

Improved Composition of Meat Fat by Nutrition

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Dietary intake of long chain omega-3 polyunsaturated fatty acids has been positively correlated with health in several studies. Nutritional treatments can be used to manipulate the composition of fatty acid profile. Total SFA and trans fatty acids content were reduced when animal feed was supplemented by sunflower or linseed oil. Carotenoids are considered to be antioxidants in biological tissues and some of them act as precursors of vitamin A.

Aim of our investigations was to produce meat with functional properties, - increased content of antioxidants (carotenoids), polyunsaturated fatty acids and improved ratio ω -6 to ω -3.

Two groups of three month old beef calves with living mass 109-147kg were completed. Basic feed in both groups were milk and hay. In the experimental group basic feed was supplemented with mixture of carotenoids (5%) and linseed oil 100g in day. This feeding regime prolonged 90 days. Biochemical analysis of veal was made 24h after slaughtering. Protein, fat, ash, calcium, phosphorus, cholesterol and carotenoids content and composition of fatty acids were analysed in *m.gluteus medius*.

Results of investigation demonstrated that supplement contributed development of calves. Results of biochemical testing demonstrated higher protein 21,6%, fat 2,43% and carotenoids 1,45mg/kg contents compared with veal of control group (respectively 20,06%, 1,05% and 0,67mg/kg). It can be concluded that veal samples of experimental group has higher content of saturated fatty acids (+2,87%), polyunsaturated fatty acids (+6,03%) and lower content of saturated fatty acids (-3,44%). Experimental groups veal has higher content of ω -6 (16,27%) and ω -3 (8,13%) and ratio was more optimal (ω -6/ ω -3=2) than veal of control group respectively 12,97%, 6,4% and ω -6/ ω -3=2,4. It was concluded that supplementing feed of calves with carotenoids in linseed oil ensure producing veal with functional properties improving quality of meat.

Key words: carotenoids, linseed oil, fatty acids, veal