

Hyaluronidase activities from bothropic snake venoms and identification of a cDNA sequence from *Bothrops pauloensis* venom gland transcriptome

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**Abstract:** Since snakes need to kill more quickly and efficiently their prey, the systemic delivery of the main toxins of the venom is required in order to cause the lethal effects. Thus, these toxins enter in the circulatory system of the victim through the action of some enzymes which degrade the extracellular matrix (ECM). Hyaluronidase is known as “spreading factor” in snake venoms because it catalyzes the breakdown of hyaluronan, the major component of ECM. The present work compares the hyaluronidasic activity from different brazilian bothropic snake venoms and also identifies a cDNA sequence coding for this enzyme from *Bothrops pauloensis* venom gland transcriptome. All snake venoms assayed, except *B. atrox*, were able to hydrolyze the hyaluronic acid by zymography assay, additionally *B. pauloensis*, *B. moojeni*, *B. alternatus* and *B. leucurus* snake venoms presented high hyaluronidase activity by turbidity. The product from amplification by PCR produced a cDNA fragment that codifies for a mature protein of 157 amino acids residues, corresponding to a theoretical pI of 9,58. Our sequence was aligned with two other truncated hyaluronidasas from *Echis carinatus* and *Bitis arietans*, resulting in 122 conserved amino acids. This is the first description of a cDNA sequence of hyaluronidase in brazilian snake venom, which opens new perspectives for structure relationships with the function of this enzyme in the poisoning.

**Keywords:** *Bothrops pauloensis*, hyaluronidase, transcriptome.

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