عنوان مقاله:

Research Article : Investigating biological characteristics of two jellyfish (Rhopilema nomadica and Chrysaora hysoscella) venoms on human fibroblast

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خلاصه مقاله:

This paper aims to investigate the biological and cytotoxic characteristics of venoms extracted from Rhopilema nomadica and Chrysaora hysoscella jellyfish collected from the Persian Gulf. The cytotoxic effect of the venoms is surveyed on human fibroblast skin cells (HU۰۲) using the The MTT (۳-[۴,۵-dimethylthiazol-۲-yl]-۲,۵ diphenyl tetrazolium bromide) assay. Moreover, the protein molecular weight was determined and the toxicity test (LD۵۰) of venoms were explored on BALB/c mice. The R. nomadica venom possessed a higher protein concentration with the lowest molecular weight protein via SDS-PAGE (۱۲.۵ %) along with more peaks obtained by HPLC. In addition, the results of both LD۵۰ and MTT are affected by the venom characteristics. Besides, intravenously and intraperitoneally LD۵۰ were ۱.۲۶ and ۲.۳۵ for C. hysesella and ۰.۶۵ IV and ۱.۶ IP for R. nomadica, respectively, suggesting that R. nomadica venom was more lethal. The results of the MTT assay on Hu۰۲ fibroblast cells for ۲۴ h revealed that R. nomadica had more lethal effects on skin cells compared to C. hysoscella. Escherichia coli, whereas methicillin-resistant Staphylococcus aureus had no antibacterial activities in the presence of both R. nomadica and C. hysoscella venoms. Meanwhile, the venoms had antibacterial effects on Pseudomonas aeruginosa and S. aureus, which were still weak compared to the other reported species. Overall, R. nomadica venom was more lethal in the case of mice and human skin cells and likely with more symptoms in prey. Finally, considering the relatively high viability of different bacteria in diverse dilutions of venom, it seems that victims not only should face dermal injuries and possible scars caused by direct stings but also the presence of venomous protein on the dermal tissue may provide a cultivation medium for different kind of bacteria.

کلمات کلیدی:

Bacterial viability rate, Bradford assay, Human fibroblast skin cells [HU۰۲], Jellyfish venom, MTT assay

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