Standardized Amino Acid Digestibility and Protein Quality of Extruded Canine Diets Containing Hydrolyzed Protein. Clare Hsu, Pamela L. Utterback, Carl M. Parsons, Fabio Marx, Ryan Guldenpfennig, Maria R. de Godoy, University of Illinois at Urbana-Champaign

Abstract: Hydrolyzed protein in companion animal diets has been of public interest because of its decreased susceptibility to elicit overreacting immune response and the potentially easier digestion. Thus, the objective of this study is to determine the chemical composition, standardized amino acid digestibility, and protein quality of 2 test protein hydrolysates, chicken liver hydrolysate (CLH) and chicken hydrolysate (CH), compared with a traditional chicken meal low ash (CM) in extruded canine diets. Five treatment diets were formulated to have similar ingredient compositions except for the main protein source, 1) CONd: CM diet; 2) 5%CLHd: 5% substitution of CLH of CM diet; 3) CLHd: CLH diet; 4) 5%CHd: 5% substitution of CH of CM diet; 5) CHd: CH diet. A precision-fed rooster assay using cecectomized roosters (n=4/treatment) was conducted to determine the standardized amino acid ileal digestibility and Digestible Indispensable Amino Acid Score (DIAAS) like values for the 3 protein ingredients and 5 extruded diets. The standardized ileal digestibility for the 10 indispensable amino acids was all equal or greater than 80% in all protein sources and treatment diets. Tryptophan digestibility in 5%CLHd was less than CLHd (P < 0.05) but no difference was seen when compared with the other diets (P > 0.05). The DIAAS-like values of the diets according to AAFCO nutrient profile showed that tryptophan was the first limiting amino acid for CONd, 5%CLHd, and 5%CHd; the diets containing only protein hydrolysates had no limiting amino acid as their DIAAS-like values were greater than 100%. The DIAAS-like values were less in CONd (95.6%), 5%CLHd (94.9%), and 5%CHd (96.2%) compared with CLHd (104.5%) and CHd (116.9%) (P < 0.05). In conclusion, all test protein sources were well digested; however, substituting CM with protein hydrolysate could increase protein quality in canine extruded diets.

Keywords: canine, protein hydrolysate, standardized amino acid digestibility

The raw Truth: Feeding zoo-Housed Carnivores.

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Abstract: Health and wellness of animals in our care is inexorably linked to their feeding experience (i.e., what and how food is offered). Usage of raw meat-based diets is longstanding and widespread in US zoos and aquaria, with a movement towards increased proportions of the diet from whole prey. Pet food industry has seen a steep rise in number and diversity of commercially available raw meat-based products for pets in recent decades, whereas the number of suppliers and products for zoo markets remain low. Budgetary constraints of zoos equate to lower quality ingredients than those in the premium pet food market. Zoo markets have not been immune to supply chain issues during the SARS-Cov-2 pandemic, resulting in the challenges of higher cost and decreased supply. Advances to the well-being of our animals could be achieved by leveraging findings from pet food research to include value-added nutrients such as probiotics, natural antioxidants, and Omega-3 enriched oils. In cases where animal needs differ from nutrition provided by commercial products (e.g., medical cases, enhancing feeding experience), zoo nutritionists rely on in-house formulations to provide additional support. Often these cases require creative formulation leveraging items from the human-food market and other unconventional sources. Examples and practical applications of individualized formulations for zoo and aquaria will be discussed.

Keywords: feline, canine, raw meat