

In vitro fermentation profiles of palm kernel meal (PKM)-based diet supplemented with xylanase or cellulase using caecal digesta of broiler chickens as inoculums

ABSTRACT

In vitro fermentation profiles of palm kernel meal-based diet supplemented with or without xylanase and cellulase were investigated using broiler chickens caecal digesta as inoculum. Caecal digesta from 10 six week old male Cobb 500 broilers was diluted with pre-warmed anaerobic, sterile saline (9g/L NaCl) in a ratio of 1:5, and was used as inoculum. The PKM-based diet together with semi-defined medium and caecal inoculum was incubated in 100 ml glass syringe for 72 hours at 39 ± 5 °C. In vitro fermentation kinetics was determined through the in vitro cumulative gas production technique. End products such as ammonia, VFAs, and in vitro dry matter degradability were also quantified. The in vitro study of PKM-based diet supplemented with or without xylanase did not show any different effect on the gas production rate. However, the amount of butyrate production was increased when enzyme was supplemented. Both xylanase and cellulase supplementation in PKM diet had significantly improved ($P<0.05$) the in vitro dry matter degradability of the PKM compared to unsupplemented PKM diet, which more prominent result shown by xylanase supplementation.

Keyword: Xylanase; Cellulase; Palm-kernel meal