

Fatty co- and by-Products from the Food Chain used for Animal Feedings: Effects on the *Trans* Fatty Acid and Conjugated Linoleic Acid contents of Poultry and Rabbit

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The aim of this study was to evaluate the effect of *trans* fatty acid- (TFA) and contaminant-enriched diets on the content of TFA and conjugated linoleic acid (CLA) isomers in meat and liver of both poultry and rabbit. The enriched feedings were prepared with four preselected fatty co-and by-products that contained low and high levels of TFA (low, palm fatty acid distillate; high, hydrogenated palm fatty acid distillate) and environmental contaminants (dioxins and PCBs) (two different fish oils), so as to obtain single feedings with three enrichment degrees (high, medium and low) of the compound of interest. This experimental set-up is a part of a large, collaborative European project (<http://www.ub.edu/feedfat/>), where other chemical and health parameters are assessed.

Lipids were extracted, methylated with diazomethane, then transmethylated with 2N KOH/methanol and analyzed by GC and silver-ion TLC-GC. TFA and CLA were determined in the fats, the feedings, meat and liver of both poultry and rabbit.

In general, the level of TFA and CLA in meat and liver mainly varied according to those originally found in the feeding fats. It must be pointed out, though, that TFA and CLA accumulation was different for the two animal species, as well as for the two types of tissues. In fact, the level of TFA in poultry meat was 2-3 times higher than in liver, whereas rabbit meat contained about twice as much the amount of TFA found in liver.

On the other hand, no CLA was detected in hydrogenated and non-hydrogenated palm fatty acid distillate. CLA was found in fish oils, but it only deposited in poultry meat.