

## Abstract

Venoms were collected from two scorpion species: *Parabuthus leiosoma* and *Parabuthus pallidus* from Kenya. Subcutaneous injection and oral toxicity tests of crude and pure fractions of scorpion venoms were done in *Mus musculus* (mice), *Chilo partellus* and *Busseola fusca*. The highest activity against *C. partellus* was found in *P. leiosoma* venom (LC<sub>50</sub> 0.689 mg/50 mg body weight). Bioassay-guided purification by a combination of cation-exchange (CE) and reverse-phase high-performance liquid chromatography (RP-HPLC) led to the isolation of three toxic peptides. A lepidopteran-selective toxin (*P. leiosoma* insect toxin, Plit) was isolated, and the partial N-terminal amino acid sequence (-KDGYPVDNANCKYE-) plus the molecular weight (6688.5 Da) determined. A peptide with significant insect toxicity coupled with mild effects on mice (*P. leiosoma* toxin, Plt) was isolated, and the partial N-terminal amino acid sequence (-LCEKFKVQRLVELNCVD-) plus the molecular weight (6742.5 Da) was determined. Another toxin with anti-mammalian activity (*P. leiosoma* mammal-selective toxin, Plmt), and N-terminal partial amino acid sequence of ADVPGNYPLDKNGNRYY- plus a molecular weight of 7145.5 Da was also isolated. Comparison of the partial N-terminal amino acid sequences with other toxins revealed that Plit shows high homology to other known insect toxins. Similarly, Plmt shows high homology with several birtoxin-like anti-mammalian toxins. Plt does not exhibit homology with any known scorpion toxin with combined anti-insect and anti-mammalian activity.