

The Influence of Supplemental Multi-enzyme Feed Additive on the Performance, Carcass Characteristics and Meat Quality Traits of Broiler Chickens

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Abstract :

A study was conducted to investigate the effect of adding a commercial multienzyme feed additive (Tomoko, Biogenkoji Research Institute, Japan) on the performance of broilers. Four isoenergetic and isonitrogenous diets consisting of control diet without enzyme (Con) and three test diets supplemented with Tomoko at 250 (T250), 500 (T500) and 750 (T750) g/tonne of feed were used for starter, grower and finisher phases. Each diet was offered to 10 replicates of 40 one-day-old straight-run Lohmann broiler chicks ($n = 1600$) in a randomized complete block design (10 blocks of 4 diets each). Data was analyzed using mixed procedure of SAS (repeated measures analysis) for a randomized complete block design, with level of significance set at $p = 0.05$. Enzyme used in the study was authenticated by the supplier to have minimum level of acidic protease (10,000 U/g), alpha-amylase (40 U/g), pectinase (30 U/g), phytase (10 U/g), glucoamylase (5 U/g) and cellulase (4 U/g). Enzyme supplementation had no significant effect on Feed Intake (FI) at 21 d, while at 42 d birds fed T250 and Con diets significantly consumed more feed than T500 and/or T750. No significant differences were observed for Feed Conversion Ratio (FCR). Body Weight (BW) and Body Weight Gain (BWG) were significantly higher ($p < 0.05$) for birds fed Con diet at 42 d. Carcass characteristics showed no significant effects on whole carcass weight and/or dressing percent and weight and percent of breast, thighs and wings. Enzyme supplemented diets significantly ($p < 0.05$) increased liver percent in contrast to Con diet, while no significant differences were reported for heart, gizzard and abdominal fat pad. The addition of enzyme did not significantly impact meat quality traits (pH, cooking loss, water holding capacity, shear force and colour attributes). Chemical analysis showed significantly ($p < 0.05$) higher Dry Matter (DM) and ash percent for breast meat and significantly ($p < 0.05$) higher DM, ash and Crude Protein (CP) percent for thigh meat, in birds fed Con diet. In conclusion, enzyme supplementation elicited few responses in birds when supplemented at three levels in contrast to a normal corn-soybean diet.

Key Word :

Multienzyme, feed additive, performance, meat quality, broilers

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