



African Snakebite Institute

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REPTILE NEWS

Snake Venom

People often want to know what snake has the most potent venom. Historically the venom of snakes (and many other creatures – of the 100,000-odd venomous creatures on the planet less than 2% are venomous snakes) was tested on animals, more specifically mice and rats. It seems these tests are becoming less popular nowadays, perhaps because of animal ethics.

So testing snake venom on mice obviously gives good comparative results but not necessarily an indication of how the venom will affect humans. Some snakes have prey-specific venoms, in other words venom that is designed to be most effective on specific prey animals. One that comes to mind is the Black-headed Centipede-eater (*Aparallactus capensis*). I wrote a small note on the potency of the venom of this snake for the newsletter of the Herpetological Society of Africa about a year ago after I got one bite onto my finger and letting it chew away for about 5 minutes. The symptoms very minor with a bit of itching, minimal swelling and a sore finger for a day or two. However, when this snake bites its prey, the centipede dies almost instantly!

This is my understanding of how the test, known as a LD 50, is conducted on mice and rats. Minute quantities of a specific snakes' venom are weighed out and injected into mice or rats using 100 individuals per experiment. The moment enough venom is injected to kill 50 of the 100 rodents, the LD 50 for that venom has been established and is usually represented as mg/kg animal. I have been going through a great deal of literature to obtain some accurate figures for Southern African snakes and this is no easy task as different measures are used in different experiments. Some of the LD 50's are reflected for intramuscular injections, other for intravenous injections or as intra-peritoneal injections (injected into the membrane that lines the walls of the abdominal cavity).

One of the deadliest snakes in the world, on the LD 50 scale, is the Australian Taipan (*Oxyuranus microlepidotus*) with a subcutaneous LD 50 of 0.025 mg/kg followed by the Australian Eastern Brown Snake (*Pseudohaja textilis*) which has a LD 50 of 0.0365 mg/kg. Then there are several sea snakes with extremely toxic venoms including the Yellow-bellied Sea Snake (*Pelamis platurus*) with a LD 50 of 0.067 mg/kg. This is the only sea snake found off our shores but is very seldom seen as it is a pelagic sea snake that lives in streams within the ocean and far off our coast. The odd individual gets washed up during storms but such individuals are usually battered by waves and close to dead.

The Black Mamba (*Dendroaspis polylepis*) has a LD 50 of 0.32 mg/kg and the Cape Cobra (*Naja nivea*) one of 0.72 mg/kg, about the same strength of that of the West African Green Mamba (*Dendroaspis viridis*). The venom of the Rinkhals (*Hemachatus haemachatus*) has an LD 50 of 2.65 mg/kg, more potent than that of the Green Mamba (*Dendroaspis angusticeps*) at 3.05 mg/kg. What also interests me is how much venom snakes possess at any one time and how much is needed to kill an adult human. The Black Mamba has 100-400 mg of venom and needs about 10-15 mg to kill an adult whereas the Green Mamba has 60-100 mg and also needs about 10-15 mg for a lethal bite. The Cape Cobra has 120-250 mg of venom and needs 15-20 mg for a lethal bite compared with the Rinkhals that has 80-120 mg and needs 50-60 mg. The Gaboon Adder (*Bitis gabonica*) has the largest venom yield of our snakes at 400-650 mg and needs 90-100 mg for a lethal bite. The Boomslang (*Dispholidus typus*) has minute venom glands with 1.8-8 mg of venom and needs a mere 0.07 mg for a lethal bite – less venom than what one can see with the naked eye. But they are back-fanged and very seldom bite. Don't forget that most snakes have full control over their venom glands and can bite without injecting any venom whatsoever.

Courses

The next Snake Awareness and Venomous Snake Handling Course in **Gauteng** will be at **Heia Safari Ranch** on Saturday **01 March 2014**.

The next **KZN** Snake Awareness and Venomous Snake Handling Course will be at **PheZulu Safari Park** on Saturday **22 February 2014**.

The next **Cape Town** Snake Awareness and Venomous Snake Handling course will be at **Butterfly World** on Saturday **12 April 2014**.

Snake Handling Equipment, Books and Posters

For a full list of the above equipment and books, go to <http://www.africansnakebiteinstitute.com/Snake%20Handling%20Equipment%20Dec%202013.pdf>.

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