

Thesis Title	Purification and Immunochemical Reactivity of the King Cobra ( <i>Ophiophagus hannah</i> ) Postsynaptic Neurotoxins
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## ABSTRACT

The King cobra (*Ophiophagus hannah*) is the world largest poisonous snake and is important medically in Thailand. The present study was carried out with three objectives: first, to devise an effective purification scheme for the *O. hannah* postsynaptic neurotoxins, second, to investigate whether cardiotoxins are present in this venom and third, to study the immunochemical cross-reactivity of *O. hannah* and *Naja kaouthia* postsynaptic neurotoxins.

This study has shown that the neurotoxins of *O. hannah* could be effectively purified by chromatography on a Sephadex G-50 column using 35 mM ammonium acetate buffer pH 6.5 as an eluent, followed by ion-exchange chromatography of the toxin fraction on a Biorex-70 column pre-equilibrated and

eluted with the same buffer. Five protein peaks (OH1 - OH5) were eluted from the column using a continuous gradient of 35 mM to 300 mM ammonium acetate buffer pH 6.5. These protein peaks were subjected to SDS-PAGE, HPLC and N-terminal sequence analysis. Results from N-terminal sequencing and lethality testing showed that OH4 and OH5 were *O. hannah* toxin a and b, respectively. The N-terminal sequences of the remaining peaks from HPLC did not indicate the presence of other postsynaptic neurotoxin or cardiotoxin.

Immunoblot of OH5 of *O. hannah* and neurotoxin 3 of *N. kaouthia* showed intense cross-reactivity of these toxins towards rabbit heterologous antibody prepared against the two venoms.

The simple and effective purification scheme of *O. hannah* neurotoxins reported here should be useful to the purification of this and other elapid toxins.