
**Abstract:** Many colubrid snakes, like the more venomous elapid and viperid snakes, can produce and inject an oral secretion that is toxic and may present a human health risk. However, colubrid oral toxins are produced in a Duvernoy's gland and delivered not through a hollow fang, but instead by long, often, grooved teeth under low pressure. The possible roles of Duvernoy’s secretion in functions other than rapid killing of prey make it important to know how and where this secretion is delivered during a feeding strike. We used ELISA analysis to determine the quantity and proportional distribution of Duvernoy's secretion delivered into the integument compared to the viscera during a feeding strike by the colubrid snake *Boiga irregularis*. We determined that only about 54% (1-5mg) of the secretion actually reached the viscera and that the rest remained in the integument. The amount reaching the viscera is about three to eight times the i.p. LD50 for mice, but these snakes depend more on constriction than toxins to kill their prey. Consequently, delivery of Duvernoy's secretion by *B. irregularis* is hypothesized to be part of a digestive function and its toxic properties a by-product of this role.


**Abstract:** The composition of rear-fanged colubrid snake venoms is largely unknown due primarily to the difficulty involved in venom collection. Several different methods have been used to maximize the yield of Duvernoy's secretions. The method proposed by Rosenberg (1992), which includes the use of ketamine hydrochloride anesthetic and pilocarpine to induce Duvernoy's glands secretion was used in the present study to collect venom from eight species of colubrids. Protein concentrations, using a dye-binding microassay technique, were determined for the venoms collected. Average protein concentrations ranged from 49.8-96.4%. Most yields (dry weight/snake) obtained from specimens in this study were significantly greater than yields previously reported. There was a wide range of effects that occurred due to the ketamine injections; however, all snakes recovered from the effects of the ketamine hydrochloride/pilocarpine with no apparent ill effects. Recommended doses of ketamine hydrochloride have thus been adjusted, depending on previous reactions to the drug. The use of ketamine/pilocarpine in the collection of Duvernoy's secretion collection has proven to be highly effective in increasing yields. Some caution should be observed when administering ketamine to various species of colubrids, as effects do not necessarily scale to body mass.
Venomous colubrids, which include more than 700 snake species worldwide, represent a vast potential source of novel biological compounds. The present study characterized venom (Duvernoy's gland secretion) collected from twelve species of opisthognathous (rear-fanged) colubrid snakes, an extremely diverse assemblage of non-venomous to highly venomous snakes. Most venoms displayed proteolytic activity (casein), though activity levels varied considerably. Low phosphodiesterase activity was detected in several venoms (Amphiesma stolata, Diadophis punctatus, Heterodon nasicus kennerlyi, H. n. nasicus and Thamnophis elegans vagrans), and acetylcholinesterase was found in Boiga irregularis saliva and venom, but no venoms displayed hyaluronidase, thrombin-like or kallikrein-like activities. High phospholipase A2 (PLA2) activity was found in Trimorphodon biscutatus lambda venom, and moderate levels were detected in Boiga dendrophila and D. p. regalis venoms as well as B. dendrophila and H. n. nasicus salivas. Non-reducing SDS-PAGE revealed 7-20 protein bands (3.5 to over 200 kD, depending on species) for all venoms analyzed, and electrophoretic profiles of venoms were typically quite distinct from saliva profiles. Component from A. stolata, Hydrodynastes gigas, Tantilla nigriceps and T. e. vagrans venoms showed protease activity when run on gelatin zymogram gels. N-terminal protein sequences for three 26 kD venom components of three species (H. gigas, H. torquata, T. biscutatus) and one 3.5 kD component (T. nigriceps) were also obtained, and the 3.5 kD peptide showed apparent sequence homology with human vascular endothelial growth factor; these data represent the first sequences of colubrid venom components. Protease, phosphodiesterase and PLA2 activities are also common to elapid and viperid snake venoms, but it is apparent that numerous other (as yet undescribed) components make up the majority of colubrid venom proteins. The complex nature of venoms produced by most species surveyed, and the high levels of protease or phospholipase A2 activity of some venoms, suggest that many colubrids could become an important source of human health concern as encounters with these snakes increase.

Herpetofauna 12:16-22.

Abstract: Aggregation of numbers of snakes are a common occurrence and well documented in most parts of the world, particularly amongst species of the genus *Crotalus* in the America's where aggregations of over one thousand individuals have been recorded (Klauber, 1972). Presented here are recorded occurrences of aggregation in *Typhlina sp.* presumably *nigrescens* (Blind snake), *Typhlina wiedii*, *Morelia spilotes spilotes* (Diamond python), *Biota irregularis* (Brown Tree Snake), *Demansia psammophis* (Yellow-faced Whip Snake), *Furina diadema* (Red-naped Snake), *Cryptophis nigrescens* (Small-eyed snake), and *Pseudonaja textilis* (Eastern Brown Snake). To my knowledge, aggregation in *Typhlina wiedii* and *Pseudonaja textilis*, have never been previously recorded. In all aggregations, the individual snakes found were typical specimens for their species in terms of health, bodily size, colouration and form. In none of the aggregations were the snakes sexed, nor was it determined how recently any of the snakes in the aggregations had fed.


Abstract: Pests. Normally, when we think of them, we picture giant cockroaches, stealthy rats, buzzing flies, or grain munching locusts. Yet, in the world of snakes, there exists an animal that has earned the moniker of pest with a vengeance. It flourishes on the island of Guam, and is responsible for the extinction or extirpation of 9 of the 11 species of native birds on the island, several of which were unique there. It has racked up more than 200 snake bite victims at the local hospital, mostly infants and toddlers bitten in their beds while they slept. Over 1,200 power outages have been caused by this unassuming serpent.