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Hepatic and subcutaneous adipose lipid metabolism genes modulation by dietary fish oil and stearate in transition goats

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ABSTRACT

The objective of the experiment was to understand the interaction between saturated or unsaturated fatty acids and genes involved in lipid metabolism in liver and subcutaneous adipose tissue. With this purpose, further gene expression assays were performed on obtained adipose and liver samples from a previous in vivo study where expression levels of ADIPOQ, LPIN1, LPL, PPARG, SREBF1 and THRSP were already determined. The study consisted on the administration of either a no fat-supplemented, or a stearic acid or fish oil supplemented diets to dairy goats from the last week of gestation until 21 days after kidding. Fat-supplied goats received 30g/head/d extra fatty acids during the dry period and 50g/head/d during lactation. Liver and subcutaneous adipose tissue samples were harvested at day -7, 7 and 21 relative to kidding and immediately snap frozen in liquid nitrogen. At the present moment, quantitative real-time RT-PCR of ACAT1, MSMO1, CPT1, IL6 on liver and ACACA, LEP, LPL, FASN, IL6 and PLIN2 on adipose tissue are running. Data obtained will be analysed using the MIXED procedure of SAS and results may increase the knowledge on the mechanism of action of saturated or unsaturated dietary fatty acid sources in the fatty acid metabolism changes during transition in dairy goats.

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