Purification and Characterization of a New Toxin From 
*Tityus serrulatus* Venom

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*Tityus serrulatus* (Ts) is the scorpion species most common in Brazil. Besides it presents a strong scientific interest thanks to the variety of peptides and neurotoxins present in its venom, able to specifically bind to voltage-gated potassium (Kᵥ) or sodium (Naᵥ) channels. Kᵥ channels are involved in several physiological processes and toxins able to interact with them can be considered as models for the design of therapeutically useful molecules. Therefore, this study was aiming at the purification and characterization of a new toxin from Ts venom. The crude soluble venom was initially fractionated by a modification of the classical method described by Arantes et al. (1989) and adapted for high-performance liquid chromatography (HPLC). The active fraction was submitted to two additional chromatographic steps on reverse phase C18 column and a pure protein was isolated. Edman degradation sequencing revealed that it is a novel toxin from Ts venom with three disulfide bridges and a mass of 5,522.99 Da. It was submitted to a wide screening on 11 different subtypes of Kᵥ channels, using electrophysiological experiments and voltage-clamp with two microelectrodes on *Xenopus laevis* oocytes. The new toxin shows to interact with potassium channels, blocking Kv1.2, Kv1.3 and hERG channels with a high potency.

Key Words: *Tityus serrulatus*, potassium channel toxins, scorpion venom

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