

Supplement to Drying dynamics of pellet feces

Benjamin Magondu³⁺, Alexander B. Lee²⁺, Andrew Schulz¹,
Gabriel Cervantes Buchelli¹, Michelle Meng¹, Candice Kaminski²,
Patricia J. Yang⁴, Scott Carver⁵, and David L. Hu^{1,2*}

Schools of Mechanical Engineering¹ and Biological Sciences², Wallace H. Coulter Department of Biomedical Engineering³
Georgia Institute of Technology, Atlanta, GA 30332, USA

Department of Power Mechanical Engineering⁴, National Tsing Hua University, Hsinchu, Taiwan

Department of Biological Science⁵, University of Tasmania, Hobart, Tasmania 7005, Australia

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Figure 1: Corn starch cakes formed in wooden troughs. (a) Experiment conducted with lamp at 13 cm from dish. (b) Experiment conducted with lamp at 40 cm from dish. (c) Experiment conducted with lamp at 20 cm from dish (d) Experiment conducted without lamp.

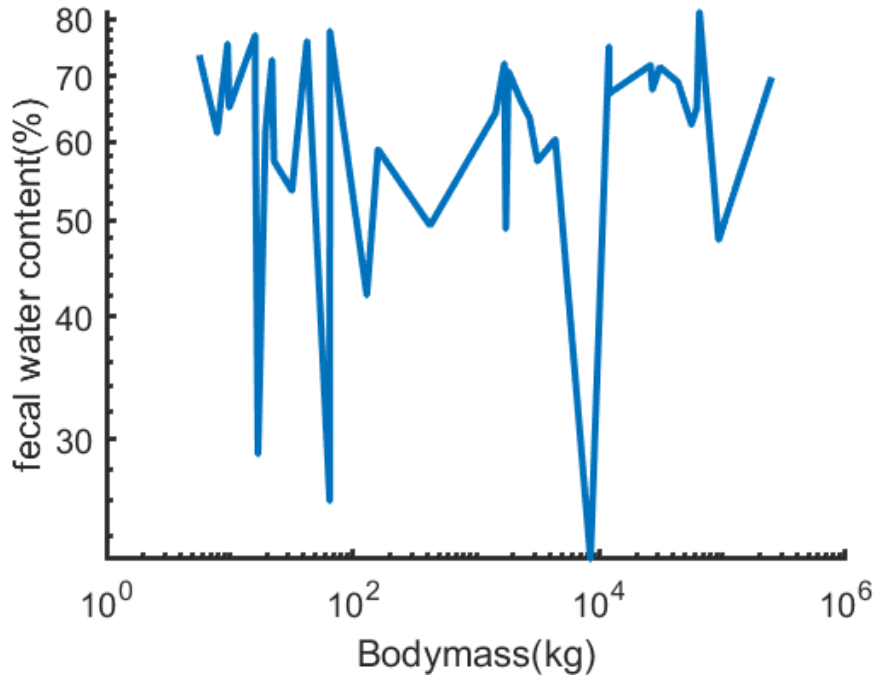


Figure 2: Relation between fecal water content and body mass for various mammals.

Table 1: Collection of animal body mass and fecal diameter values

Animal	Scientific Name	Body Mass(kg)	Diameter(cm)
dairy cow ^{1,2}	<i>Bos taurus</i>	600	1.13
free range tapir ^{1,3}	<i>Tapirus terrestris</i>	250	1.5
captive tapir ¹	<i>Tapir kabomani</i>	250	3
free range przewalski ^{1,4}	<i>Equus ferus przewalskii</i>	300	0.75
captive przewalski ^{1,4}	<i>Equus ferus przewalskii</i>	300	0.5
free range giraffe ¹	<i>Giraffa camelopardalis</i>	980	0.38
captive giraffe ¹	<i>Giraffa camelopardalis</i>	980	0.75

