

Supplementary Materials: How the Cobra Got Its Flesh-Eating Venom: Cytotoxicity as a Defensive Innovation and Its Co-Evolution with Hooding, Aposematic Marking, and Spitting

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Table S1. NFF venom cytotoxicity (%) \pm SEM.

Species	Origin	5 μ g	1 μ g	0.5 μ g	0.1 μ g	AUC
<i>A. lubricus</i>	Africa	99.93 \pm 0.07	39.50 \pm 7.67	24.07 \pm 2.08	6.26 \pm 5.88	62.19
<i>A. scutatus</i>	Africa	99.46 \pm 0.13	35.25 \pm 0.75	0.38 \pm 0.2	2.37 \pm 2.37	53.24
<i>B. fasciatus</i>	Asia	99.16 \pm 0.15	28.63 \pm 2.42	25.84 \pm 2.52	14.50 \pm 6.60	49.99
<i>D. polylepis</i>	Africa	29.02 \pm 3.36	24.48 \pm 2.26	19.80 \pm 4.30	10.01 \pm 2.63	98.76
<i>E. boulengeri</i>	Asia	100.00	19.45 \pm 4.22	14.73 \pm 1.78	2.59 \pm 1.01	49.83
<i>E. s. longicauda</i>	Asia	99.68 \pm 0.12	12.29 \pm 0.96	5.09 \pm 1.76	4.66 \pm 2.44	39.19
<i>E. s. sundevalli</i>	Asia	99.85 \pm 0.11	4.15 \pm 2.30	2.94 \pm 1.88	5.96 \pm 2.68	36.66
<i>H. haemachatus</i>	Africa	98.84 \pm 0.21	100.00	100.00	0.00	134.5
<i>N. annulata</i>	Africa	34.95 \pm 4.79	12.51 \pm 1.79	13.97 \pm 3.4	7.98 \pm 2.03	54.45
<i>N. annulifera</i>	Africa	99.81 \pm 0.12	98.90 \pm 0.44	70.30 \pm 6.42	0.00	119.7
<i>N. atra</i>	Asia	99.08 \pm 0.13	97.83 \pm 0.37	98.16 \pm 0.22	22.71 \pm 3.72	133.5
<i>N. haje</i>	Africa	99.91 \pm 0.08	51.41 \pm 9.37	7.58 \pm 3.45	5.70 3.62	60.21
<i>N. kaouthia</i>	Asia	99.46 \pm 0.18	99.96 \pm 0.04	98.38 \pm 0.74	0.00	134
<i>N. melanoleuca</i>	Africa	99.84 \pm 0.13	58.33 \pm 4.76	0.00	0.64 \pm 0.64	64.38
<i>N. mossambica</i>	Africa	98.95 \pm 0.19	96.57 \pm 0.81	33.81 \pm 8.54	0.00	100.8
<i>N. naja</i>	Asia (India)	97.92 \pm 0.4	99.89 \pm 0.11	98.42 \pm 0.26	5.57 \pm 0.64	133.4
<i>N. naja</i>	Asia (Pakistan)	98.87 \pm 0.17	100.00	99.19 \pm 0.48	4.71 \pm 2.45	134.1
<i>N. nigricollis</i>	Africa	99.03 \pm 0.3	99.96 \pm 0.3	92.59 \pm 3.08	0.00	130.9
<i>N. nivea</i>	Africa	99.27 \pm 0.13	86.53 \pm 4.69	44.77 \pm 3.13	4.81 \pm 2.31	99.35
<i>N. oxiana</i>	Asia	100.00	98.50 \pm 0.6	41.83 \pm 6.72	5.77 \pm 5.58	103.3
<i>N. pallida</i>	Africa	97.63 \pm 0.25	98.59 \pm 0.65	32.73 \pm 10.21	0.00	101.2
<i>N. philippinensis</i>	Asia	99.49 \pm 0.13	90.62 \pm 0.81	0.00	0.00	80.49
<i>N. siamensis</i>	Asia	99.70 \pm 0.07	97.92 \pm 0.1	94.09 \pm 1.71	64.33 \pm 1.09	124.5
<i>N. sumatrana</i>	Asia	99.27 \pm 0.19	98.53 \pm 0.31	97.72 \pm 0.63	14.69 \pm 5.26	133.6
<i>O. hannah</i>	Asia (Cambodia)	100.00	100.00	99.49 \pm 0.51	26.52 \pm 2.70	134.6
<i>O. hannah</i>	Asia (Java)	99.97 \pm 0.03	100.00	100.00	9.22 \pm 4.76	134.9
<i>O. hannah</i>	Asia (Malaysia)	100.00	100.00	99.9 \pm 0.1	42.10 \pm 6.3	134.9
<i>O. hannah</i>	Asia (Thailand)	100.00	100.00	100.00	24.00 \pm 1.83	134.9
<i>W. aegyptia</i>	Africa	100.00	98.64 \pm 0.03	40.54 \pm 9.32	1.45 \pm 1.13	104.1

Table S2. MM96L venom cytotoxicity (%) ± SEM.

