



Tropentag, September 18-20, 2019, Kassel

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## Broiler Chickens' Performance and Prebiotic-Potential of Wheat Offal and Palm Kernel Cake Supplemented with Xylanase

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### Abstract

This study evaluated the prebiotic potential, performance and nutrient digestibility of broilers fed diets containing wheat offal (WO) and palm kernel cake (PKC) with or without xylanase supplementation. A 35-day feeding trial made up of a  $3 \times 2$  factorial design was conducted using 288 1-day old Marshall broiler chickens. The birds were randomly allocated to six dietary groups. Each group was further divided into 6 replicates of 8 birds each. Birds were fed control (maize: 60%), corn-wheat offal (30% each) and corn-PKC (30% each) based diets with or without xylanase supplementation. Nutrient digestibility trial was done on day 21 of the experiment using 2 birds per replicate. On day 35, 3 birds per replicate were sacrificed to determine the microbial profile assay. Their crops were aesthetically removed and placed in sterilized sample bottles (used to convey them to the laboratory for analysis). Data collected were subjected to Analysis of Variance with 5% significance in a Factorial Design. Feed intake (FI) increased ( $p < 0.05$ ) with wheat offal and PKC inclusion while weight gain (WG) and feed conversion ratio (FCR) were not affected. Xylanase supplementation had no effect ( $p > 0.05$ ) on FI and WG but significantly improved the FCR (1.99). Xylanase supplementation did not influence ( $p > 0.05$ ) crude protein (CP) and fat (CFa) retention but improved ( $p < 0.05$ ) crude fibre (CF) digestibility (58.79%). Birds fed control diet recorded a higher ( $p < 0.05$ ) CP (77.83%) and CFa (80.45%) digestibility while birds fed test diets (WO and PKC) had higher CF digestibility. Total viable count (TVC) and faecal coliform count (FCC) was higher ( $p < 0.05$ ) in the control groups as compared to groups fed WO and PKC. Xylanase supplementation and WO inclusion resulted into higher ( $p < 0.05$ ) Lactobacillus count ( $1.46 \text{ cfu mL}^{-1}$ ) and lower TVC and FCC. This study concluded that xylanase supplementation enhanced FCR, CF digestibility and prebiotic potential of broiler chickens fed wheat offal and palm kernel cake.

**Keywords:** Palm kernel cake, performance, prebiotic potential, wheat offal, xylanase