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Effect of dietary inclusion of lecithinized palm oil granules (Osmofat 300) on performance, ileal fat digestibility and meat oxidative stability of broiler chickens

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Abstract

The present experiment was conducted to investigate the effect of different fat sources and their various blend on the performance, fat ileal digestibility and thigh muscle quality after 1, 5 and 10 days of storage time. A total of 360 broiler chicks (Ross 308) were used in a completely randomized design with 5 dietary treatments and 6 replicates of 14 chicks. The assay diets were developed by application of a basal diet with no supplemented fat and either soybean oil (SO), lecithinized palm oil (LPO), a 50:50 mix of SO and LPO (ESL) and also 75:25 mix of SO and LPO (HSL) ratios added to the basal diet. The results showed that chickens fed on dietary SO had greater daily feed intake than the other groups ($P < 0.05$). Additionally, these birds possessed greater daily weight gain compared to LPO and the other groups during starter and grower periods, respectively ($P < 0.05$). During the growing period, broilers given 75:25 ratio of SO and LPO had significantly better feed conversion ratio than the birds in control group ($P < 0.05$). Fat ileal digestibility in broilers given SO added diets was significantly higher than control, LPO and the equal blend of SO and LPO ($P < 0.05$). The fat content of the meat was higher in birds supplemented with SO, LPO and ESL than control ($P < 0.05$). Birds in control group possessed greater meat protein content than SO and ESL ($P < 0.05$). After 5 and 10 days of meat storage, thio barbituric acid reactive substance values were lower in meat of the birds receiving LPO than SO and HSL ($P < 0.05$). In conclusion, dietary fat sources and fat ratios had significant effects on thigh meat chemical composition and lipid peroxidation during different storage time periods.

Key words: broiler chicken, lecithinized palm oil, fat ileal digestibility, meat quality