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ABSTRACT

Venom is a key evolutionary trait, as evidenced by its widespread convergent evolution across the animal kingdom. In an escalating prey-predator arms race, venoms evolve rapidly to guarantee predatory or defensive success. Variation in venom composition is ubiquitous among snakes. Here, we tested variation in venom activity on substrates relevant to blood coagulation amongst *Pseudonaja* (brown snake) species, Australian elapids responsible for the majority of medically important human envenomations in Australia. A functional approach was employed to elucidate interspecific variation in venom activity and all nine currently recognised species of *Pseudonaja*. Fluorometric enzymatic activity assays were performed to test variation in whole venom procoagulant activity among species. Analyses confirmed the previously documented ontogenetic shift from non-coagulopathic venom in juveniles to coagulopathic venom as adults, except for the case of *P. modesta*, which retains non-coagulopathic venom as an adult. These shifts in venom activity correlate with documented ontogenetic shifts in diet among brown snakes from specialisation on reptilian prey as juveniles (and throughout the life cycle of *P. modesta*), to a more generalised diet in adults that includes mammals. The results of this study bring to light findings relevant to both clinical and evolutionary toxinology.