Abstract

Scorpion *Androctonus crassicauda* (*A. crassicauda*), Arabian fat tailed scorpion, is from the family Buthidae. It lives in horizontal burrows, dry soil, desert regions or rodent burrows of different countries such Turkey, Iran, Yemen, Iraq, Syria, Egypt, Saudi Arabia and Jordan (Amman, Qaser Amra as well as in Aqaba).

A little is known about *A. crassicauda*’s venom. Several gene sequences obtained from this scorpion suggest the presence of three distinct groups of peptides, among which are peptides similar to sodium -channel specific toxins of other scorpions, and a new type of peptide was identified with odd number of cysteine (seven), allowing the formation of heterodimers with molecular masses in the range of 16,000 atomic mass units (a.m.u.). The scorpion’s venom reduces cell viability in neuroblastoma cell lines (SH-SY5Y), breast cancer cell lines (MCF-7) and leukemia cell lines (K562). It also enhances endothelium-dependent relaxations that are induced by Acetylcholine (ACH) in phenylephrine- pre-contracted arteries.

The purpose of the study was to examine the effect of some fractions of the venom on prostate cancer cell lines in addition to their anti-microbial activity. And examine the antimicrobial activity of the whole venom.

Lyophilized water soluble *A. crassicauda*’s venom was fractionated using reverse high performance liquid chromatography (HPLC) method at a flow rate of 1 ml/min. Fractions of 1 ml from minute 60 till 111 were collected at 1 min interval, then the acute cytotoxic effect of the fractions against prostate cancer cell lines PC3 was determined using MTT assay. Finally, a preliminary study was performed to evaluate the antimicrobial activity against Gram positive and Gram negative bacteria of the whole venom and its fractions using the disc diffusion method.

Some fractions, especially the fraction which was collected on minute 77, have cytotoxic effect against prostate cancer cell lines. On one hand the venom as a whole has good activity on Gram positive and Gram negative bacteria, but on the other hand, the fractions of this venom exhibit a weak activity on Gram positive and Gram negative bacteria.

Cytotoxic Activity Against Prostate Cancer Cell Line and Antibacterial Action of Peptides from the Venom of

*Androctonus crassicauda*

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