

Abstract

Five ileal cannulated barrows (43.6 ± 1.3 kg BW) were used in a 5×5 Latin square design experiment to determine the apparent (AID) and standardized (SID) ileal digestibility of N and amino acids (AA) in low-phytate field pea (LPP), low-phytate barley (LPB) and normal-phytate field pea (NPP) and the apparent total tract digestibility (ATTD) of Ca, P and energy in diets containing these ingredients. In addition, the effects of phytase supplementation (500 FTU/kg) to diets containing LPP or NPP were determined. The experimental diets contained 869, 868 or 870 g/kg LPB, LPP and NPP, respectively, as the sole source of N. The phytate P contents were 0.4, 0.7 and 2.0 g/kg for LPB, LPP and NPP, respectively. Limestone was added to all diets meeting the recommended values, while inorganic P was added only in pea-based diets to provide 65% of the available P recommended by [NRC \(1998\)](#) for 20–50 kg pigs. Titanium dioxide (3 g/kg) was used as an indigestible marker. Daily feed allowance was calculated as 40 g/kg BW at the beginning of each period and was offered in two equal meals at 0800 and 1600 h. Each experimental period lasted for 8 d; d 1–4 for adaptation, d 5–6 for urine and fecal collections, and d 7–8 for ileal digesta collection. The ATTD of DM and GE was not different among diets and was not affected by phytase addition. The ATTD of Ca and P was higher ($P < 0.05$) in LPB than in LPP and NPP diets. Supplementing the LPP and NPP diets with phytase increased ($P < 0.05$) the ATTD of Ca and P. The AID of N and all AA except Met were higher ($P < 0.05$) in LPP and NPP than in LPB, but no difference between LPP and NPP were observed. Phytase supplementation increased ($P < 0.05$) the AID for Arg, Ile, Leu, Phe, Pro, Ser, Tyr, and Val. The SID of AA in LPB, LPP, and NPP were 0.734, 0.895 and 0.895 for Lys, 0.732, 0.757 and 0.744 for Met and 0.755, 0.789 and 0.787 for Thr, respectively. Results indicate that both varieties of field pea had greater AID and SID of AA than LPB. Also, the LPP diet had higher ATTD of Ca and P compared with the NPP diet and phytase supplementation improved digestibility of P, Ca and some AA.