Apparent and standardized ileal digestibility of amino acids in dry extruded-expelled soybean meal fed to growing pigs without or with organic acids and multi-carbohydrase

PSIV-1

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INTRODUCTION

- Dry extruded-expelled soybean meal (DESBM), which is produced through a combined process of extrusion and expelling, can be utilized as a dietary ingredient for swine (Velayudhan et al., 2015).
- Dietary supplementation with organic acid (OA) can have a positive effect on nutrient digestibility and growth performance in pigs (Nguyen et al., 2020).
- However, no study has determined the effects of OA on amino acid (AA) digestibility of DESBM fed to growing pigs.
- The objective of this experiment was to investigate the effects of OA and the interactive effects of OA and multi-carbohydrase (MC) on ileal AA digestibility of DESBM fed to growing pigs.

MATERIALS AND METHODS

- Ten cannulated pigs (initial BW = 17.3 ± 0.4 kg) were used for four periods, each lasting seven days.
- Pigs were randomly assigned to 1 of 5 experimental diets in a replicated 5 × 4 incomplete Latin square design.
- The 5 experimental diets were as follows:
  1) DESBM
  2) DESBM + 0.1% OA
  3) DESBM + 0.1% MC
  4) DESBM + 0.1% OA + 0.1% MC
  5) Low nitrogen diet for determining endogenous AA losses.
- Ileal digesta samples were collected during the last two days of each period.
- The MIXED procedure of SAS (SAS Inst. Inc., Cary, NC) was used for statistical analysis.
- OA, MC, and their interaction were the main effects. $P < 0.05$ was defined as significant, and $P < 0.1$ was indicative of a trend.

RESULTS

Table 1. Standardized ileal digestibility (%) of indispensable AA in dry extruded-expelled soybean meal fed to growing pigs without or with OA and MC supplementation[1]

	MC[3] 0		MC 0.1			*P*-value		
Item	OA[2] 0	OA 0.1	OA 0	OA 0.1	SEM[4]	OA	MC	OA × MC
Arg	93.21	92.76	93.58	90.51	0.93	0.070	0.320	0.171
His	85.08	84.18	86.29	80.66	3.23	0.322	0.724	0.472
Ile	87.14	85.93	87.12	81.70	1.55	0.043	0.183	0.186
Leu	87.63	86.98	87.51	83.61	1.46	0.131	0.242	0.274
Lys	88.72	88.38	88.76	85.11	1.38	0.160	0.251	0.240
Met	87.82	87.73	90.06	87.17	1.67	0.380	0.619	0.410
Phe	88.39	87.77	88.65	84.55	1.30	0.083	0.268	0.194
Thr	81.37	80.95	82.07	76.38	2.09	0.157	0.364	0.220
Trp	73.63	70.90	75.12	64.50	3.80	0.091	0.523	0.309
Val	84.53	84.98	84.78	79.46	1.65	0.152	0.122	0.092

[1] Data are least squares means of eight observations per treatment.
[2,3] OA or MC level (0 and 0.1% of diet)
[4] SEM: Standard error of mean

CONCLUSIONS

- Dietary supplementation with OA and MC did not improve ileal digestibility of AA in DESBM fed to growing pigs.

REFERENCES

- Velayudhan et al., 2015. Journal of Animal Science 93: 3402-3409.
- Nguyen et al., 2020. Animals. 10(6), 952.