

ABSTRACTS

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668 Conjugated linoleic acids (CLA) markedly modify fatty acid profile of fat tissues in growing pigs. G. Bee*, *Swiss Federal Research Station for Animal Production, Posieux, Switzerland.*

CLA is the acronym for a class of positional and geometric conjugated dienoic isomers of linoleic acid. They were reported to profoundly affect lipid metabolism and to act as a repartitioning agent in a number of animal species. Up to date, little is known about their effect on the fatty acid profile of body fat in pigs. In the present study we determined the lipid composition of the back fat inner and outer layer and omental fat in 16 Large White pigs fed on diets supplemented either with 2% CLA or linoleic acid enriched oil (LA). The LA oil (66% linoleic acid) was prepared from sunflower oil and served as source material for the CLA oil. The isomers of the commercial preparation of CLA, containing 59% CLA isomers, were cis(c),trans(t)-9,11 (35%), t,c-10,12 (37%), t,t-9,11/10,12 (17%), c,c-9,11 (9%), and c,c-10,12 (2%). Animals were moved into individual pens at 70 kg live weight and fed 2.8 kg/d of a grower ration up to slaughter at 105 kg. Growth performance and carcass measurements were not affected by the dietary fat supplementation. Total lean and fat deposition was similar for both treatment groups. Unlike lipid content, fatty acid profile of the fat pad was markedly influenced by CLA. Independent of the tissue, pigs fed the CLA diet exhibited higher levels of palmitic (16:0) and stearic acid (18:0) ($P < .05$) and lower levels of palmitoleic (16:1), oleic (18:1), linoleic and arachidonic acid ($P < .05$). The levels of CLA isomers in back fat and omental fat were similar and do not indicate a preferential incorporation in either one of the tissues. The in vitro activity level of malic enzyme and fatty acid synthase was not altered by the dietary fat and the data suggest that lipogenesis was not affected by CLA. The distinct shift toward higher palmitic and stearic acid and lower palmitoleic and oleic acid concentrations, which resulted in significantly lower 16:1/16:0 and 18:1/18:0 ratios, could indicate a down-regulation of $\Delta 9$ -desaturase activity by dietary CLA. Furthermore, the lower tissue levels of arachidonic acid in the CLA group imply that $\Delta 5$ -desaturase activity might also be affected.

Key Words: Pigs, Conjugated Linoleic Acids, Fatty Acid Profile

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