

Immunological and antimicrobial effects of venoms of endemic species of Cyprus

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Endemic species represent a great untapped resource for a variety of bioactive agents that may have great potential for many applications. In addition, a better understanding of envenomation's pathogenic mechanisms would allow the exploration of approaches to deal with this event. It has been reported that venoms are a pool of antimicrobial peptides, including against clinically relevant Gram positive and Gram negative bacteria. Many studies have also demonstrated the effect of venoms on haemolysis, inflammatory responses and the activation of the complement system. We sought to study the effects of venoms from Cypriot endemic species, the Cypriot blunt-nosed viper, *Macrovibera l. lebetina* and the scorpion *Mesobuthus cyprius*. It was found that both crude venoms at different concentrations, promote significant degradation of the C3 complement component, as shown by SDS-PAGE analysis, also generating anaphylatoxins. Furthermore, the venoms were tested for their antimicrobial activity against *Staphylococcus epidermidis*, *Streptococcus pneumoniae* and *Escherichia coli* via the microdilution method at a final concentration range of 10-300 µg/ml. Both crude venoms did not display any antimicrobial activity against the tested organisms. Further characterization and investigation of selected peptides and proteins is underway for their antimicrobial activity and effects on other complement components.

Keywords

venom; complement; snake; scorpion; antimicrobial