

Effect of feeding less shell, extruded and enzymatically treated palm kernel cake on expression of growth-related genes in broiler chickens

ABSTRACT

Palm kernel cake (PKC) is a residue of palm kernel after oil extraction and can be used as a by-product feedstuff for livestock. In the current study, various post-treated PKC fed to broiler chickens and their growth performance and expression of genes related to growth trait studied. A total of 2500-day-old broiler chicks were randomly assigned to following five isocaloric and isonitrogenous diets: 0% PKC (control: corn-soybean meal), 25% PKC in the forms of either untreated or less-shell or extruded or enzymatically-treated. Each treatment group consisted of five replicates with 100 chicks each. Growth performance and expression of 27 selected genes related to growth and metabolism pathways were investigated. Chickens were fed with treated PKC diets had lower ($p < .05$) body weight gain, inferior feed conversion ratio (FCR) and higher feed intake. The expression of genes involved in mTOR (GRB2, GRB10), FoxO (FOXO3) and insulin (PRKCZ) signalling pathways, glycolysis/gluconeogenesis (ENO1), fructose and mannose metabolism and apoptosis (RHOBTB2, LOC101750363) were significantly up-regulated in broilers fed with less-shell PKC. It can be concluded that the shell reduction, enzymatic and extrusion treatment practiced in this study did not change PKC feeding potentials in broiler chickens.

Keyword: Broiler chicken; Growth regulatory genes; Palm kernel cake; PCR array

