture ad libitum. The animals were divided into three groups: 1) addition of 1 mg Se per day (1st group), 2) without Se (2nd group), 3) addition of 0.5 mg Se per day (3rd group). The calves were slaughtered at the age of 4 months.

RESULTS AND DISCUSSION

The differences in Se contents of the m. longissimus dorsi between the groups (0.38, 0.23 and 0.31 mg/kg) were significant ($P<0.05$). Bobcek et. al. (2004) concluded that dietary organic Se supplement to basic diet of finishing pigs significantly increased the selenium concentration of musle tissue. Contents of Se in the kidney and in the liver were not significantly different. The

storage stability of the meat (0 day, after 3 days, after 6 days) using the malonaldehyde parameter was investigated as well. Supplement of organic Se didn´t affect the oxidative stability of the meat. Krska et al. (2001) studied this problem with pigs with the same result. The profile of fatty acid was also investigated. The differences among groups were not significant. Average daily gain and weight of calves were not significantly different.

Contents of Se (mg/kg)

	meat	kidney	liver	excrements
1. (1 mg Se)	0.38[a]	0.95	0.60	1.04
SD	0.03	0.09	0.17	0.23
CV	7.37	9.17	27.97	21.76
2. (0 mg Se)	0.23[b]	0.91	0.51	0.85[a]
SD	0.03	0.14	0.14	0.17
CV	13.04	15.33	27.58	19.65
3. (0,5 mg Se)	0.32[c]	0.88	0.48	1.16[b]
SD	0.02	0.10	0.12	0.24
CV	6.25	11.70	25.05	20.51

[a, b, c] significant differences (Tukey α=0,05)

Malonaldehyde in meat (mg/kg) - (storage stability)

	0 day	after 3 days	after 6 days
1. (1 mg Se)	0.56	8.60	16.10
SD	0.15	3.34	3.95
CV	26.9	38.9	24.6
2. (0 mg Se)	0.58	9.54	17.38
SD	0.17	2.57	3.45
CV	29.5	26.9	19.9
3. (0,5 mg Se)	0.56	10.54	15.48
SD	0.11	2.97	1.02
CV	19.3	28.2	6.6

Average weight of calves (kg) and daily gain (g)

	1. (1 mg Se)		2. (0 mg Se)		3. (0,5 mg Se)	
	weight	daily gain	weight	daily gain	weight	daily gain
2nd month	77.0	934	75.6	883	76.5	915
3rd month	111.5	158	105.6	1008	109.6	1142
4th month	152.8	1278	143.4	1224	148.3	1203

Fatty acids (%)

	1. (1 mg Se)	2. (0 mg Se)	3. (0,5 mg Se)
SFA	41.38	41.18	40.14
UFA	58.62	58.82	59.86
MUFA	32.01	31.95	32.35
PUFA	26.61	26.87	27.50
n6	24.09	24.33	24.87
n3	2.02	2.06	2.12

CONCLUSION

The selenium addition to the milk replacer increased content of selenium in meat. Consumption of selenium-enriched meat can increase intake of this element in humans.

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