DIGESTIVE EFFICIENCY AND PASSAGE RATE IN TWO PROPITHECUS SPECIES FED A CAPTIVE DIET.

JL Campbell[1], JH Eisemann[1], KL Glander[2], SD Crissey[3]

[1]Department of Animal Science and Interdepartmental Nutrition Program, North Carolina State University, Raleigh, NC; [2]Duke University Primate Center, Durham NC; [3]Brookfield Zoological Society, Chicago, IL.

Until recently, captive management of species from the prosimian family Indridae has been unsuccessful, or at best problematic. Feeding ecology studies conducted on various Indriids indicate all species exhibit predominantly folivorous feeding behavior (Jolly, 1966; Meyers, 1993; Richard, 1977). In captivity this highly fibrous diet can be difficult to reproduce. The addition of native browse species to the captive diet of *Propithecus verreauxi* dramatically improved captive survivorship (Glander, 1983; Haring, 1988), however, diet-related problems persisted until the addition of a nutritionally complete manufactured diet designed for use with leaf-eating primates. The important difference between the current diet and the one fed previously is that neutral detergent fiber (NDF) and acid detergent fiber (ADF) levels are higher for the leafeater diet than for the previously fed Old World Primate Chow, *Propithecus tattersalli*, brought into captivity in 1987, and *P. v. coquerei* are both currently fed a combination of the pelleted leaf-eater diet, fruits and vegetables, and harvested browse .

The objective was to measure dry matter intake(DMI), digestibility, transit time (TT) and mean retention time (MRT) in captive *P. v. coquereli (n=5, 3.7 (0.3kg) and P. tattersalli* (n=2, 3.2 (0.03kg) while being fed a diet consisting of Mazuri Leafeater Primate Chow at 85% of DMI and sumac *(Rhus copallina)* at 15% of DMI. After a six-week diet acclimation phase, the digestibility phase consisted of a seven-day adjustment period in the experimental caging, followed by a seven-day total collection period.

On day 1 of the collection period, animals were orally dosed with Co-EDT A to measure the liquid phase, and Cr-mordanted chow to measure the particle phase of digesta passage through the gut. Collections were made every three hours for the first three days and every six hours for the last four days. Serum glucose, urea, and non-esterified fatty acid (NEFA) concentrations were recorded at four time intervals throughout the experiment to monitor nutritional status. Chemical composition of the total diet fed was: 25% crude protein (CP), 34% NDF, 22% ADF with a gross energy (GE) of 4.5 kcal/gram of total diet dry matter (DM). Digestibility values, expressed as percentages, were as follows:

	DM	**CP**	**NDF**	**ADF**	**GE**
P.V.C.	**65.1 (.01**	**65.3 (.02**	**39.9 (1.3**	**37.7 (1.9**	**64.2 (0.4**
P.T.	**65.6 (.02**	**62.3 (1.9**	**43.8 (2.7**	**32.1 (3.7**	**64.1 (0.7**

Digestible energy of the diet was 2.91 kcal/g of total diet DM. Digestible energy intake(DEI) was 93.2 (14.11 kcal/kgO.75 for *P.v. coquere/i* and 80.6 (22.32 kcal/kgO.75 for *P. tattersal/i.* The TT (h) and the MRT (h) were not significantly different between species. The TT of the Cr-mordant and Co-EDT A was 17 .4 (3.1 h for both species. The MRT was 30.9 (2.6 h for the Co-

EDTA and 32.1 (3.0 h for the Cr-mordant. The MRT values for each marker did not differ from one another, therefore there was no selective retention of either phase of digesta in this experiment.

Across all four time intervals, serum glucose concentrations averaged 6.3 (0.2 mM and 6.4 (0.3 mM for *P.v. coquere/i and P. tattersal/i,* respectively. Serum urea concentrations were higher over time, and NEFA values showed a time x species interaction. Individual animals that had low DEI (approximately 68 kcal/kg BW0.75) during the fourteen-day period in experimental caging showed an average weight loss of 110 g during the seven-day collection period. Those animals with an average DEI of 108 kcal/kg BW 0.75 showed an average weight loss of 30 g. It is important to note that weight loss did not occur before animals were placed in the research caging, therefore it is probable that the stress of confinement contributed to lower intake.

The results demonstrated no,difference in digestibility between the two species, and no difference in TT or MRT. Those animals with low DEI had concurrent weight loss. However, those animals with higher DEI showed minimal weight loss. Therefore, both species can be fed a diet with 33% NFD and 20% ADF if DEI is adequate.

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