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Cytotoxic effects of *Pseudocerastes persicus* venom and its HPLC fractions on lung cancer cells

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ABSTRACT

Background: Several studies have pointed out that cer tain snake venoms contain compounds presenting cytotoxic activities that selectively interfere with cancer cell metabolism. In this study, *Pseudocerastes persicus* venom and its fractions were investigated for their antica ncer potential on lung cancer cells.

Methods: Lung cancer cells (A549) and normal fibroblast cells (Hu02) were treated with the *P. persicus* venom and i ts HPLC fractions and the cell cytotoxic effects were analyzed using MTT and lactate dehydrogenasc release assays. Apoptosis was determined in venom-treated cell cultures using caspase-3 and caspase-9 assaykits.

Results: The treat ment of cells with HPLC fraction 21 (25-35 kDa) of *P. persicus* venom resulted in high LOH release in normal fibroblast cells and high caspase-3 and caspase-9 ac tivities in lung cancer cells. These results indicate that fraction 21 induces apoptosis in cancer cells, whereas necrosis is predominantly caused by cell death in the normal cells. fraction 21 al Lhe final concentration of $10 \,\mu$ g/mL killed appruximately 60% oflung cancer cells, while in normal fibroblast cells very low cell cytotoxic effect was observed. Conclusion: HPLC fraction 21 at low concent rations displayed promising anticancer properties with apoptosis induction in the lung cancer cells. This fraction may, therefore, be considered a promising candidate for further studies.

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