

## Effects of Dietary $\alpha$ -Linolenic Acid on Growth Performance, Meat Quality, Fatty Acid Composition and Liver Relative Enzyme mRNA Expression of Growing Meat Rabbits

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### ABSTRACT

One hundred and fifty crossbred rabbits of New Zealand white rabbits  $\times$  local white rabbits (9 weeks old) were allocated to five groups and to evaluate the effects of five levels of  $\alpha$ -linolenic acid (ALA) addition (0, 1, 2, 3 and 4 g/kg diet, as-fed basis) in the diets on growth performance, meat quality, fatty acids composition of muscle and liver, acetyl-CoA carboxylase (ACC) and carnitine palmitoyl transferase 1 (CPT1) mRNA expression in the liver of growing meat rabbits were studied. The quadratic effect of ALA addition on average daily intake (ADI) was obtained ( $P < 0.0001$ ). ALA addition had significant influence on muscle color of longissimus lumborum (LL) included L\*, a\* and b\* ( $P < 0.0001$ ,  $P = 0.0007$  and  $P = 0.0120$ , respectively). The monounsaturated fatty acids (MUFAs) content of LL decreased with dietary ALA increase ( $P = 0.0001$ ) and the polyunsaturated fatty acids (PUFAs) and C18:3 (n-3) contents in the LL and liver increased with dietary ALA increase ( $P = 0.0006$ ,  $P < 0.0001$ ,  $P < 0.0001$ , and  $P < 0.0001$ , respectively). The acetyl-CoA carboxylase (ACC) mRNA expression in the liver decreased ( $P < 0.0001$ ) and carnitine palmitoyl transferase 1 (CPT 1) mRNA expression in the liver increased ( $P < 0.0001$ ) with dietary ALA increase.

**Key Words:** Rabbit,  $\alpha$ -Linolenic Acid, Growth Performance, Meat Quality, Fatty Acid, mRNA Expression