

***In vitro* Cytotoxicity Assay on Venom of Highly Venomous Snakes in Sri Lanka**

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Highly venomous snakes cause significant morbidity and mortality in Sri Lanka. Indian polyvalent antivenom currently used as treatment for snake envenomation is sometimes unsuccessful due to its non-specificity to snake venoms of Sri Lanka. Therefore, venom toxicity studies on highly venomous snakes of Sri Lanka are important. The protein concentration and IC-50 of venom extracted from snakes of Sri Lanka (*Bungarus caeruleus*, *Daboia russelii*, *Echis carinatus*, *Hypnale hypnale*, *Naja naja* and *Trimeresurus trigonocephalus*) were determined. The protein concentrations of the crude venom were determined by bicinchoninic acid protein assay and the IC-50 was determined by MTT cytotoxicity assay using L929 mouse fibroblast cell lines. Protein electrophoresis using SDS-PAGE was performed to determine the most prominent protein bands in each venom. The protein concentrations were: *B. caeruleus* 4213.9 mg/ml, *D. russelii* 3905.6 mg/ml, *E. carinatus* 2594.4 mg/ml, *H. hypnale* 3655.6 mg/ml, *H. nepa* 2822.2 mg/ml, *H. zara* 3333.3 mg/ml, *N. naja* 4055.6 mg/ml, and *T. trigonocephalus* 1461.1 mg/ml. The IC-50 values obtained were: *B. caeruleus* 4.9 mg/ml, *D. russelii* 10.5 mg/ml, *E. carinatus* 42.1 mg/ml, *H. hypnale* 16.8 mg/ml, *N. naja* 1.2 mg/ml, and *T. trigonocephalus*: 13.8 mg/ml. The most prominent protein bands observed were: *B. caeruleus* 086, 070, 061, 028, 020, 016, 011, 009 kDa; *D. russelii* 113, 041, 033, 021, 013 kDa; *E. carinatus* 086, 080, 070, 061, 056, 040, 035, 030, 024, 017, 014, 012 kDa; *H. hypnale* 069, 064, 055, 029, 013 kDa; *H. nepa* 070, 065, 061, 053, 046, 043, 030, 028, 023, 013 kDa; *H. zara* - 070, 053, 037, 030, 013 kDa; and *N. naja* 113, 097, 084, 068, 013 kDa. The highest and lowest cytotoxicities were observed in venom of *N. naja* and *E. carinatus*, respectively. This preliminary study is useful for developing an effective antivenom specific to venomous snakes of Sri Lanka.

Key words: Snake venom, *In vitro* cytotoxicity, IC-50, Highly venomous snakes, Antivenom