Amino acid and energy digestibility in soybean meal from high protein and low oligosaccharide varieties of soybeans fed to growing pigs

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Two experiments were conducted using 5 sources of soybean meal (SBM) that included hexane extracted SBM produced from high-protein soybeans (SBM-HP) and conventional soybeans, and mechanically expelled SBM produced from high protein soybeans, low oligosaccharide soybeans (SBM-LO), and conventional soybeans. The standardized ileal digestibility (SID) of CP and AA in the 5 sources of SBM were measured in Exp. 1. Five diets that each contained 1 source of SBM as the only AA-containing ingredient and a N-free diet were formulated. Twelve growing barrows (initial BW: 67.7 kg) were allotted to a replicated 6 X 6 Latin square design with 6 periods and 6 diets. Each period lasted 7 d and ileal digesta were collected on d 6 and 7 of each period. Results of the experiment showed that there were no differences between the extracted SBM-HP and the extracted conventional SBM in SID values for any AA except for Trp. However, the expelled SBM-HP and SBM-LO had greater \((P < 0.05)\) SID for His, Ile, Lys, Thr, and Val than the expelled conventional SBM. The SID for all indispensable AA in the expelled SBM-HP were greater \((P < 0.05)\) than in the extracted SBM-HP, and for the conventional SBM, the SID for Arg, Ile, Leu, Phe, and Trp were greater \((P < 0.05)\) in the expelled meal than in the extracted meal. Experiment 2 was conducted to measure ME in the 5 sources of SBM using 48 growing barrows (initial BW: 38.6 kg) that were placed in metabolism cages and randomly allotted to 6 diets with 8 replicates per diet. A
corn-based diet and 5 diets based on a mixture of corn and each source of SBM were formulated. Urine and feces were collected during a 5-d collection period, and values for ME in each source of SBM were calculated using the difference procedure. Results showed that ME in the extracted SBM-HP was greater \((P < 0.05)\) than in the extracted conventional SBM (4,074 vs. 3,672 kcal/kg DM). The ME in the expelled SBM-HP was also greater \((P < 0.05)\) than in the expelled conventional SBM and in the SBM-LO (4,059 vs. 3,620 and 3,721 kcal/kg DM). It is concluded that SBM-HP has a greater feeding value than conventional SBM.