

INFLUENCE OF DIET AND TIME ON FAT AND RETINOL CONCENTRATIONS IN ADULT FEEDER CRICKETS

Cheryl L. Dikeman, PhD,^{1*} Sara D. Plesuk,¹ Darlene L. Klimek,¹ Sarah L. Burke,¹ Kara J. Jorgensen,² Lee G. Simmons, DVM¹

¹Omaha's Henry Doorly Zoo, Omaha, NE 68107 USA; ²University of Nebraska at Omaha, Omaha, NE 68182 USA

Abstract

Many captive amphibians are fed supplemented crickets (*Acheta domesticus*) as a basal diet. There is concern that some amphibians have unique requirements for certain vitamins, particularly vitamin A due to its association with squamous metaplasia of mucous producing epithelia, resulting in inability to capture prey. Because vitamin A is fat soluble, it was hypothesized that increasing fat concentration of crickets also may increase vitamin A. Crickets were fed in a replicated randomized block design arranged as a three x four factorial consisting of three diets: MON (Hi Cal Monster Diet; Zeigler Bros., Inc. Gardners, PA); MAZ (Mazuri® Hi Calcium Cricket Diet; PMI Nutrition, St. Louis, MO); or EVO (Innova EVO Cat and Kitten; Natura Pet Products, Fremont, NE) and four feeding time periods: 24, 48, 72, or 168 h. The diets contained 2.9, 3.7 or 20.0% crude fat (CF), and 6,938, 1,151, or 1,880 IU/100 g retinol on a dry matter basis for MON, MAZ, and EVO, respectively. Data were analyzed using the GLM procedure of SAS® with $p < 0.05$ accepted as statistically significant. Crickets fed EVO had higher ($P < 0.05$) fat concentrations (20.7%) compared with crickets fed MON (16.2%) or MAZ (17.1%). Cricket retinol concentrations were not statistically different and averaged 24.6, 58.7, and 80.7 IU/100g DM for MON, MAZ, and EVO treatments, respectively. Time of feeding did not affect CF or retinol concentrations. Further replication of dietary manipulation may be warranted due to observed numerical increases in fat and vitamin A concentrations when crickets were fed a higher fat diet.