

Interplay Between Metabolic Rate and Diet Quality in the South American Fox, *Pseudalopex culpaeus*

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Abstract

We studied the metabolic costs associated with the ingestion of peppertree fruits (*Schinus molle*) in the culpeo fox, *Pseudalopex culpaeus*, the second largest canid in South America. Throughout its range of distribution, this fox feeds on rodents and other small vertebrates, and also on peppertree fruits, which represent 98% of total fruits consumed in semiarid Chile. Peppertree contains a high diversity of phytochemicals. Foxes feeding on diets containing rats and peppertree fruits (mixed diets) exhibited a 98.9% increase in basal rate of metabolism when compared to rat-acclimated foxes. Thus, acute ingestion of chemically defended fruits has an energetic cost for the fox, reflected in higher values of basal metabolism. Increased metabolic rates may be associated with increased protein synthesis for detoxification and for tissue repair, including the production of biotransformation enzymes.

Keywords: Basal metabolic rate, Chemically defended fruit, Food quality, Mixed diet, Canid, Peppertree, *Schinus molle*.