

Preparation of Gramine Nanosuspension and Protective Effect of Gramine on Human Oral Cell Lines by Induction of Apoptosis

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Abstract : The objective of this study is to investigate the preparation of gramine nano suspension and protective effect of Gramine on the apoptosis of laryngeal cancer cells cell line (HEp-2 and KB). The growth inhibition rate of Hep-2 and KB cells in vitro were measured by MTT assay and apoptosis by, levels of reactive oxygen species, mitochondrial membrane potential, morphological changes and flowcytometry. Based on the results, we determined the effective doses of gramine as 127.23 μ m/ml for 24 hr and 119.81 μ m/ml for 48hr in hep-2 cell line and 147.58 μ m ml for 24 hr and 123.74 μ m μ m/ml for 48hr in KB cell line. cytotoxicity effects of gramine were confirmed by treatment of HEp-2 cell and KB cell with IC50 concentration of gramine resulted in sequences of events marked by the enhance the apoptosis accompanied by loss of cell viability, modulation of reactive oxygen species and cell cycle arrest through the induction of G0/G1 phase arrest on HEp-2 cells. Our study suggests that the nanosuspension of gramine possesses the more cytotoxic effect of cancer cells and a novel candidate for cancer chemoprevention.

Keywords : apoptosis, HEp-2 cell line, KB cell line mitochondria, gramine, nanosuspension

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