PSXI-9 Chemical Composition and Calculation of Standardized Amino Acid Digestibility and Diaas-Like Scores Using the Precision fed Cecectomized Rooster Assay for Novel Proteins of Aquatic and Reptile Species. Victoria A. Gomez¹, Pamela L. Utterback¹, Carl M. Parsons¹, Maria R. de Godoy¹, ¹University of Illinois at Urbana-Champaign

Abstract: There has been a quest for novel and alternative protein sources in pet nutrition due to product diversification, need for novel and single protein diets, and concerns with sustainability. However, limited information on chemical composition and amino acid (AA) digestibility of these ingredients are available. The novel protein sources tested are of aquatic and reptile species, and include fish slurry, white fish, spirulina, eel, salmon, and rattlesnake. We determined the chemical composition and applied the cecectomized rooster model to estimate standardized AA digestibility of these protein sources. The ingredients were further assessed by calculation of digestible indispensable amino acid scores (DIAAS-like). Dry matter values were similar across all proteins and ranged from 91.3% to 99.4%. Crude protein was least in salmon (43.5%) and greatest in fish slurry and spirulina (72.5% and 72.8%, respectively). Rattlesnake produced the least amount of total fat at 1.8% and eel produced the most at 32.3%. Standardized AA values were >80% for both dispensable and indispensable AA in all protein sources. For DIAAS-like calculations, reference proteins were based on nutrient profiles of the Association of American Feed Control officials (AAFCO) nutrient profile and the National Research Council (NRC) recommended allowances for adult dogs and cats at maintenance. Using these references, rattlesnake was low quality for both dogs and cats. Fish slurry and spirulina were observed to be high quality for dogs and cats using AAFCO references and high quality in only cats using NRC references. Using the NRC reference for dogs, fish slurry and spirulina were determined to be moderate quality because the first-limiting AA in fish slurry (tryptophan) was 78% and first-limiting AA in spirulina (methionine) was 63%. Scores < 100% but >50% are considered moderate quality according to the DIAAS method.

Keywords: canine nutrition, feline nutrition, novel proteins

PSXI-10 Macronutrient and Protein Quality Evaluation of Novel Mammalian Proteins for Canine and Feline Nutrition. Victoria A. Gomez¹, Pamela L. Utterback¹, Carl M. Parsons¹, Maria R. de Godoy¹, ¹University of Illinois at Urbana-Champaign

Abstract: The use of novel protein sources has become a popular human food trend and with the continued humanization of pets, these trends have been followed in the petfood industry. There is limited data regarding the macronutrient composition and overall quality of novel mammalian proteins. In this study, beef, yak, camel, kangaroo, and wild boar were analyzed for chemical composition, amino acid (AA) digestibility, and calculation of digestible indispensable amino acid scores (DIAAS-like) by application of the precision fed cecectomized rooster assay. Dry matter values were >90% and crude protein was greatest in yak meat (95%). Yak meat also contained the least amount of total fat at 11% whereas the greatest amount was found in beef at 57%. The standardized AA digestibility values were determined to be highly digestible as all values were >81%. The reference proteins used for DIAAS-like calculations were based on the Association of American Feed Control officials (AAFCO) nutrient profile and National Research Council (NRC) recommended allowances for adult dogs and cats at maintenance. The DIAAS-like values were >100% for yak and camel meat and were determined to be high quality for dogs. In cats, all proteins received DIAAS-like scores >100% except for wild boar. Tryptophan and methionine were most often the first-limiting acids for both dogs and cats.

Keywords: canine, feline, novel protein