Ileal amino acid digestibility of a new high protein variety of soybeans fed to growing pigs

S. C. Pahm and H. H. Stein

Department of Animal Sciences, University of Illinois, Urbana 61801

The standardized ileal digestibility (SID) of CP and AA in a new high protein variety of soybeans (SSeed.HP"290) was determined using growing pigs and compared with the SID of AA in a commercial source of soybeans (CSB), with soybean meal (SBM), and with soy protein concentrate (SPC). Each of these 4 sources of soy products was included in 1 experimental diet as the only source of CP and AA. Two additional diets were formulated by adding soybean oil (7.55 and 7.35%, respectively) to SBM and SPC. The last diet was a N-free diet. Prior to the experiment, both sources of soybeans (SSeed.HP and CSB) were extruded at 130^{o}C. Seven growing barrows (initial BW: 26.2 kg) were fitted with a T-cannula in the distal ileum and allotted to a 7 x 7 Latin square design Digesta were collected from the cannulas and values for SID were calculated. Results of the experiment showed that the SID for CP and all indispensable AA except Met in SSeed.HP were greater ($P < 0.05$) than in SBM, but there were no differences between SSeed.HP and SPC. The SID for Ile, Phe, and Val in SSeed.HP were also greater ($P < 0.05$) than in CSB, but for CP and all other indispensable AA, no differences between the 2 sources of soybeans were observed. The addition of soybean oil to SBM increased ($P < 0.05$) the SID for all indispensable AA, except Arg, His, Lys, and Thr. It is concluded that the SID for AA in the new high protein variety of soybeans, SSeed.HP, are greater than in SBM and similar to SPC when fed to growing pigs.

Standardized ileal digestibility (%) by growing pigs

Item	290F.HP	Commercial soybeans	Soybean meal	Soybean meal	Soy protein concentrate	Soy protein concentrate	SEM	*P*-value

				and oil		and oil		
Arg	99.1 ^{yz}	96.7 ^{xy}	94.7 ^{x}	96.6 ^{xy}	97.4 ^{xy}	101.4 ^{z}	1.23	0.005
His	93.3 ^{yz}	91.6 ^{xy}	89.5 ^{x}	91.5 ^{xy}	94.1 ^{z}	97.1 ^{u}	1.00	<0.001
Ile	93.1 ^{zu}	90.2 ^{xy}	89.1 ^{x}	91.7 ^{yz}	93.6 ^{uv}	95.4 ^{v}	0.81	<0.001
Leu	92.5 ^{z}	89.7 ^{xy}	88.2 ^{x}	91.0 ^{yz}	93.0 ^{zu}	94.9 ^{u}	0.86	<0.001
Lys	93.0 ^{y}	92.5 ^{y}	87.7 ^{x}	90.6 ^{xy}	93.2 ^{y}	97.9 ^{z}	1.63	<0.001
Met	94.0 ^{xy}	92.2 ^{x}	92.6 ^{x}	95.5 ^{yz}	95.9 ^{yz}	97.0 ^{z}	1.18	0.003
Cys	84.9 ^{x}	85.0 ^{x}	80.6 ^{x}	85.0 ^{x}	85.1 ^{x}	92.8 ^{y}	2.76	0.006
Phe	93.7 ^{z}	90.7 ^{y}	88.9 ^{x}	91.5 ^{y}	94.4 ^{zu}	96.0 ^{u}	0.77	<0.001
Thr	87.6 ^{y}	86.4 ^{xy}	83.6 ^{x}	86.1 ^{xy}	89.4 ^{yz}	91.2 ^{z}	1.44	0.001
Trp	90.1 ^{yz}	89.4 ^{y}	86.1 ^{x}	90.1 ^{yz}	93.0 ^{zu}	95.6 ^{u}	1.41	<0.001
Val	91.7 ^{z}	89.0 ^{xy}	87.3 ^{x}	90.6 ^{yz}	92.7 ^{zu}	95.2 ^{u}	1.10	<0.001