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Table 2: Collection of animal body mass and fecal water content 1:Rats were fed milk, 2: refers to: Miniature Poodles, Jack Terrier Russell, Miniature Schnauzer, 3: refers to: Standard Schnauzer, 4: refers to: Giant Schnauzers, 5: refers to: German Shepards, 6: refers to: Irish Cross breeds, Dutch Warmbloods and Highlands values

Animal	Scientific Name	Body Mass(kg)	Fecal Water Content
Mongolian Gerbil ⁵	<i>Meriones unguiculatus</i>	0.055-0.075 kg	26 ±3
Arabian Oryx ⁶	<i>Oryx leucoryx</i>	92.5 - 93.6 kg	47.8 ±2.3
Lab Mice ⁷	<i>Mus musculus</i>	0.0321 kg	53.6 ±1.1
Northern yellow bat ⁸	<i>Lasiurus intermedius</i>		57.4
Ghost faced bat ⁸	<i>Mormoops megalophylla</i>		77
Hairy fruit-eating bat ⁸	<i>Artibeus hirsutus</i>		70.1 ±4
Pallas's long-tongued bat ⁸	<i>Glossophaga soricina</i>		45.2 ±5.6 – 84.9 ± 4.3
Mexican funnel-eared bat ⁸	<i>Natalus stramineus</i>		73.5 ±2.6
Davy's naked-backed bat ⁸	<i>Pteronotus davyi</i>		75.5
Parnell's mustached bat ⁸	<i>Pteronotus parnellii</i>		51.6 ±2.3 – 71.1 ± 0.7
Wagner's mustached bat ⁸	<i>Pteronotus personatus</i>		61.3 ±10.2
Great fruit-eating bat ⁸	<i>Artibeus lituratus</i>		75.9 ±8.2 – 79.6 ± 1.7
Jamaican fruit bat ⁸	<i>Artibeus jamaicensis</i>		72.3 ±6.2 – 79 ± 2.5
Little yellow-shouldered bat ⁸	<i>Sturnira lilium</i>		64.1 ±8.1
Tent-making bat ⁹	<i>Uroderma bilobatum</i>		66.6
Lesser long-nosed bat ⁸	<i>Leptonycteris yerbabuena</i>		72.7
Holstein bull calves ¹⁰	<i>Bos taurus</i>	43.6 ±2kg	69
European Rabbits ¹¹	<i>Oryctolagus cuniculus</i>		49 ±6
Common Wallaroo ¹²	<i>Macropus robustus erubescens</i>	18.3 kg	70.8
Eastern Wallaroo ¹²	<i>Macropus. r. robustus</i>	17 kg	72.1
Goat ¹²	<i>Capra hircus</i>	31.5 kg	57.4
Wistar Rats ¹³ ₁	<i>Rattus norvegicus</i>	84.88 g	22.71 ±10.86
Balb/c mice ¹⁴	<i>mus musculus</i>	17.02 ± 0.57g	28.99 ±6.84
Hound dog ¹⁵	<i>Canis lupus familiaris</i>	24 kg	75
Beagles ¹⁵	<i>Canis lupus familiaris</i>		67.2 ±1.2
German Shorthair ¹⁵	<i>Canis lupus familiaris</i>		71.8 ±2.4
German Shepherd ¹⁶	<i>Canis lupus familiaris</i>		71.5±1.8
"Small Dogs" ¹⁶ ₂	<i>Canis lupus familiaris</i>	4.4 ± 0.5kg	60.4 ±2.0
"Medium Dogs" ¹⁶ ₃	<i>Canis lupus familiaris</i>	14.4 ±0.3kg	64.2 ±0.4
"Large Tolerant Dogs" ¹⁶ ₄	<i>Canis lupus familiaris</i>	27.2 ±1.0kg	63.5 ±0.9

Table 2: Collection of animal body mass and fecal water content 1:Rats were fed milk, 2: refers to: Miniature Poodles, Jack Terrier Russell, Miniature Schnauzer, 3: refers to: Standard Schnauzer, 4: refers to: Giant Schnauzers, 5: refers to: German Shepherds, 6: refers to: Irish Cross breeds, Dutch Warmbloods and Highlands values

