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A study of cytotoxin of the Sri Lankan cobra

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Highest fatality rate of snakebites in the world has been reported in Sri Lanka. The cobra (Naja naja naja) is one of the most dangerous species in the Indian subcontinent. Anti venom serum (AVS) produced in India is the only effective therapy available for treatment of snake bite. Anaphylaxis can be fatal unless emergency treatment is given. At this juncture, it is worthwhile to investigate the composition of the toxins of Sri Lankan cobra and find out their homogeneity to Indian species.

In this study, venom was collected from captured reptiles reared at the reptile facility in the Medical Faculty University of Peradeniya. Crude venom was purified by chromatographic methods and the purified product was subjected to protein sequencing. The cytotoxin of the Sri Lankan cobra which is responsible for tissue reactions and haematological changes after envenomation was analysed and in order to clarify the structural relationship among them, amino acid sequence of cytotoxins determined in this study were compared with those of cytotoxins already reported in other naja species.

The amino acid sequences of the cytotoxin, present in the Sri Lankan cobra is different from other Asian cobras. It is much closer to Naja naja oxiana. This study supports the view that there are genetical differences between the Sri Lankan and Indian naja species. It is beneficial to analyse the major toxins of our endogenous snakes and produce antivenom specific to species in Sri Lanka, thereby helping to reduce the high fatality due to snakebite.