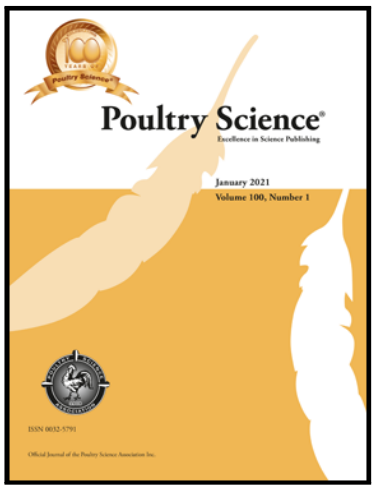


# Data for meta-analysis need standardization – A response to "Assessing the nutritional equivalency of DL-methionine and L-methionine in broiler chickens: A meta-analytical study" by Asasi et al.

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RESPONSE TO ASASI ET AL. 2023

# Data for meta-analysis need standardization – A response to "Assessing the nutritional equivalency of DL-methionine and L-methionine in broiler chickens: A meta-analytical study" by Asasi et al.

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Letter to the editor

Concerning „Assessing the nutritional equivalency of DL-methionine and L-methionine in broiler chickens: A meta-analytical study" by Roya Asasi , Hamed Ahmadi , Mohammad Amir Karimi Torshizi, Karimi Torshizi , Rasoul Vaez Torshizi , Farid Shariatmadari.

For a meta-analysis for evaluating the nutritional value of L-Methionine vs DL-Methionine in broiler nutrition data from 13 feeding experiments were analysed by simultaneous regression (linear, exponential) and visualization. While this is an appreciated objective, we have concerns with respect to data selection and preparation.

Original performance data (daily gain; feed conversion ratio) were put into one plot while it was not considered that data within study are more correlated than between studies. Approaches like mixed-models would be more suitable for such analysis.

A major concern is that responses were plotted only to supplemented methionine although the magnitude of responses in single trials are largely dependent on the overall (digestible) methionine+cysteine level. For example, the total Met+Cys levels of basal diets varied between 0.17% and 0.52% in assay 1 of Dilger and Baker (2007) and highest sulphur amino acid level was reported for assay 4 by Dilger et al. (2007; 0.89%). While the sulphur amino acid level of the basal diet would affect performance and magnitude of response, regressing against Met+Cys levels would impact position of data points of different publications in the plot. Moreover, also the methionine to cysteine ratio within sulphur amino acids impact responsiveness to methionine supplementation. Data by Dilger and Baker (2007) clearly provide evidence for this interaction. However, Asasi et al. did not put attention to this interaction and all data of this publication were included in the meta-analysis and certainly biased its outcome. E.g. in assay 1 of Dilger and Baker (2007) methionine to sulphur amino acid ratio decreased from 70% to 23%. Finally, intake of sulphur amino acids is more suitable as basis for comparison than "% in diet" and would be impacted by feed intake as well. Therefore, studies are hardly comparable without normalizing data.

While not all studies included a basal, non-supplemented diet (e.g. Rehman et al., 2019), trials reported by Dilger and Baker (2007; assay 2) and Dilger et al. (2007; assay 3) included more L-Met than DL-Met treatments which would imbalance the data base.

Therefore, it might be doubted whether the reported relative bioavailability figure for DL-methionine compared to L-methionine remains when the above would be adequately considered.

Authors declared no conflict of interest. This can be questioned as second author is representant of an L-methionine producer /agent in Iran.

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