

7<sup>th</sup> World Congress on

# Mass Spectrometry

June 20-22, 2018 | Rome, Italy

## Mass spectrometry in the study of proteomics of iranian cobra venom and non-covalent interaction of the venom's components with *Curcumin*

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Snake venoms as natural product are mixture of biological active peptides and proteins. They are showing numerous important physiological activities in apoptosis, neurotransmission, hemostasis and signal transduction. Among all snakes, Cobra is the medically most important group, whose envenomation results in the majority snakebite mortalities for humans and their domestic animals in their respective distribution. The only treatment for preventing morbidity and mortality of snakebites is administration of antivenom. The antivenoms usually only target one or a few individual toxins, rather than the whole venom and also showed serum sickness in snakebite's victims who received medical treatment. With the marvelous development of Mass Spectrometry (MS) technology, a more in-depth understanding of venom composition has been achieved. Specifically, using advanced nano- and/or multidimensional HPLC as sample preparation methods hyphenate to ESI- and MALDI- MS. From another perspective on role of medicinal plants with antivenom activity, we used MS to find interaction between curcumin and cobra venom's components. Curcumin, as a polyphenolic compounds, is the main bioactive constituent of turmeric rhizome. A wide range of pharmacological activities, including anti-inflammatory, anticancer, anti-oxidant, anti-angiogenic, immune modulatory, prevention of Alzheimer's disease and also interfere with the replication of the HIV virus has reported. In tradition medicine, curcumin also used as antivenom agent. MS can provide accurate mass values not only of individual biological macromolecules but also of their assemblies. Thus, it can also give information on the interface sites of the Cobra venom and curcumin complex. In this regards, in this study introduces MALDI TOF MS and ESI MS accurate molecular mass results to determination of pure curcumin and complex of curcumin-toxins. We will discuss about this kind of interactions and type of venom components that candidate for these interactions.

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