**P11 The Effects of Vitamin E in Crude Palm Oil on Growth Performance, Lipid Peroxidation and Tissue Vitamin E Concentration in Broilers**

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**Introduction**

Lipid oxidation is one of the primary mechanisms of quality deterioration in meat products through adverse changes in flavor, color, texture and nutritive value (1). Vitamin E is well recognized for its capacity to effectively inhibit lipid peroxidation in a biological system and to delay the oxidative deterioration of meat (2). Crude palm oil (CPO) is a source of energy and is rich in vitamin E especially α-tocotrienol. This form has a more effective anti-oxidative activity than α-tocopheral (3). Therefore, the inclusion of CPO in diets may increase vitamin E deposition in tissue and decrease lipid peroxidation.

**Materials and Method**

A total of 576 day old male broilers (Ross 308) were randomly allocated to 6 treatments with 6 replicates. Chicks were raised in pens with a density of 10 chicks/m² for 1-21 and 22-42 days. Feed and water were fed ad libitum. A corn-soybean meal based diet with 8% lard was used as the control diet. CPO was substituted for lard at the level of 0, 2, 4, 6, and 8%. A positive control was conducted by the supplementation of vitamin E synthesis, α-tocopheryl acetate, 100 mg/kg control diet. Body weight and feed intake were recorded on day 21 and 42 for calculating growth performance. On day 42, blood samples from 6 chicks/treatment were collected from the wing vein; thereafter, these chicks were transported to the slaughter house at night and killed in early morning. Tissues (liver, breast and thigh meat) were collected. Plasma and tissues were analyzed for their total vitamin E and TBARS value. All dependent variables were performed as a completely randomized design. ANOVA and Duncan’s New Multiple Range Test at level of p<0.05 were used for the statistical analysis of all variables.

**Results and Discussion**

On day 21 and 42, there were no effects on the weight gain, feed intake, average daily gain and feed conversion ratio among the groups in each period. Total vitamin E concentrations in the livers, breast and thigh meat were significantly different (p<0.05). The supplementation of palm oil increased vitamin E in liver and meat of hens. This suggested that the concentration of vitamin E depended upon its concentration in the diet (4). Plasma TBARS values decreased in CPO treatments compared to the control (p<0.001). Supplementation of CPO tended to decrease the TBARS values in tissue. In this study, increasing the CPO levels in the diet increased vitamin E concentration in liver, breast and thigh meat. Broilers supplemented with dietary vitamin E saw a significant reduction in the malondialdehyde values of serum and tissue (5). This may suggest that additional CPO tended to decrease TBARS values in plasma and tissues.

**References**