

# **Fatty Acid and Tocopherol + Tocotrienol Composition in Chicken and Rabbit as Affected by Using some Fatty co- and by-products from the Food Chain in Animal Feeding**

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Eight different fatty co- and by-products from the food chain were assessed in feeding chicken and rabbit, in order to know the effect on the fatty acid (FA) and the tocopherol+tocotrienol composition in meat and liver. The eight fats to be assayed were coupled in four experimental trials in the following way: one fat “low” in *trans* fatty acids (palm fatty acid distillate, PFAD) and another fat “high” in these FA (hydrogenated PFAD); one fat “low” and another “high” in dioxins and PCB (two different fish oils); one fat “low” in PAH (olive acid oil from chemical refining) and another “high” in PAH (pomace-olive acid oil); and a fresh olive/sunflower blend (“low” in oxidation compounds) and the same oil after being used in a frying process (“high” in oxidation compounds). This experimental design corresponds to a bigger project, in which another chemical and health parameters were assessed (web of the project, <http://www.ub.edu/feedfat/>). Results show, in general, that the FA composition in meat and liver changes according to the corresponding composition of the oil and feed included. However, some differences are observed in the animal response according to the species and the type of fat. Thus, chicken meat and liver reflect better the FA composition of the oils and feeds when they are more polyunsaturated (particularly for fish oils) compared to the rabbit meat and liver. In contrast, rabbit tends to reflect better the FA composition of the oil when it is more saturated (i.e., PFAD and hydrogenated PFAD). Regarding the  $\alpha$ -tocopherol ( $\alpha$ -T), in general, their content in meat and liver is clearly influenced by the content of  $\alpha$ -T in feeds. But there is also a different pattern of  $\alpha$ -T deposition according to the animal species. Thus, chicken meat and liver clearly reflect the  $\alpha$ -T composition of feeds formulated with oxidized oils, whereas rabbit samples do not reflect it.