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"Development on the margin"

# Apparent Ileal Digestibility of Crude Protein and Amino Acids in Wheat Offal Diets for Broilers

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**Abstract**

Apparent ileal crude protein and amino acid digestibility of wheat offal (WO) at varying levels of inclusion (0, 10, 20, and 30 %) was determined for broiler chicks in a 7 - day experiment. The feed ingredient (WO) used served as the sole source of amino acids, as other feed ingredient were fixed. The birds received a commercial broiler starter diets during the first 14 day posthatch. On day 14, birds were sorted by body weight and randomly distributed into 4 dietary treatments in a completely randomised design. Each diet comprised of 4 replicates of 5 birds per each from day 14 to 21 posthatch. On day 21 posthatch, birds were asphyxiated with $CO_2$ and digesta samples from the terminal ileum were collected. Titanium dioxide was included as the indigestible dietary marker. The concentration of crude protein increased as the level of WO increased across the diets. In general, the concentration of essential amino acids in wheat offal - based diets, was highest in diet containing 10 % wheat offal and lowest in diet containing 30 % WO. The digestibility of all the essential amino acids significantly ($p < 0.05$) decreased as the levels of WO increased across the dietary treatments except for the control diet. Apparent ileal digestibility of crude protein and amino acids in birds on wheat offal diets were improved across the diets. The digestibility of essential amino acids improved significantly ($p < 0.05$) at 10 % WO inclusion level as compared with other test diets. Threonine digestibility was lowest when compared with digestibility of other essential amino acids across the diets. In conclusion, the data from the present study showed that there were considerable differences in varying levels of WO in the digestibility of their amino acids for broiler starters. Therefore, it is imperative to consider lower levels of WO inclusion, as a level above 10 % resulted in decreased digestibility of crude protein and amino acids.

**Keywords:** Amino acids, broilers, crude protein, ileal digestibility, wheat offal

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