

**EFFECT OF PROTEASE SUPPLEMENTATION ON GROWTH  
PERFORMANCES, CARCASS AND MEAT QUALITY  
CHARACTERISTICS OF BROILER CHICKENS FED WITH LOW  
PROTEIN DIETS**

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Feeding low dietary crude protein (CP) with different levels of supplemental protease enzyme on growth performances, carcass and meat quality characteristics of commercial broilers were investigated. Three-hundred, day-old Cobb 500 broiler chicks were randomly divided into five dietary treatments expanded with six replicates containing 10 chicks per each in completely randomized block design. The experimental diets were based on basal diet supplemented with protease enzyme which were, positive control (contain recommended CP levels, T<sub>1</sub>), negative control (level of CP reduced by 5%, T<sub>2</sub>), negative control + 300 gt<sup>-1</sup> protease (T<sub>3</sub>), negative control + 400 gt<sup>-1</sup> protease (T<sub>4</sub>) and negative control + 500 gt<sup>-1</sup> protease (T<sub>5</sub>). Growth performances were observed during the study period. Carcass quality parameters and serum lipid profile were measured at slaughtering on day 42. Data were analysed using one-way Analysis of Variance in Statistical Analysis System. The highest and the lowest feed intakes were reported in birds fed with T<sub>3</sub> (5113 ± 61 g), and T<sub>1</sub> (4677 ± 61 g), respectively. The highest live weight (2.86 ± 0.07 kg), weight gain (2663 ± 54 g) and the lowest feed conversion ratio (1.84 ± 0.06) were observed in birds fed with T<sub>5</sub>. The significantly ( $p < 0.05$ ) highest breast (45.49 ± 1.70%) and thigh (37.05 ± 2.28%) percentages were recorded in birds fed with T<sub>1</sub> and T<sub>3</sub>, respectively. There was no influence ( $p > 0.05$ ) of treatments on NH<sub>3</sub> emission of litter, dressing percentage, meat quality and blood serum parameters. The feed cost spent to produce 1 kg of live weight and sellable carcass weight was significantly less ( $p < 0.05$ ) in T<sub>5</sub>. Thus, it can be concluded that low protein diets supplemented with protease enzyme at 500 gt<sup>-1</sup> support better growth performances in broiler chicken with lower cost of production.

**Keywords:** Broilers, Low protein diets, Performances, Protease enzyme