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Investigation of *in vivo* anti-cancer potential of scorpion (*Leiurus quinquestriatus*) venom in mice via targeting markers associated with cancer development

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Cancer is the leading cause of morbidity and mortality all over the world in spite of the advances made in its management. In the present study we investigated the *in vivo* anti-tumorigenic potential of the venom obtained from a medically important scorpion species *Leiurus quinquestriatus* (*L. quinquestriatus*) on chemically induced skin carcinogenesis in mice. Animals were divided into five groups with 13 animals in each. All the treatments were given topically on the shaved dorsal surface of the skin. Animals in group 1 received vehicle only (0.2 ml acetone). 7, 12-Dimethylbenz[a]anthracene (DMBA, 400 nmol per mouse) was applied to all the animals in the remaining four groups. After one week, different concentrations of *L. quinquestriatus* venom (17.5, 35, 52.5 µg per animal) were applied to each animal in the groups III-V. 30 minutes after the application of venom, croton oil was topically applied to the animals of group III-V. Animals in group II were treated as the positive control (without venom) and received croton oil as in group III-V. The findings of the present study revealed that *L. quinquestriatus* venom inhibits DMBA/croton oil induced mouse skin tumor incidence, tumor multiplicity and histopathological changes. Immunohistochemistry results showed a down regulation of the expression Ki-67, NF-κB, and COX-2 in venom treated animals. Our findings suggest that venom of *L. quinquestriatus* has showed promising anti-cancer activity against experimentally induced skin tumorigenesis. However, further studies are warranted to facilitate development of *L. quinquestriatus* venom based anti-cancer molecules.

Biography

Abdulrahman Khazim Al-Asmari is a Senior Consultant in Clinical Biochemistry and Director of Research Center at Prince Sultan Military Medical City, Medical Services Department, Ministry of Defense, KSA. He is known for his scientific contributions in the field of drug metabolism, pharmacokinetic, cancer biology and toxicology. He is an active Researcher and has published his research work in reputed journals, author of books and book chapters. He is a Member of the Editorial Board of many journals and prestigious national and international scientific societies and committees.

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