Effect of Phytase Supplement on Productive Performance of Growing-Finishing Pigs Fed Normal and Low Phosphorus Diets

TINNAGON TARTRAKOON\textsuperscript{1}, WANDEE TARTRAKOON\textsuperscript{2}, JOHN DAVID KABASA\textsuperscript{1}

\textsuperscript{1}Georg-August-Universit"{a}t G"{o}ttingen, Institute for Animal Physiology and Animal Nutrition, Germany
\textsuperscript{2}Chiang Mai University, Department of Animal Science, Thailand

Abstract

An experiment was conducted at Rajamangala Institute of Technology, Phitsanulok Campus, Thailand to determine the effect feeding diets containing normal and low phosphorus (P) contents supplemented with phytase on productive performance of growing-finishing pigs. A total of 16 castrates and 16 female cross-bred (DxLWxLR) pigs were divided into 4 groups under a Randomised Complete Block Design. Within each group, the pigs had an initial average body weight of 30 kg and were kept in individual steel metabolism cages equipped with a nipple waterer, a stainless steel feeder and urine and faeces collectors. Each group was allocated to one of the dietary treatments: Diet 1 (control, normal P level without phytase), Diet 2 (normal P level with phytase 1,000 U kg\textsuperscript{-1}), Diet 3 (low P level without phytase) and Diet 4 (low P level with phytase 1,000 U kg\textsuperscript{-1}). Averaged daily gain (ADG) and feed conversion ratio (FCR) were monitored under controlled conditions. At the end of the experiment, two males and two females from each group were slaughtered for carcass evaluation.

The ADG and FCR of pigs fed diets 1 to 4 were: 610, 700, 570 and 600 g d\textsuperscript{-1} and 2.80, 2.60, 2.89 and 2.68, respectively. Significant differences ($p < 0.05$) in ADG and FCR were observed. Also, dressing % and % lean differed significantly ($p < 0.05$) averaging 78.41, 78.84, 76.23 and 78.27, and 43.63, 45.00, 40.96 and 42.85 %, respectively for the groups 1, 2, 3, & 4. Pigs fed diet 2 (normal P level with phytase 1,000 U kg\textsuperscript{-1}) had significantly the best productive performance, while pigs fed diet 4 (low P level with phytase 1,000 U kg\textsuperscript{-1}) did not differ from the controls (fed normal P level without phytase). It was concluded that the application of phytase as a feed additive improves productive performance of growing-finishing pigs.

Keywords: Growing-finishing pigs, carcass quality, phosphorus, phytase, productive performance

Contact Address: Tinnagon Tartrakoon, Georg-August-Universität Göttingen, Institute for Animal Physiology and Animal Nutrition, Kellnerweg 6, 37077 Göttingen, Germany, e-mail: ttin15@yahoo.com