

Effect of feeding fermented and non-fermented palm kernel cake on the performance of broiler chickens: a review

ABSTRACT

Palm kernel cake (PKC) is a by-product of oil extraction from palm fruits and has been included in poultry diets as an alternative to soybean meal and yellow corn. Due to its high content of fibre, coarse texture and gritty appearance, the use of PKC in poultry nutrition is limited. In order to increase the nutritive value of PKC, there is a tendency nowadays to create solid state fermentation (SSF) by using cellulolytic microbes. This paper reviews the impact of feeding fermented and non-fermented PKC on the performance of broiler chickens. Recent studies have reported that SSF by cellulolytic microorganisms improved the nutritive value of PKC. The nutrient digestibility has been increased significantly in PKC fermented using *Paenibacillus polymyxa* ATCC 842 or *Weissella confusa* SR-17b. The availability of valine, histidine, methionine and arginine was 70.42%, 71.50%, 71.92% and 81.15%, respectively, in PKC fermented using *P. polymyxa* ATCC 842. The digestibility of crude protein (CP) increased by 61.83% and 59.90% in PKC fermented using *P. polymyxa* ATCC 842 or *W. confusa* SR-17b, respectively. In addition, body weight gain (BWG) and feed conversion ratio (FCR) improved significantly in broilers fed 15% fermented PKC compared to those fed 15% non-fermented PKC (2000.43 g versus 1823.23 g and 1.75 versus 1.91, respectively). The intestinal Enterobacteriaceae decreased (4.03 CFU/g) and lactic acid bacteria increased (5.56 CFU/g) in birds fed 15% PKC fermented by *P. polymyxa* ATCC 842. Therefore, fermented PKC can be included in a broiler diet up to 15%, replacing part of soybean and yellow corn in the diet, leading to a decrease in the overall cost of poultry feeding.

Keyword: PKC; Fermented PKC; Cellulolytic microbes; Broiler performance