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Relative bioavailability of methionine hydroxy analog calcium salt compared to DL-methionine in broilers under heat stress

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Bioavailability of methionine hydroxy analog (MHA) has been reported to be about 65% relative to DL-Methionine (DL-Met) for broilers under normal growing conditions. However, there is limited information on their bioavailability under heat stress conditions. The objective of the present study was to determine the bioavailability of MHA calcium salt (MHA-Ca) compared with DL-Met under heat stress conditions. A total of 450 day-old Arbor Acres Plus male broiler chicks were randomly allotted to 9 dietary treatments with 10 replicates per treatment and 5 birds per replicate. Dietary treatments included a basal corn-soybean meal diet, and two set of diets containing graded levels (0.03, 0.06, 0.10 and 0.15%) of DL-Met or MHA-Ca on a product basis. The basal diet was formulated to meet essential amino acid levels according to Evonik recommendations except for methionine and methionine+cystine. The experimental period consisted of three phases as follows: starter (d 1 to 14); grower (d 15 to 28); and finisher (d 29 to 42). Birds had ad libitum access to water and feed. Housing temperature during the experimental period was above the breeder's (Arbor Acres) recommendation which has likely contributed to high feed conversion ratio (FCR) (2.1-2.4) recorded across all the treatments. Dose response data for both the methionine sources followed a non-linear trend, and slope-ratio analysis revealed that bioavailability of MHA-Ca relative to DL-Met was 68, 67, 56, and 57% for body weight gain, FCR, carcass weight and breast meat yield, respectively. In conclusion, this study showed that product (weight-to-weight) basis relative bioavailability of MHA-Ca compared with DL-Met is about 65% and offer no additional benefits even under heat stress conditions.

Biography

Kiran Doranalli holds a Doctor of Veterinary Medicine and Master Degree in Animal Nutrition from University of Agricultural Sciences, Veterinary College, Bangalore, India. He completed his PhD program from University of Saskatchewan, Department of Animal and Poultry Science, Canada. He has published 12 scientific research articles in peer reviewed journals and 4 popular press articles, presented and published 27 abstracts in scientific meetings and conferences. Currently, he is working with Evonik industries as the Regional Technical Manager for Asia south region from the past 3 years.

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