

Effect of Feeding Laying Hens with Palm Kernel Fatty Acid Distillates on Egg Yolk Lipid Composition

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Fats and oils are used to supplement poultry diets because they provide energy and some essential ingredients such fat-soluble vitamins and fatty acids (FA). Medium-chain fatty acids (MCFA) are known for their rapid absorption and their beneficial effects on gut health. There is growing interest in animal nutrition in finding more sustainable and cost-effective alternatives to crude fats and oils, such as fat by-products. This study aims to assess the impact of including palm kernel oil (PKO) and palm kernel fatty acid distillates (PKFAD) as dietary fat sources in laying hens on the lipid composition of egg yolks, compared to a commercial control diet based on soybean oil (SO). PKFAD is a by-product of the physical refining process, obtained during the deodorization of PKO, and is rich in free MCFA. PKO is also rich in MCFA, but in the form of triacylglycerols. The experimental design consisted of 7 dietary treatments using different mixtures (100/0; 33/66; 66/33; 0/100, w/w) of SO with PKO or PKFAD. Each feed was offered for 8 weeks to 18 hens (23-week-old) distributed in 6 cages. Each cage was considered a replicate. During the last week, 9 eggs per cage were chosen, broken and yolks were separated from whites. The yolks were pooled and gently homogenized. The results showed that compared to SO, eggs from PKFAD and PKO diets presented an increase in the proportion of saturated FA and MCFA, and a reduction of polyunsaturated FA. No differences in FA composition were observed between PKO and PKFAD diets. No differences were found in yolk cholesterol content between treatments. α -Tocopherol was the main tocol detected in yolk, with higher concentrations when hens were fed with SO and PKFAD. γ -Tocopherol was found in greater quantities in the SO diets. As for tocotrienols, α -tocotrienol was the most abundant, with a significant increase in PKO and SO:PKO 33/66 diets.