Amino acid digestibility in corn distillers dried grains with solubles

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Samples of corn distillers dried grains with solubles (DDGs) were collected to determine the extent of variation in digestible amino acid (DAA) content. A second objective was to determine if any correlation exists between color of the sample and its digestible amino acid content. Samples (N=22) were obtained from four different commercial plants in Minnesota during spring, 2002. Digestible amino acids were determined with cecectomized roosters. Color (L*(lightness), a*(redness), and b* (yellowness)) was measured with a Minolta Chroma Meter CR-300 (Minolta Co., Ramsey, NJ.) with five readings per sample. The DAA content and color was significantly ($P<0.05$) affected by source. Digestibility of all amino acids averaged 83.1% for all samples. Digestibility was lowest for lys, cys, and thr (71.0, 75.3, and 76.3%, respectively). Among sources, DAA content was different ($P > .05$) except for leu and ser. Digestible lysine averaged .53% and source means ranged from .38 to .65%. Within sources, coefficient of variation (CV) for digestible lys ranged from 3.9 to 10.7% compared with a CV of 20.6% across all samples. Correlations ($P<0.001$) were found between digestible lys, cys, and thr and L* values ($r = 0.67$, 0.67, and 0.51, respectively) and b* values ($r = 0.77$, 0.74 and 0.58, respectively) but not with a* values. Lighter color (L*= 53.8) and more yellow color (b*=42.8) were associated with product averaging .65% digestible lysine while a darker color (L*=41.8) and less yellow (b*=32.9) was associated with product averaging .38% digestible lys. Digestible amino acid content was found to vary among sources but was relatively consistent within a particular source. Color (L*, b*) of the sample was a good predictor of lys, cys, and thr digestibility. These results confirm that color is a quick and reliable method of determining corn distillers dried solubles quality used as feed ingredient in the poultry diet.

Key Words: Distillers dried grains with solubles, corn, color, amino acid digestibility

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