Animal	Scientific Name	Body Mass(kg)	Fecal Water Content
"Large Sensitive Dogs" ¹⁶ ₅	<i>Canis lupus familiaris</i>	23.1 ±0.7kg	66.1 ±0.7
Shetland Pony Gelding ¹⁷	<i>Equus ferus caballus</i>	250.9 ±11.3kg	69.8 ±.91
Pasture horses ¹⁸ ₆	<i>Equus caballus</i>	500-800 kg	81.3 ±2.28
Talas tuco-tuco ¹⁹	<i>Ctenomys talarum</i>	130g	42
Sprague Dawley rats ²⁰	<i>Rattus norvegicus</i>	160g	59±5
Human	<i>Homo sapiens</i>	20.6–22.2kg/m ²	65.0 ±8.1
Sheep ²¹	<i>Ovis aries</i>	27 kg	67.8
Sika Deer ²²	<i>Cervus nippon</i>	56 kg	62.5
Broiler (immature) ²³	<i>Gallus gallus domesticus</i>		79
Hens ²³	<i>Gallus gallus domesticus</i>		72.
End of Table			

Table 3: Collection of animal body mass(kg) and colon length values(m)

Animal	Scientific Name	Colon Length(m)	Body Mass(kg)
Camel ²⁴	<i>Camelus Dromedarius</i>	17.07	400
Horse ²⁴	<i>Equus ferus caballus</i>	6.40	498.9516
Elephant ²⁴	<i>Loxodonta africana</i>	6.25	5443
Zebra ²⁴	<i>Equus quagga</i>	5.94	360.00
Horse ²⁴	<i>Equus ferus caballus</i>	6.47	498.9516
Donkey ²⁴	<i>Equus asinus</i>	4.85	120
Mule ²⁴	<i>Equus asinus x Equus caballus</i>	6.73	498.9516
Ox ²⁴	<i>Bos taurus</i>	10.18	544
Camel ²⁴	<i>Camelus Dromedarius</i>	17.72	400
Sheep and Goat ²⁴	<i>Ovis aries and Capra aegagrus hircus</i>	6.17	45.6
Hog ²⁴	<i>Sus scrofa linnaeus</i>	4.99	50
Dog ²⁴	<i>Canis lupus familiaris</i>	0.13	30
Cat ²⁴	<i>Felis catus</i>	0.17	5.44
Rabbit ²⁴	<i>Oryctolagus cuniculus</i>	0.28	2.95
lion ²⁵	<i>Panthera Leo</i>	1.40	131.4
Llama ²⁶	<i>Lama glama</i>	7.4	140
rat ²⁷	<i>Rattus rattus</i>	0.06	0.08
musk deer ²⁸	<i>Moschus moschiferus</i>	3.9624	11.79
Pony ²⁹	<i>Equus ferus caballus</i>	4.2	325
Malayan Tapir ²⁹	<i>Tapirus indicus</i>	5.9	160
Horse ²⁹	<i>Equus ferus caballus</i>	7	800
Horse ²⁹	<i>Equus ferus caballus</i>	7.5	800
Zebra ²⁹	<i>Equus quagga</i>	4.7	1300
Black Rhino ²⁹	<i>Diceros bicornis</i>	4.9	2100
Black Rhino ²⁹	<i>Diceros bicornis</i>	2.9	2100
White Rhino ²⁹	<i>Ceratotherium simum</i>	7.2	6500
Indian Rhino ²⁹	<i>Rhinoceros unicornis</i>	9.1	4700
Indian Rhino ²⁹	<i>Rhinoceros unicornis</i>	6.4	4700
Elephant ²⁹	<i>loxodonta africana</i>	8.5	13000
Elephant ²⁹	<i>loxodonta africana</i>	5.8	13000
Elephant ²⁹	<i>loxodonta africana</i>	6	13000

Table 4: Power laws indicate 95 percent confidence intervals for the relationship to body mass and fecal geometries

