A Cystein Free Antimicrobial Peptide Derived from Mesobuthus eupeus Scorpion Venom Glands

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Background & Objectives: The emergence of bacterial and fungal strains resistant to conventional antibiotics made researchers interested in discvering compounds promising candidates for the development of a new class of antibiotics. Gene-encoded anti-microbial peptides (AMPs), synthesized by microorganisms as well as by multicellular organisms from both the vegetal and the animal kingdoms, are recent candidates for antimicrobial therapy. Scorpion venom consists of different types of peptides and proteins which are encoded by individual genes. The aim of this sudy is cDNA sequence amplifying of an antimicrobial peptide from the scorpion Iranian Mesobuthus eupeus venom glands.

Methods: Scorpions of the species *M. eupeus* were collected from Khuzestan province and killed two days after manual extraction oftheir venom to allow the toxin-producing cells of the venom glands to enter the secretary phase. Follow total RNA was extracted from the venom glands. Then cDNA was synthesized with extracted total RNA as template and modified oligo(dT) as primer. Semi-Nested RT-PCR was done with the specific primers that have been designed based on conserved sequence of *M. martensii*.

Results: Five mg of total RNA from 0.5 g of tissues were obtained using RNX Regent (Cinagen, Iran) according to the standard protocol. Using RT-PCR technique, we amplified a 238 bp cDNA fragments encoding for 74 amino acid residues with a calculated molecular mass of 8541.33 dalton and theoretical pI of 8.89. Any Cystein residue was found in amino acid sequence of this peptide.

Conclusion: *M. eupeus* have an antimicrobial peptide in its gland. This peptide is a Cystein-free antimicrobial peptide. So it might have a specific configuration in its third and fourth structure that is different from most other anticmicrobial peptides such as Mucines, Lysozyme C, etc.

Keywords: *Mesobuthus eupeus*; Antimicrobial Peptide; Semi-Nested RT-PCR