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Apparent ileal digestibility of amino acids and metabolisable
energy value in grains for broilers

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Abstract

Using ileal digestible amino acids in feed optimising will intensify feed protein utilizing and decrease nitrogen excretion to the environment. The study determined the apparent ileal digestibility (AID) coefficients of amino acids in barley, wheat, oats, triticale, maize, and dehulled oats in the diets of 180 Ross broiler chickens (aged 24–35 days). The birds were fed semi-purified diets that contained grain as the sole protein source and chromium-mordanted straw as an indigestible marker. The AID coefficients of the nutrients were assessed using the slaughter technique, and the apparent metabolisable energy (AME) was determined using total excreta collection. The ileal digestibility of the dry matter and organic matter were the highest in maize. The AME of maize was higher than that of other cereals. The ileal digestibility of crude protein was higher in wheat than that in barley, oats and dehulled oats. The AME of wheat was similar to that of barley and oats but lower than that of triticale and dehulled oats. The amino acid AID was highest in wheat (0.86) and triticale (0.85) and lowest in oats (0.79) and barley (0.77). The average amino acid AID was 0.81 in dehulled oats. The threonine AID was the same in all tested ingredients. The lysine, methionine, and cystine AID coefficients were 0.81, 0.79, and 0.71 respectively for barley; 0.86, 0.84, and 0.38 respectively for oats; 0.87, 0.86, and 0.53 respectively for dehulled oats; 0.84, 0.90, and 0.66 respectively for maize; 0.89, 0.88, and 0.77 respectively for triticale; and 0.87, 0.85, and 0.71 respectively for wheat. Results indicated that AME –values of domestic grains (barley, oats and wheat) are in the same level. Especially, low AME value of wheat needs further investigation.

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