258 Chemical Analysis of Formaldehyde Treated Spray Dried Plasma and Effects on Weaned Pig Growth Performance When Included in Diets.

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The objective was to determine effects of formaldehyde treatment of spray dried bovine plasma (SDBP) and spray dried porcine plasma (SDPP) on chemical composition of SDPP and performance of pigs fed formaldehyde treated SDBP. The SDPP and SDBP were treated with formaldehyde products, Sal CURB® ASF liquid antimicrobial and CURB® RM Extra liquid (Kemin, Des Moines, IA, US). Both products are a blend of aqueous formaldehyde solution and propionic acid, used to maintain feed biosecurity. Sal CURB and CURB RM Extra were applied at 2 doses (0.1 or 0.3%) on SDPP to determine effects on chemical and functional properties of SDPP. No changes in SDPP for analyzed protein, ash, pH, or moisture concentration were detected, but IgG concentration in SDPP was decreased (8 and 24%, respectively, for 0.1 and 0.3% inclusion of Sal CURB or CURB® RM Extra) regardless of which product used. A pig feeding study was conducted to determine effects of CURB RM Extra applied at 0.3% to SDBP. Pigs (n = 265) were weaned at 20 ± 2 d of age (6.5 ± 0.95 kg initial BW) and allotted to 5 treatment groups, 60 pens, and 12 replicate pens per treatment. There were 7 replicates with 4 pigs per pen and 5 replicates with 5 pigs per pen. Treatments were balanced for BW, sex, and litter. Nursery was not cleaned between groups to create a dirty environment. Diets contained 25% SBM and 20% dried whey, were non-pelleted, non-medicated, and formulated to contain 3.4 Mcal ME/kg and 1.45% standardized ileal digestible Lys. Untreated control diet contained soy protein concentrate and test diets contained 2.5 or 5.0% SDBP without or with formaldehyde treatment. Diets were fed for 14 d after weaning. Performance data were analyzed using SAS with linear and quadratic contrasts for SDBP level. A linear increase ($P<0.05$) in ADG, ADFI, and G:F by SDBP level in feed was determined and relative bioavailability calculated by slope ratio of formaldehyde treated to untreated SDBP for ADG and ADFI. Formaldehyde treatment of SDBP reduced relative bioavailability of SDBP by 62% ($P=0.0181$) if calculations were based on ADG and by 15% ($P=0.0311$) if calculations were based on ADFI. However, there was no slope on the regression line for G:F ($P=0.97$) indicating no effect of SDBP on G:F by slope analysis. In conclusion, formaldehyde treatment applied directly on spray-dried plasma impacts analyzed concentrations of IgG and reduces growth rate of pigs.

Key Words: pigs, spray dried plasma, formaldehyde