Effects of dietary energy and protein levels and supplementation with essential oils on growth performance and nutrient digestibility of broilers

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The effect of a reduction in dietary energy (ME) and crude protein (CP) levels and supplementation with essential oils (EO) on growth performance and nutrient digestibility was investigated. An experiment was designed with 450 one-d-old male Cobb broilers allocated in 6 treatments with 5 replicates of 15 broilers each, for 6 wks. Three diets (A, B and C) based on maize-soybean meal were formulated. Diet A was made optimal for maximizing meat yield according to Cobb guidelines. Diets B and C were suboptimal in ME and CP levels compared to diet A by 3% and 6%, respectively. Depending on EO addition (125 mg/kg), the 6 treatments were: A= diet A, AEO=diet A+EO; B= diet B; BEO=diet B+EO; C= diet C and CEO=diet C+EO.

The GLM - general factorial ANOVA procedure was used to analyse experimental data. Overall FCR was affected by diet (P=0.01) and tended to be improved by EO supplementation (1.69 vs 1.73; P=0.089). In addition, EO inclusion increased AMEn (P=0.002) and dry matter digestibility (P=0.011). In conclusion, a reduction in dietary ME and protein levels adversely affected broiler feed efficiency, whereas supplementation with EO has potential to compensate these effects.