	Cylinder diameter	Pellet length	Pellet width
Best fit	$L = 0.52M^{0.17}$	$L = 4.66M^{0.25}$	$W = 0.85M^{0.35}$
upper bound	$L = 0.58M^{0.20}$	$L = 5.26M^{0.29}$	$W = 0.99M^{0.41}$
lower bound	$L = 0.47M^{0.13}$	$L = 4.10M^{0.20}$	$W = 0.72M^{0.30}$

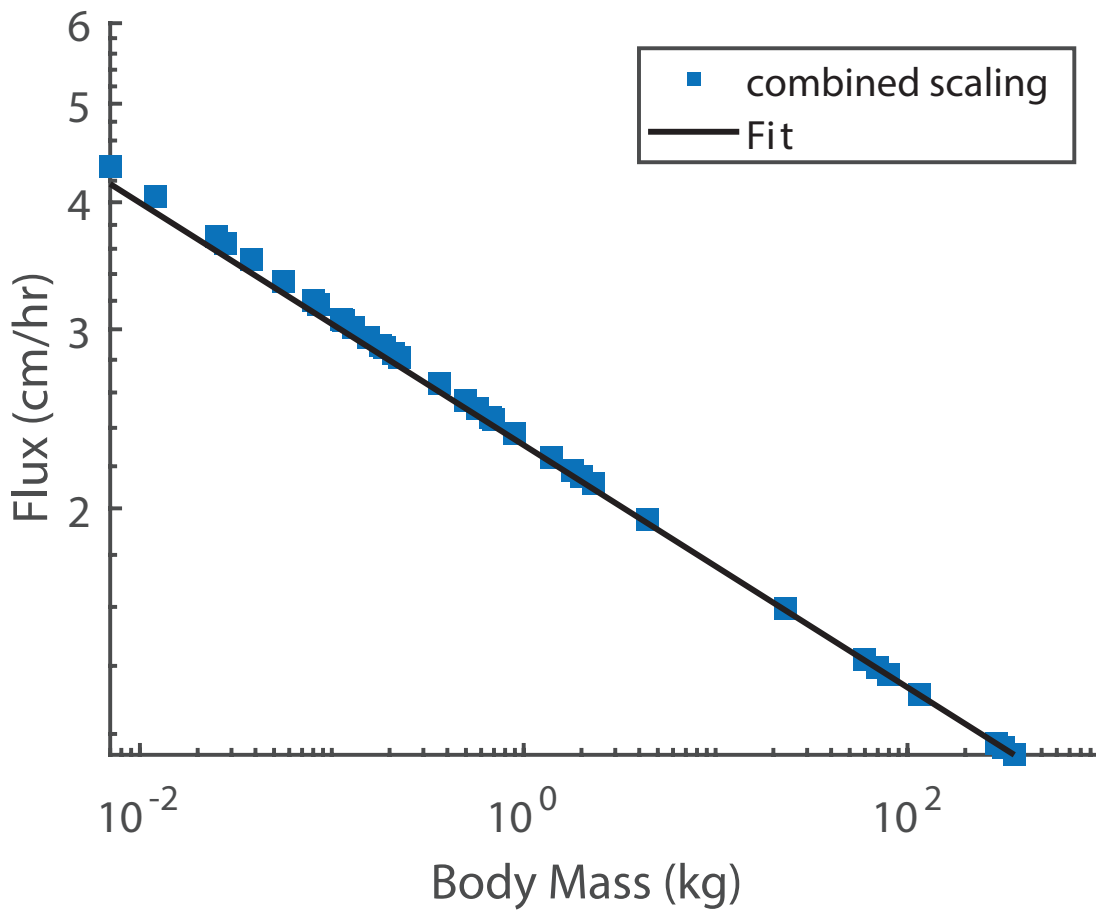


Figure 3: Plot detailing the summed scaling of the flux calculation from equation (11) in main text, which involves dry and wet mass intake, mass excretion, and dimensions of colon. The blue dots represent the calculated flux in cm/hr. The black line is the power law best fit, $J \sim M^{-0.12}$

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