Species	Origin	5 µg	1 µg	0.5 µg	0.1 µg	AUC
<i>A. lubricus</i>	Africa	99.17 ± 0.44	33.39 ± 2.12	0.34 ± 0.34	0.00	51.95
<i>A. scutatus</i>	Africa	100.00	27.93 ± 2.69	0.07 ± 0.07	0.00	48.95
<i>B. fasciatus</i>	Asia	98.77 ± 0.16	8.54 ± 4.27	4.81 ± 2.44	0.00	41.71
<i>D. polylepis</i>	Africa	18.60 ± 3.59	7.06 ± 4.28	0.05 ± 0.05	0.26 ± 0.26	54.24
<i>E. boulengeri</i>	Asia	78.22 ± 6.47	61.74 ± 4.07	59.11 ± 4.79	15.38 ± 1.49	106.6
<i>E. s. longicauda</i>	Asia	50.53 ± 11.64	32.29 ± 4.10	21.69 ± 5.55	6.49 ± 1.95	81.5
<i>E. s. sundevalli</i>	Asia	67.08 ± 10.75	60.28 ± 3.84	39.56 ± 6.97	9.12 ± 1.66	105.3
<i>H. haemachatus</i>	Africa	99.69 ± 0.12	100.00	100.00	16.02 ± 3.29	134.8
<i>N. annulata</i>	Africa	6.71 ± 2.19	0.00	3.34 ± 2.36	1.79 ± 1.79	69.2
<i>N. annulifera</i>	Africa	100.00	99.94 ± 0.06	76.75 ± 4.88	0.00	123.3
<i>N. atra</i>	Asia	99.94 ± 0.03	99.97 ± 0.03	100.00	19.26 ± 1.15	134.9
<i>N. haje</i>	Africa	100.00	70.57 ± 4.09	6.62 ± 3.49	4.80 ± 1.54	70.45
<i>N. kaouthia</i>	Asia	100.00	100.00	100.00	3.12 ± 0.49	134.9
<i>N. melanoleuca</i>	Africa	100.00	89.70 ± 4.27	3.46 ± 1.66	0.00	81.53
<i>N. mossambica</i>	Africa	99.91 ± 0.08	100.00	99.65 ± 0.32	2.43 ± 2.43	134.7
<i>N. naja</i>	Asia (India)	99.69 ± 0.16	100.00	100.00	22.43 ± 3.5	134.8
<i>N. naja</i>	Asia (Pakistan)	98.77 ± 0.16	100.00	100.00	15.59 ± 1.87	134.4
<i>N. nigricollis</i>	Africa	99.95 ± 0.05	100.00	100.00	31.79 ± 5.79	134.9
<i>N. nivea</i>	Africa	99.97 ± 0.03	80.01 ± 5.87	24.09 ± 11.81	1.04 ± 1.04	86.51
<i>N. oxiana</i>	Asia	99.95 ± 0.05	100.00	79.70 ± 7.14	9.37 ± 4.70	123.7
<i>N. pallida</i>	Africa	99.26 ± 0.16	100.00	94.93 ± 5.07	3.57 ± 2.11	132.1
<i>N. philippinensis</i>	Asia	100.00	99.97 ± 0.03	29.05 ± 7.64	0.00	99.46
<i>N. siamensis</i>	Asia	100.00	100.00	99.98 ± 0.02	84.74 ± 3.17	134.9
<i>N. sumatrana</i>	Asia	99.95 ± 0.05	100.00	99.65 ± 0.35	3.48 ± 1.04	134.8
<i>O. hannah</i>	Asia (Cambodia)	100.00	100.00	61.19 ± 8.20	2.38 ± 1.19	115.1
<i>O. hannah</i>	Asia (Java)	99.31 ± 0.61	86.12 ± 3.02	62.73 ± 4.46	18.64 ± 7.21	104.1
<i>O. hannah</i>	Asia (Malaysia)	100.00	100.00	86.78 ± 7.13	12.18 ± 2.24	127.4
<i>O. hannah</i>	Asia (Thailand)	100.00	95.88 ± 2.13	75.26 ± 6.44	7.75 ± 4.63	119.3
<i>W. aegyptia</i>	Africa	60.64 ± 1.75	7.05 ± 1.75	0.00	0.00	40.77