

Toxicology and Pharmacology Congress: In vivo characterization of the biochemical and histological changes induced by the stonefish (*Synanceia verrucosa*) venom in rats - Ahmad M Khali - Yarmouk University, Jordan University of Jordan, Jordan

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Abstract

Statement of the Problem: The stonefish (*Synanceia verrucosa*) is one of the most dangerous venomous fishes ever known. Stonefish venom may be life-threatening to humans, envenomation can be quite hazardous, provoking extreme pain and imposing significant socioeconomic costs, as the victims may require days to weeks to recover from their injuries. Very little research has been undertaken on marine creatures, particularly venomous fish. The purpose of this study is to evaluate the toxicity of the stonefish (*S. verrucosa*) venom as well as biochemical and histological changes in a rat model. **Methodology:** Fish samples were collected by SCUBA diving from the northern sites of the Red Sea (Gulf of Aqaba/Jordan). The crude venom was extracted from the spines and biochemical and histopathological changes induced by intramuscular injection of the sub lethal dose of the venom of were examined in Sprague-Dawley rats. **Findings:** The 24h LD50 of the venom was estimated to be 38 µg venom/kg body weight. The levels of the serum biochemical markers; alanine transaminase, lactate dehydrogenase and creatine kinase increased 6 hours after administration and remained significantly high till 24 hours. Envenomed animals exhibited symptoms like convulsions, muscular dis-coordination and paralysis, urination and

respiratory failure. Envenomation caused massive damage to liver tissues. Similarly, extended treatment of rats was manifested as interstitial hemorrhage and widening of kidney tubules. Furthermore, the venom caused neuropathological alterations such as spongiosis of brain tissue and had myotoxic effect on cardiac tissues. **Conclusion & Significance:** The *S. verrucosa* venom contains edema-causing factors and is hepatotoxic, nephrotoxic, myotoxic and neurotoxic to the test rat model. The findings may encourage the health care industry to develop an indigenous anti-venom related valuable pharmaceutical product. **References** 1. Han H, Baumann K, Casewell N R, Ali S A, Dobson J, Koludarov I, Debono J, Cutmore S C, Rajapakse N W, Jackson T N W, Jones R, Hodgson W C, Fry B G, Kuruppu S (2017) The cardiovascular and neurotoxic effects of the venoms of six bony and cartilaginous fish species. Yanagihara AA, ed. *Toxins*; 9(2): 67. 2. Subramaniyan A, Saravanamurugan R, Sangeetha P (2016) Haematological and biochemical changes in lionfish (*Pterois russelii*) venom treated Swiss albino mice. *International Journal of Pharma and Bio Sciences*; 7(1): (B) 83-88. 3. Saravanamurugan R, Subramaniyan A (2015) Neuromuscular modulatory activity of lion fish *Pterois russelii* venom in mice. *Life Science Archives (LSA)*; 1(4):

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