Identification and Purification of BS413 Neurotoxin from Iranian Scorpion *(Buthotus Schach)* Venom

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ABSTRACT

Introduction: Scorpion venoms contain a variety of peptides, toxic to mammals، insects and crustaceans and are the main factors in scorpion venom toxicity (their amount being 1-3% of total venom). Most of the scorpion toxins have been isolated from the venoms of scorpions in the Buthidae family. The scorpion *Buthotus Schach* of this family is widely found in the western regions of Iran, but no published articles has studied its venom properties. Therefore, in this study, we aimed to isolate and purify mammalian toxin from the venom of the scorpion *Buthotus Schach* present in Iran.

Material and methods: The crude venom was dialyzed against deionized water for 48 hours and centrifuged in order to separate soluble proteins from the insoluble mucoproteins, and then the soluble proteins were applied to a Sephadex G-50 gel filtration. The toxicity of each fraction was determined by I.V injection to mice and toxic fraction was further purified by two steps ion-exchange and **RP-HPLC** chromatography. The purity of the final toxic protein fractions was checked and confirmed by RP-HPLC column & **SDS-PAGE**.

Results: LD50 of crude venom in mice was 84µg/mice and contained at least 20 peptides from high molecular weight to low molecular weight of which only one showed toxicity to mice and was isolated and purified as one neurotoxin، termed BS413. LD50 of this toxin was 3.67 µg/mice with a molecular weight of 6700 Da, determined by SDS-PAGE.

Conclusion: This study showed that the main factor in the toxicity of scorpion (*Buthotus Schach*) venom is a low molecular weight neuritoxic peptide.

Keyword: Scorpion,Venom,Purification, Isolation,Toxin, Buthotus Schach.

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