Passage time, apparent metabolisable energy and ileal amino acids digestibility of treated palm kernel cake in broilers under the hot and humid tropical climate

ABSTRACT

Four different palm kernel cake (PKC) including untreated PKC, enzyme fermented PKC (EPKC), extruded PKC (XPKC) and lactic acid bacteria fermented PKC (LPKC) were compared for their passage (ROP), apparent metabolisable energy (AME) and apparent ileal amino acid (AA) digestibility in broilers under the hot and humid tropical climate. The various PKC diets were formulated by replacing 25% of the basal diet with PKC, EPKC, XPKC or LPKC. The AME of various PKC were enumerated by the difference between the AME of basal and PKC diets. The same diets were used to analyse the feed passage time, where the time required excreting the indigestible index (titanium dioxide) was measured. Ileal AA digestibility was determined using PKC, EPKC, XPKC and LPKC as the sole source of AA in the diet. The inclusion of 25% treated PKC in the diet did not improve the ROP of digesta regardless of treatment applied. The AME values of EPKC, XPKC and LPKC, were significantly increased by 39.2, 44.9 and 43.1%, respectively, compared to untreated PKC. In comparison with the untreated PKC, the ileal crude protein (CP) digestibility of LPKC and EPKC were significantly increased by 30.5% and 20.3%, respectively, while no difference was observed for XPKC. The average ileal AA digestibility of LPKC was significantly higher by 22.8% compared to the untreated PKC. In conclusion, bacterial fermentation, enzymatic fermentation and thermal extrusion improved the AME of PKC the hot and humid tropical climate, while only bacterial fermentation resulted in significant improvements in the CP and AA digestibility.

Keyword: Palm kernel cake; Broiler; Digestibility; Passage time; Tropical climate