

<sup>1</sup>SEM, total standard error of means (n = 6)

Table 5. Effect of betaine on the antioxidant capacity of finishing pigs.

Items <sup>2</sup>	Control	1 g/kg Betaine	1.5 g/kg Betaine	SEM <sup>1</sup>	P-value
<b>Loin</b>					
MDA, nmol/mg protein	1.07 <sup>a</sup>	0.70 <sup>b</sup>	0.88 <sup>ab</sup>	0.06	0.027
T-SOD, U/mg protein	77.99 <sup>b</sup>	90.15 <sup>a</sup>	88.82 <sup>a</sup>	2.03	0.012
GPX, U/mg protein	8.12	8.76	8.54	0.53	0.900
<b>Thigh</b>					
MDA, nmol/mg protein	0.83	0.68	0.62	0.05	0.182
T-SOD, U/mg protein	78.84 <sup>b</sup>	91.44 <sup>a</sup>	92.27 <sup>a</sup>	2.13	0.005
GPX, U/mg protein	6.37	7.45	7.51	0.38	0.416

<sup>a,b</sup>Means within a row with different superscripts differ significantly at  $P < 0.05$ .

<sup>1</sup>SEM, total standard error of means (n = 6).

<sup>2</sup>MDA, malondialdehyde; T-SOD, total superoxide dismutase; GPX, glutathione peroxidase.

**Key Words:** betaine, amino acid, meat quality

**PSIX-23 Inclusion of cocoa husks in the diet for fattening pigs on lipid composition of backfat and muscle.** Damiano Magistrelli<sup>1</sup>, Vincenzo D'Ardes<sup>2</sup>, Fabia Rosi<sup>3</sup>, <sup>1</sup>University of Milano, <sup>2</sup>University of Milano, <sup>3</sup>University of Milano

Cocoa husks are by-products of chocolate production, characterized by a high content of dietary fibre, proteins, lipids and polyphenols, which exert antioxidant activity. The present study investigated the effect of dietary inclusion of cocoa husks on the lipid composition of pig backfat and muscle. Eight finishing pigs were randomly assigned to one of two groups: CTRL, fed a conventional cereal-based diet, and COCOA, fed a diet obtained by substitution of 10% of the control diet with coarsely ground cocoa husks. After 6 weeks, pigs were slaughtered. During the experimental period, the dietary composition was analysed, nutrient digestibility of the diets and N balance were determined. At slaughtering, samples of backfat and Biceps brachii muscle were collected. Total lipids were extracted from samples and analysed for cholesterol content and for fatty acid composition. The experimental diets were isoproteic and isoenergetic, but polyphenolic content was 90% higher in COCOA than CTRL diet. Nutrient digestibility and N balance were not influenced by dietary treatment. Cocoa husks feeding did not affect total lipids and cholesterol, but increased by 50% the content of linoleic (18:2) and linolenic acid (18:3) in both backfat ( $P < 0.05$ ) and biceps muscle ( $P < 0.01$ ). Worldwide, sanitary authorities recommend increasing the ratio between polyunsaturated and saturated fatty acids of the diet, in order to reduce the risk of cardiovascular diseases. According to this, obtained results highlight a role for cocoa husks in improving the nutritional value of pork meat, which is a key factor in determining consumer choice.

**Key Words:** pig, cocoa husks, fatty acid composition, polyphenols

**PSIX-24 Effects of rice feeding on growth performance and protein (amino acids) metabolism in weaning piglets.** Ryozo Takada<sup>1</sup>, Yuusuke Tasaka<sup>2</sup>, <sup>1</sup>ASJS, <sup>2</sup>JSSS

This experiment was conducted to clarify the effects of feeding rice on growth performance and protein (amino acids) metabolism in weaning piglets. Sixteen weaning piglets with an average initial weight of 7.5 kg were divided into two groups. One group was fed a corn-soybean meal based diet, and the other was fed a rice-soybean meal diet. Each diet contained about 46% of corn or rice. A 2-week growth trial was conducted and growth performance, dry matter and crude protein digestibility, liver lysine-ketoglutarate reductase activity, plasma urea nitrogen, glucose, insulin, and free amino acids concentrations were measured. The average daily gain (g/d) and feed efficiency (gain/feed) in rice-fed piglets were significantly higher than those in corn-fed piglets. Average feed intake, however, was not significantly different between corn- and rice-fed piglets. Dry matter and crude protein digestibility were not significantly different between two groups. Liver lysine-ketoglutarate reductase activity tended to be lower ( $P = 0.073$ ) in rice-fed piglets than that in corn-fed piglets. Plasma urea nitrogen concentration in rice-fed piglets was significantly lower than that in corn-fed piglets. Plasma glucose and insulin concentrations were significantly higher in rice-fed piglets than those in corn-fed piglets. Plasma free valine, isoleucine, tryptophan, and glycine concentrations were significantly higher in rice-fed piglets than those in corn-fed piglets. On the other hand, plasma histidine concentration in rice-fed piglets was significantly lower than that in corn-fed piglets. In conclusion, these results clearly show that rice feeding affects the protein and amino acids metabolism and improves the growth performance in weaning piglets. Rice could be considered to be a good feedstuff for weaning piglets.

**Key Words:** rice, piglets, growth

**PSIX-25 Porcine epidemic diarrhea virus infection impairs intestinal nutrient transport in piglets.** Yongqing Hou<sup>1</sup>, Junmei Zhang<sup>2</sup>, Dan Yi<sup>3</sup>, Tao Wu<sup>4</sup>, <sup>1</sup>Wuhan Polytechnic University, <sup>2</sup>Wuhan Polytechnic University, <sup>3</sup>Wuhan Polytechnic University, <sup>4</sup>Wuhan polytechnic University

Porcine epidemic diarrhea virus (PEDV) infection can occur in all ages of pigs, but neonatal piglets are the