# NUTRIENT COMPOSITION OF THE MILK OF THE GIANT ANTEATER (*MYRMECOPHAGA TRIDACTYLA*).

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**Abstract**

Little information exists about milk composition in obligate insectivores or in members of the mammalian superorder Xenarthra. A total of 37 milk samples collected from 3 lactating giant anteaters (*Myrmecophaga tridactyla)* were assayed for proximate nutrient content at the Nutrition Laboratory of the Smithsonian Conservation Biology Institute using standard methods developed at the Nutrition Laboratory. Water comprised 88.7 ± 2.1% of the milk (mean ± SD). Sugar and fat content were moderately low (3.2 ± 0.6% and 1.0 ± 0.5%, respectively). Crude protein was the highest solid constituent at 5.6 ± 1.2%. Milk gross energy content (GE) was 0.55 ± 0.11 kcal/g.

Giant anteater milk appears to be an example of milk with moderately low sugar and fat and high protein content. On an energy basis giant anteater milk contains 103 ± 9 mg of protein per kcal, the highest value for protein on an energy basis of milk from any species so far assayed at the Nutrition Laboratory. Protein energy accounted for 60% of GE. If all the protein, sugar and fat in the milk were metabolized into energy (ME), protein would contribute 52% of ME.

Not all the milk protein will be metabolized, of course. Some will be used to build tissue. But the high proportion of potential metabolizable energy in giant anteater milk from protein strongly suggests that milk protein is an important energy source for the neonates. This is also probably true for adults; a diet of ants is likely high in protein, moderate at best in fat, and low in carbohydrate (as well as high in dirt). Catabolism of protein into glucose would be predicted to be important for adult giant anteaters.

A reliance on milk protein to provide neonates with metabolizable energy may be a feature of Xenarthran lactation. Nine-banded armadillo milk is also high in protein (87 ± 12 mg/kcal) and low in sugar (2.7 ± 0.5%), though it is not low in fat (5.2 ± 2.2%). Adult armadillo diet also is high in protein, and probably low in fat and carbohydrate. There are no data on sloth milk as yet; but sloths have a diet high in mature leaves, which typically are high in protein, and low in fat and simple sugars. The extant Xenarthrans might share a milk composition that reflects milk protein as an important neonatal energy source. Further research is needed to determine the extent to which this hypothesis reflects evolutionary reality.